Exploring Digital Legal Landscapes

Edited by:
Gerald G. Sander, Ana Pošćić,
Adrijana Martinović

λογος

Exploring Digital Legal Landscapes

Edited by

Gerald G. Sander
Ana Pošćić
Adrijana Martinović

Logos Verlag Berlin

Reviewers:

Prof. Dr. Nataša Žunić Kovačević
Prof. Dr. Frank Fechner

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.d-nb.de .

Logos Verlag Berlin GmbH 2025

ISBN 978-3-8325-5962-5

Logos Verlag Berlin GmbH
Georg-Knorr-Str. 4, Geb. 10,
12681 Berlin, Germany

Tel.: +49 (0)30 / 42 85 10 90
Fax: +49 (0)30 / 42 85 10 92
https://www.logos-verlag.com

Foreword

The aim of this volume is to address specific theoretical and practical issues regarding different aspects of digital transformation in society. Algorithmic decision-making and artificial intelligence are among the key drivers and enablers of digital transformation. They bring about a world of opportunities, but also impose numerous novel ethical and legal issues. Unprecedented interconnectedness and access in the cyberspace, where everything is readily available, give rise to many issues concerning the transfer and impact of new technologies from the digital world on social relations in the 'real' world. There is a dichotomy between accelerated development of the digital world and limited capacities of existing institutions, communities and individuals to absorb these seemingly unlimited possibilities. New, digital legal landscapes are emerging. The purpose of law is to create legal certainty. Digitalisation erases traditional space – time divide on which the law depends and without which its purpose is at risk.

It is not an easy task to frame a public and professional discourse around certain topics related to digitalisation and the use of new technologies. They permeate every sphere of our public and private lives, and there are countless issues to be explored. There is a risk of losing focus, and leaving out of sight many hidden, unintended consequences of the transformation which is unfolding before our very eyes. An all-encompassing coverage of various aspects of the digital revolution is therefore neither feasible, nor desirable. Instead, it is important to concentrate on particular areas, identify the main challenges, and propose possible solutions, which will feed into the existing discussions in other areas affected by the digital transformation as well. The research presented in this volume is carefully selected to provide a valuable input for the framing of new regulatory policies fit for the digital world. This requires a multidisciplinary effort and approach, a collaboration and mutual understanding among researchers and practitioners in various fields. This volume therefore probes into specific issues in relation to the digital markets and competition in the digital age, labour markets in the age of AI, as well as privacy concerns and effects of digitalisation in different fields of law and the justice sector.

The authors of individual chapters are distinguished academics and researchers from universities and research facilities across Europe. Their point of intersection is their exploration of the national, European and globalised digital legal landscapes. The first chapter ("AI can save us") offers an almost prophetic

vision of the promises and perils of the use of artificial intelligence in our daily lives. Chapter 2 ("Personal Data Supplying: The Issue of Bundled Consent) provides insight into the importance and specific uses of data, as well as explore particular data privacy concerns in the digital world. Chapter 3 ("Digital Services Act, New Generation of Regulation or Regulatory Burden?") is dedicated to providing a fitness check of the new, as well as existing regulatory regimes in the field of digital services and digital markets. Chapter 4 ("Working in a Dematerialized Office Supported by Artificial Intelligence") turns to exploring the unprecedented technological developments affecting the workspace and their effect on employees. Chapter 5 ("Platform Workers – What About Their Employment Status? Slip into Indecency?!") offers a critical view of the new forms of work developed and promoted in the world of digital platforms. Chapter 6 ("Some Reflections upon the Way the Digital World is Impacting Family Law") questions the impact of the digital world on family relations. The traditional concept of the competition has been questioned in the chapter 7 ("Large Online Platforms as a Challenge for Competition Law Doctrine and a Suitable Polygon for Complexity-Minded Antitrust") while the last chapter ("Digitalisation and Modernisation of the Judiciary") deals with the impact of the technological development on the judiciary.

Editing this volume was a fantastic opportunity to collaborate with many forward-thinking scholars and practitioners who anticipated and accurately detected emerging issues at the cross-section of law and technology. Many contributions in this volume directly arise from the issues presented at the international conference "Exploring Digital Legal Landscapes" organised by the Faculty of Law in Rijeka on 11 December 2020, during the most challenging times of the COVID-19 pandemic. This is where we started our exciting exploration of these topics, which still continues five years on and has urged us to re-think the existing paradigms and examining and searching for the best possible legal solutions in the fast-evolving digital societies. It is important to keep innovating and reaping the benefits of the advances in the field of digital technology and AI, without compromising the societal wellbeing. We are thankful to all the authors who have recognised our vision and have agreed to join us and contribute to this ongoing task.

We hope that this book will serve as an illuminating and valuable source of reference for legal practitioners, academics and students, as well as for all those interested in these topics, regardless of their professional background. We are

convinced that the diversity of themes covered will attract diverse readership, and stimulate further interest and discussions.

Our special thanks goes to Narda Krnetić Blečić for her invaluable assistance in preparing the manuscripts for publication.

Ludwigsburg and Rijeka, 20 May 2025

Gerald G. Sander, *Ana Pošćić* and *Adrijana Martinović*

Contents

Artificial Intelligence Might Save Us

Matjaž Gams[*]

Abstract

Artificial intelligence has always garnered diverse social reactions: from over-optimism to extreme pessimism. A couple of years ago there was a wave of concern about the seemingly irresistible rise of superintelligence. It will make humans extinct, predicted the likes of *Stephen Hawking* and *Elon Musk*. The latter insists that AI will dominate over humans in the foreseeable future. The rise of generative AI, a game changer further intensified these concerns. Here, we look at several arguments that follow this line of reasoning but focus more on the positive aspects of expanding AI. We even argue that human civilization will end in disaster unless superintelligence comes to the rescue of the human race as a symbiotic partner. Analyses suggest that our civilization will likely destroy itself in about 10,000 years and that the chances of existing longer than this are slim. But could the solution to the problem come from an intelligence superior to our own?

Keywords: civilization dangers, artificial intelligence, information society laws

I. Introduction

Human civilization has made incredible progress in the past few decades. On the other hand, the problems associated with the environment have brought an awareness that we might be putting too much strain on our planet, and consequently the civilization itself. Perhaps, we are already irrevocably damaging our habitat. The COVID-19 pandemic has delivered us a chilling warning and a realization that we are not too mighty to fall and that it could happen in a short space of time. Remember, before the pandemic, almost nobody thought it could happen, even if *Bill Gates* warned us about it 6 years before COVID-19 during a

* Full professor, Institute „Jožef Stefan“, Ljubljana, Slovenia.

TED talk entitled: "The next outbreak? We are not ready."[1] The pandemic happened in 2020, and we were indeed not ready. We thought that we would be able to prevent the virus from spreading by tracking infected people and their contacts. We thought that the WHO would be able to control any pandemic with various tools, an advanced information society, and the latest medical science. We thought that our politicians would prevent the infection from crossing international borders and keep it local. We were wrong.

Bill Gates is one of the richest and most influential people in the world. He has devoted a great deal of time and money to point human civilization in the right direction. So why is humanity so blind to future dangers that scientists and visionaries present in a reasonable well-argued way? Do we understand the risks that accompany our progress?

What can we learn from *Elon Musk* and his warning of the dangers of superintelligence? He is probably the greatest technological genius and visionary of our times, a kind of modern *Leonardo da Vinci*. He introduced the mass production of the Tesla electric cars on our planet and is planning several space missions, including Starlink and going to Mars to avoid extinction if something catastrophic happens to our planet. He often refers to three major threats to civilization: artificial intelligence (AI), demographics, and environment. AI and related dangers to civilization are indeed the topics of this paper. It is important to understand the nature of the problems we will likely face in the near future. When scientists and visionaries like *Musk* or *Gates* provide enough arguments, trends, and warnings, the public and politicians might then have enough data to make proper decisions about the future of civilization.

After the introduction of generative AI, the dilemmas intensified, having in mind extraordinary improvements and the fear that followed them. Generative AI experienced groundbreaking advancements, significantly impacting both theoretical and applied aspects of artificial intelligence. Notably, generative adversarial networks (GANs) have enabled the synthesis of highly realistic images and videos, pushing the boundaries of content creation and machine creativity. Additionally, transformer models, such as GPT-4 by OpenAI, have revolutionized natural language processing, offering unprecedented capabilities in generating human-like text. These technologies not only enhance the capability of AI systems but also pose new ethical and governance challenges and opportunities. The development of generative AI has been extensively documented in the liter-

1 The TED talk is available at: https://www.ted.com/talks/bill_gates_the_next_outbreak_we_re_not_ready.

ature, including works by *Goodfellow* et al.[2] on GANs, and *Brown* et al.[3] on GPTs, illustrating both the rapid advancement and potential societal impact of these technologies. GPTs were particularly effective in areas such as medicine, as presented e.g. by *Oh* et al.[4] ChatGPT goes to the operating room: Evaluating GPT-4 performance and its potential in surgical education and training in the era of large language models. Annals of Surgical Treatment and Research[5], and *Watari* et al.[6] Although recent GAI achieved solving the Turing Test (*Nosta*[7]), they are still far from reaching consciousness (*Gams* et al.[8]).

In this paper, we argue that it is AI and in particular its growing power promising for superintelligence that might save us. There have been many proposals for a particular type of AI helping human society, for example[9]; however, this paper focuses on several dangers to civilization and the impact of AI. Furthermore, our analysis is based on a rather firm basis.

The future can be reasonably well predicted, at least in terms of technological and perhaps also AI progress. Unlike public discussions, this paper first lays a solid scientific and technological background with information society laws presented in Section II. Section III discusses demographical issues and the longevity of human technological civilization in Section IV. Section V deals with societal changes while Section VI concludes the paper with discussions.

---

2 *Goodfellow/Pouget-Abadie/Mirza/Xu/Warde-Farley/Ozair/Courville/Bengio* (2014), Generative Adversarial Nets. Advances in Neural Information Processing Systems, 27, 2672-2680. Available at: https://arxiv.org/abs/1406.2661. Accessed 28 April 2025.

3 *Brown/Mann/Ryder/Subbiah/Kaplan/Dhariwal/Neelakantan/Shyam/Sastry/Askell/Agarwal/Herbert-Voss/Krueger/Henighan/Child/Ramesh/Ziegler/Wu/Winter/Amodei* (2020). Language Models are Few-Shot Learners. arXiv preprint arXiv:2005.14165. Available at: https://arxiv.org/abs/2005.14165. Accessed 28 April 2025.

4 *Oh/Choi/Lee* (2023).

5 Annals of Surgical Treatment and Research, 104 (5), pp. 269-273.

6 *Watari/Takagi/Sakaguchi/Nishizaki/Shimizu/Yamamoto/Tokuda* (2023). Performance Comparison of ChatGPT-4 and Japanese Medical Residents in the General Medicine In-Training Examination: Comparison Study. JMIR Medical Education, 9.

7 *Nosta*, AI's Turing Test Moment, GPT-4 advances beyond Turing test to mark new threshold in AI language mastery, Artificial Intelligence, Psychology Today, May 17, 2024.

8 *Gams/Kramar* (2024) Evaluating ChatGPT's Consciousness and Its Capability to Pass the Turing Test: A Comprehensive Analysis. Journal of Computer and Communications, 12 (03). pp. 219-237. ISSN 2327-5219, Official URL: https://doi.org/10.4236/jcc.2024.123014.

9 *Lahsen* (2020) Should AI be Designed to Save Us From Ourselves?: Artificial Intelligence for Sustainability, IEEE Technology and Society Magazine 39 (2), pp. 60-67.

The progress in AI is bound to the progress of basic electronics, as presented in the next section.

II. Information-society laws

First, we need to understand the progress of the Information Society (IS) as the backbone of AI's progress. The easiest way is through several IS computing laws[10] since they represent the background of the overall progress. Here we present some basic computer laws that expand on our previous studies[11]:

1. *Moore*'s law[12]: The growth of the capabilities of electronic devices, e.g., chips, is exponential. As originally stated, the number of transistors in a dense integrated circuit doubles approximately every two years. While the original version of the law became saturated long ago, there are several ways to improve the performance each consecutive year, and the rule, albeit slightly modified, might continue for decades to come.

2. *Joy*'s law[13]: Peak computer speed doubles each year. Again, the law became saturated long ago, but through integrated improvements, progress continues at a rapid pace, e.g., with better algorithms.

3. *Pollack*'s law[14]: Microprocessor performance increases roughly in proportion to the square root of the increase in complexity, whereas power consumption in-

10 *Denning/Lewis* (2017) Exponential Laws of Computing Growth, Communications of the ACM 60 (1), pp. 54-65; *Mansell/Steinmueller* (2020) Mobilizing the Information Society: Strategies for Growth and Opportunity Oxford University Press Oxford; *Scholz* (2016) Sustainable Digital Environments: What Major Challenges Is Humankind Facing? Sustainability 8(8), pp. 726.

11 *Gams/Kolenik* (2021) Relations between Electronics, Artificial Intelligence and Information Society through Information Society Rules, MDPI Electronics 10 (4) 514, p. 16; *Gams* et al. (2019) Artificial intelligence and ambient intelligence Journal of Ambient Intelligence and Smart Environments 11 (1), pp. 71-86.

12 *Moore* (1965) Cramming more components onto integrated circuits Electronics 38, pp. 114-117.

13 *Moore* (1965) Cramming more components onto integrated circuits Electronics 38, pp. 114-117.

14 *Borkar/Chien* (2011) The Future of Microprocessors. Commun. ACM 54, p. 67.

creases roughly linearly in proportion to the increase in complexity. This law indicates there is room for progress.

4. *Bell*'s law[15]: Roughly every decade, a new, lower-priced computer generation forms, based on a new programming platform, network, and interface.

5. *Kryder*'s law[16]: Disk capacity grows exponentially, even faster than Moore's law.

6. *Makimoto*'s law[17]: There is a 10-year cycle between research in chip design and standardization, meaning that we can see future commercial capabilities by examining today's research facilities.

7. *Keck*'s law[18]: Communication capabilities grow exponentially.

8. *Gilder*'s law[19]: Telecommunication capacity triples every three years, and the bandwidth grows faster than computing power.

9. *Koomey*'s law[20]: The number of computations per joule of energy dissipated has been doubling in less than 2 years.

---

15 *Bell* (2008) Bell's Law for the Birth and Death of Computer Classes. Commun. ACM 51, pp. 86-94.

16 *Chip* (2005) Kryder's Law. Sci. Am. 293, pp. 32-33; *Antoniazzi* (2020) Digital preservation and the sustainability of film heritage. Inf. Commun. Soc., pp. 1-16.

17 *Salvadeo/Veca/López* (2012) Historic behavior of the electronic technology: The Wave of Makimoto and Moore's Law in the Transistor's Age. In: Proceedings of the 2012 VIII Southern Conference on Programmable Logic, Bento Goncalves, Brazil, 20-23, pp. 1-5; *Hruska* (2021) How Makimoto's Wave Explains the Tsunami of New AI Processors. https://www.extremetech.com/computing/287137-how-makimotos-wave-explains-the-tsunami-of-specialized-ai-processors-headed-for-market. Accessed 28 April 2025.

18 *Hecht* (2021) Is Keck's Law Coming to an End? After Decades of Exponential Growth, Fiber-Optic Capacity May Be Facing a Plateau. https://spectrum.ieee.org/semiconductors/optoelectronics/is-kecks-law-coming-to-an-end. Accessed 28 April 2025).

19 *Wilson* (2021) Computing, Communication, and Cognition. Three Laws That Define the Internet Society: Moore's, Gilder's, and Metcalfe's. http://www.jackmwilson.net/Entrepreneurship/Cases/Moores-Meltcalfes-Gilders-Law.pdf. Accessed 28 April 2025.

20 *Koomey/Berard/Sanchez* et al (2010) Implications of Historical Trends in the Electrical Efficiency of Computing. IEEE Ann. Hist. Comput. 33, pp. 46-54.

10. *Neven*'s law[21]: Quantum computers are gaining computational power at an exponential rate. Quantum supremacy was declared by Google in October 2019. In October 2020, quantum supremacy was reclaimed by Chinese researchers[22], although none of the supremacy claims were universally accepted.

Besides technological, there are several social and economic laws; here we mention only one:

11. *Gams*'s law[23]: The cyberworld double fortune. The fortune can be real or fictitious, such as cryptocurrency. First presented in 2002, the observed economic law was lectured at the national economics faculty. It starts with an example of a transition on a remote island where native inhabitants trade natural goods like pigs and coconuts. At one point, a modern king introduces paper money, establishing their fictitious currency, Illa, each equivalent to one pig. Accounting for both natural resources and the newly introduced paper money, the island's total wealth doubles since the number of published Illas corresponds to the number of pigs. If neighboring islands accept this currency, the king can significantly increase the issuance of paper money and acquire substantial goods from abroad. Over time, the king's successor introduces BIlla, a Bitcoin-like version of their paper currency Illa. This cycle repeats, allowing the current king, or rather the business elite, to substantially increase their wealth. This example illustrates the dynamics in the net economy, explaining why virtual money amplifies wealth, why elites become progressively richer, and why the fictitious or "normative" standard may not directly correspond to the real status of netizens. For instance, the netizens on the fictitious island have the same number of physical pigs and coconuts at the end of the story as they did at the beginning. As the elites' wealth increases, the average islander ends up with less than they started. Nevertheless, progress leads to improved production of physical pigs and other goods, keeping the middle class more or less at the same level while overall wealth increases. Once more, it should be noted that nominal wealth is significantly different from actual wealth in terms of "virtual" and physical pigs and coconuts. Like many economic laws, this one is not directly tied to technological

21 *Hoshida* (2021) Moore's Law Is Replaced by Neven's Law for Quantum Computing. https://community. hitachivantara.com/s/article/moores-law-is-replaced-by-nevens-law-for-quantum-computing. Accessed 28 April 2024).

22 *Letzter* (2020) China Claims It's Achieved 'Quantum Supremacy' With the World's Fastest Quantum Computer. https://www.sciencealert.com/china-has-developed-the-fastest-and-most-powerful-quantum-computer-yet. Accessed 28 April 2025.

23 *Gams/Kolenik* (2021) Relations between Electronics, Artificial Intelligence and Information Society through Information Society Rules, MDPI Electronics, 10 (4) 514, p. 16.

advancements and is therefore differently time-dependent compared to, for example, Moore's law.

The progress in hardware related to research and production is hard to comprehend. Consider the total production of semiconductor devices: according to[24], transistor production reached 2.5 × 10^20 as early as 2014. In comparison, the Milky Way has a diameter of between 100,000 and 180,000 light years, contains 100–400 billion stars, and about the same number of planets. In summary, we have produced many transistors per meter of our galaxy's diameter and several billions of transistors per star in our galaxy.

In terms of the current progress in hardware, it is important to note that the basic laws in the initial form became saturated long ago. On the other hand, progress remains exponential in nature due to novel improvements, and there are plenty of potential new improvements, guaranteeing exponential progress in future decades.

This exponential growth is also demonstrated when considering the progress of artificial intelligence. If we look at cars from two decades ago or computer vision, programming capabilities, and robots, and then extrapolate that progress a couple of decades into the future, we humans will be left behind in most, if not all, tasks. Superintelligence will probably emerge quickly after the emergence of general artificial intelligence and the ability of AI to re-code itself. The immense power of AI in the near future is very probably, if not certainly, guaranteed by the IS laws, which represent elemental support for AI's progress.

III. Human progress through demographic changes

While the trends in IS strongly support the continued success of human civilization, there are several growing concerns, such as environmental problems. More importantly, demographic trends provide reasons for great concern in the decades, and even more so for the centuries, to come. Not only that, but they are very likely also the basic cause of global warming.

24 *Croswell* (2020) Astronomers have found the edge of the Milky Way at last. Available at: https://www.sciencenews.org/article/astronomers-have-found-edge-milky-way-size. Accessed 28 April 2025.

As *Malthus* already pointed out[25], the growth of humans and animals alike is exponential in nature until the limits of growth are met. If the birth rate, e.g., fertility, is greater than the sustainable 2.1 children for a woman, the population will exceed all limits within a certain time. If the birth rate is smaller than 2.1, the population will eventually implode to 0.

In terms of demographic changes in the 20th century, there was a clear exponential growth after World War II. Figure 1 indicates not only the exponential growth of the human population but also the exponential growth of animal extinctions. We humans are already overpopulating our planet, causing havoc among animals, plants, and the environment.

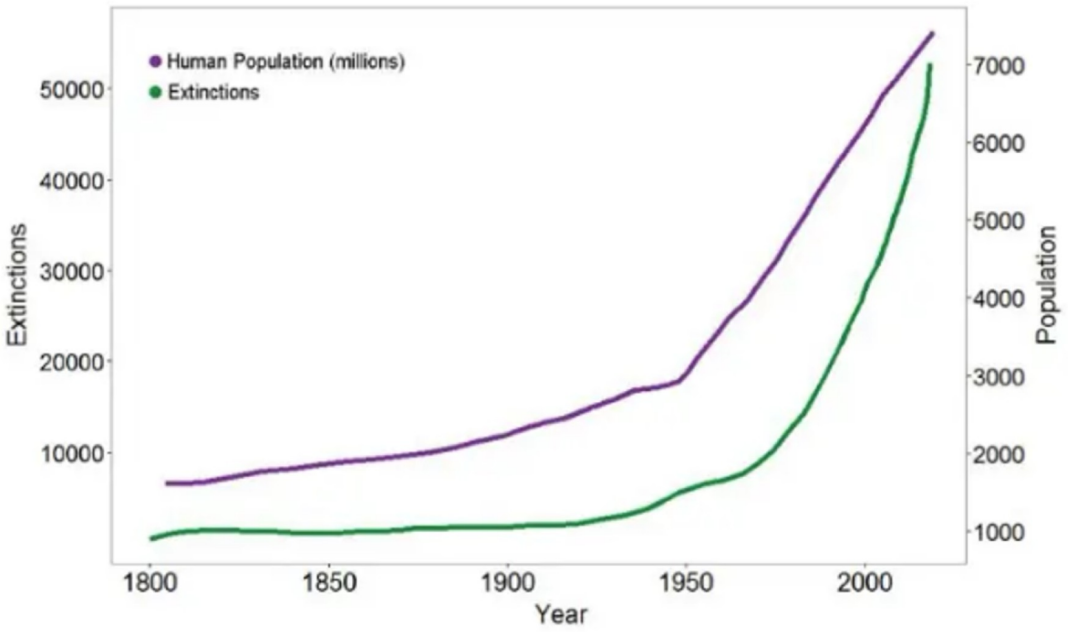

Fig. 1. Growth of human population and animal extinction.
Source: Scott 2008. Threats to Biological Diversity: Global, Continental, Local. U.S. Geological Survey, Idaho Comprehensive Fish and Wildlige, Research Unit, University of Idaho

With a fertility rate of about 5, as in the 20th century, the human population would reach 1 person per m2 of Earth in 13 generations. In 40 generations, there would, in theory, be 1 person per kilogram of our planet, which is impossible[26]. At the same time, animal extinction is 100 times faster than it was a century ago. In the past 40 years, the number of animals has reduced by 50%. A study in

25 *Svizzero/Tisdell* (2015) The Malthusian Trap and Development in Pre-Industrial Societies: A View Differing from the Standard One. ResearchGate, University of Queensland.

26 *Gams/Malačič* (eds.) (2019) White book of Slovenian demography (in Slovene). Jozef Stefan Institute, Ljubljana.

Germany reported that in 27 years there were 75% fewer flying insects reported. It is reasonable to infer that our population growth is unsustainable over the longer term[27].

On the other hand, several demographic studies[28] predict that the world's population growth will stop in around 2060 and the population will later decline rather fast, which means the mechanisms that slow and reverse our growth are already triggered and effective. This report was in one of the world's best journals, The Lancet[29], and was supported by the Melinda and Bill Gates Foundation. *Bill Gates* is also working on demographic issues, in particular on how to stop the exponential growth of the human population. However, the tide is turning, the number of newborns in the world has not been growing anymore for the past two decades and the human population is still increasing mainly due to longer life spans and inertia. Most of the countries in the world have fertility rates that are lower than the sustainable level.

A new danger that is becoming evident to some demographic researchers and visionaries like *Elon Musk* is the implosion of many nations in the world, and potentially also of civilization. However, it is not that there is a real danger of human extinction in the foreseeable future, it is elsewhere. The problems several countries are already facing are related to a reverse demographic pyramid, with too many elderly and too few young people in the workforce. The negative consequences cause many problems, including an overloading of the younger generation and a "sclerotic" society with declining quality of life, courage, and a diminishing desire to go to other planets.

Surprisingly, these observations still cause disbelief and public rejection[30]. But the danger of extinction for smaller nations and languages in a couple of hundred years is real and pending and will lead to a reduction of the world's cultures, languages, genetic subgroup biodiversity, and the overall richness of human civilization. One world, speaking one language, would be much poorer in the mental, cognitive, genetic, and cultural senses.

While it does not seem very likely that these demographic trends will destroy the progress of human civilization soon, we consistently underestimate the

---

27 *Kolbert* (2014) The Sixth Extinction: An Unnatural History. Henry Holt and Company, New York.

28 *Vollset* et al. (2020) World population likely to shrink after mid-century, forecasting major shifts in global population and economic power. The Lancet, 396, pp. 1285-1306.

29 *Vollset* et al. (2020) World population likely to shrink after mid-century, forecasting major shifts in global population and economic power. The Lancet, 396, pp. 1285-1306.

30 *Gams* (2018) Presentation at a council meeting on demography in the National Council on demography, https://www.youtube.com/watch?v=A4rai9zoNg0.

dangers, as demonstrated in the case of the COVID-19 pandemic. Honestly, no scientist can predict which of the dangers to civilization is the one to primarily look out for, and it might as well be the demography. Like demography, the most challenging dangers are still lurking in the back of our minds, but might be real and forthcoming as can be estimated through the ominous future for civilization in the next section.

As we explore the multifaceted impact of AI on society, recent developments in generative AI have demonstrated its potential to address complex societal challenges. Generative models are now being applied to simulate demographic changes, predict environmental impacts, and model epidemiological trends. Such applications are crucial for planning and decision-making processes in policy and governance. The adaptability of generative AI in these areas was *highlighted* in recent studies by *Brock* et al. (2019)[31], which discuss the use of GANs in synthetic population modeling, and by *Wu* et al. (2021)[32], who explore the application of deep learning for predictive analytics in public health. These advancements underscore the expanding role of generative AI in providing solutions that are not only innovative but also imperative for sustainable current development.

IV. The predicted timespan of the human technological civilization

Several authors[33] tried to predict the longevity of the human technological civilization, e.g., the one that is technologically at the level of sending data to the universe and is detectable by these means. Advanced civilizations inevitably emit some energy traces because of their activities, and these are very likely detectable. Scientists have, for decades, performed more and more advanced stud-

31 *Brock/Harish/Patel/Price* (2019). Using Generative Adversarial Networks to Assist Synthetic Population Creation for Simulations. 2022 Annual Modeling and Simulation Conference (ANNSIM), pp. 1-12.

32 *Wu/Yang/Nishiura/Saitoh* (2021). Deep Learning for Epidemiological Predictions. The 41st International ACM SIGIR Conference on Research & Development in Information Retrieval.

33 *Marinko* et al. (2020) A new study of expected human longevity. Strle et al. (eds.) Cognitive Science, vol. II., Information Society 2020, Jožef Stefan Institute, pp. 38-41; *Engler/von Wehrden* (2018) Where is everybody?' an empirical appraisal of occurrence, prevalence and sustainability of technological species in the universe. International Journal of Astrobiology 6, pp. 499-505; *Herzfeld* (2019) Where Is Everybody? Fermi's Paradox, Evolution, and Sin. Theology and Science, 3, pp. 366-372.

ies to find other civilizations, they investigate planets, habitable planets, and signs of life. No sign of life was detected elsewhere, except potentially on Mars, in the best case far from reaching advanced stages. No civilization was detected and from the first "Where are they" proclaimed by *Fermi* in 1950 until now, no reliable and repeatable sighting was reported. It seems that we are alone in our galaxy, or at least in our part of our galaxy[34]. That leads to two hypotheses:

- either we are indeed the first (or one of the first) technological civilizations or

- civilizations appear and disappear; therefore, are of limited time span.

Unfortunately, the probability of the first hypothesis given the age of our galaxy and the number of planets seems to be negligible compared to the second one.

The studies performed at the Jozef Stefan Institute[35] indicate that the most likely lifetime of our technological civilization is around 1,000 to 10,000 years. Figure 2 indicates that the probability density of human civilization quickly decreases with time. Most likely, we will destroy ourselves, since humans have been on Earth for millions of years and no major extinction was observed in that period. The theory that it will be AI that will destroy us does not seem reasonable. If AI overcame humans, it would very easily populate our galaxy, since robots and machines are much more durable than human flesh and brains. Yet, we do not have any contact with any intelligent being, be it a biological alien or a durable machine. It seems reasonable to conclude that no civilization so far expanded to several planets to prevent local extinction, and even stronger so that the AI and robots were the cause of extinction.

Historical findings indicate only five major extinctions happened in the history of our planet. The first one was 440 million years ago[36] and the last one was around 65 million years ago, which caused the extinction of the dinosaurs. Hence, the Earth is a relatively safe planet with many local limited disasters that

34 *Engler/von Wehrden* (2018) 'Where is everybody?' An empirical appraisal of occurrence, prevalence and sustainability of technological species in the universe. International Journal of Astrobiology 6, pp. 499-505; *Herzfeld* (2019) Where Is Everybody? Fermi's Paradox, Evolution, and Sin. Theology and Science, 3, pp. 366-372.

35 *Šircelj* et al. (2019) Expected human longevity. In Strle et al. (eds.) Cognitive Science, vol. II., Ljubljana: Information Society Jožef Stefan Institute, pp. 61-65; *Marinko* et al. (2020) A new study of expected human longevity," In Strle et al. (eds.) Cognitive Science, vol. II., Ljubljana: Information Society 2020, Jožef Stefan Institute, pp. 38-41.

36 https://www.mdpi.com/journal/geosciences/special_issues/mass_extinctions. Accessed 25 April 2025.

do not lead to a decline in civilization. More likely, a conclusion at our hand is that we humans will cause our extinction. There are lots of potential traps to fall into, from being unable to control the power we have to just a change in our orientation towards internal issues such as hedonism or internal hate and wars – and not going to other planets and stars. In the next section, we present the dangers based on human social and cultural decline, including globalization and mind laundering.

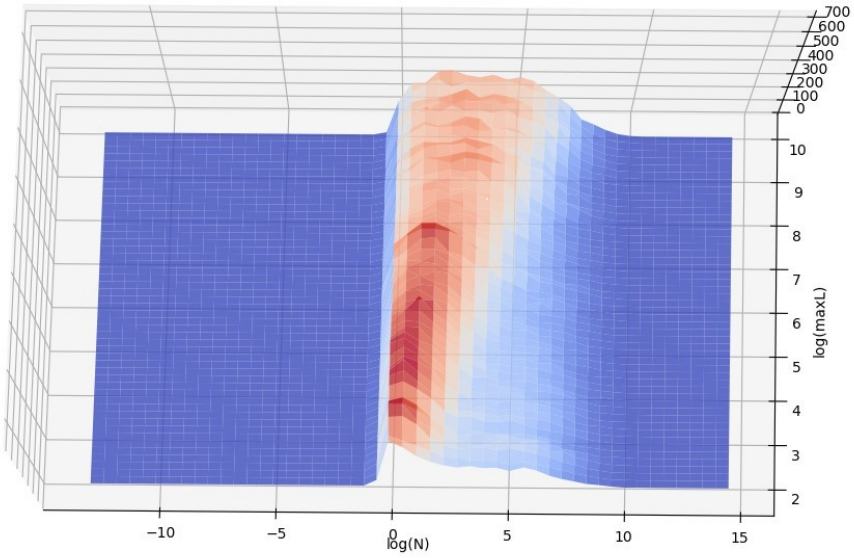

Fig. 2. Predictions of human longevity (L) depending on the number of civilizations in our galaxy (N) with one of the models designed by the author's group[37]

V. Culture/societal implosion as one of the dangers to civilization

Generally, an average civilization lasts a couple of hundred years, and only exceptions last for thousands of years, e.g., the Maya and Minoan civilizations or the Roman Empire[38]. There are many theories explaining the short periods of

37 *Šircelj* et al. (2019) Expected human longevity. In Strle et al. (eds) Cognitive Science, vol. II., Ljubljana: Information Society Jožef Stefan Institute pp. 61-65; *Marinko* et al. (2020) A new study of expected human longevity," In Strle et al. (eds) Cognitive Science, vol. II., Ljubljana: Information Society 2020, Jožef Stefan Institute, pp. 38-41.

38 *Hagger* (2008) The Rise and Fall of Civilizations: Why Civilizations Rise and Fall and What Happens When They End. Chris Fowler International; *Cartwright* (2014) The Classic Maya Collapse. https://www.ancient.eu/article/759/ (accessed 2025); *Middleton* (2017) Understanding collapse: Ancient history and modern myths. Cambridge University Press; *Wells* (2009) Apocalypse how? In Apocalypse When?, Springer 93, p. 128.

human civilizations. Some relate to climate change, the cosmos or earth-bound phenomena. An often-cited example is the Toba super-eruption around 70,000 years ago when it is estimated that only around ten thousand people survived.

In this section, however, we discuss the danger of culture-social implosion. There are some similarities with the civilization-downfall scenarios: progress stalls, people become restless/unfocused on production, tensions rise, there are no common goals/visions, and leaders become disconnected from real needs. Are there similar signs in Europe and the USA?

By studying the potential dangers of civilizations' decline or even extinction, we can stumble upon several new ones, not mentioned among the major ones by Wikipedia or scientific literature and are as such part or research. These include hyper-globalization (intensive globalization) and culture-societal implosion.

The danger to civilization of hyper-globalization deals with the problem of just one civilization: every civilization until now stalled and declined after a couple of thousand years at most. Some studies indicate that the danger of civilization collapse will increase significantly with growing globalization. The world in the form of one global village would be a potential disaster, since in the case of several civilizations, a major civilization that falls will be taken over by others. In the case of a single global civilization, the models and common sense indicate that there will be no one to reboot human progress, at least in the short term. Currently, there are still major geopolitical blocks, such as the USA, China, EU and Russia, to prevent this undesired outcome, or at least it seems so.

There is another worrying hypothesis. In recent theories[39] the downfall of all civilizations was accompanied by – if not caused by – "alienated" ideologies, e.g., those that lost contact with reality and the production process. Even though it had to be clear at least to the intellectuals/visionaries at that time (the equivalent of elites and scientists today), the society did not want to abandon the anti-productive orientations but remained on course to go down. For example, consider American Indians, who numbered 55 million at the time that Columbus landed in the Bahamas on October 12, 1492. Now there are only around 2 million of them. What is the cause – diseases, the aggression of white settlers, or an inability to adapt to new circumstances appropriately? Had they adapted based on better knowledge and decision-making, would their fate have been different?

Consider current ideologies in the USA and EU. The number of people believing in the flat-earth theory is growing, as are the anti-vaccination movements. There are also new gender theories, e.g., that there are tens of (biological)

39 Knight Foundation (2020) American Views 2020: Trust, Media and Democracy. kf.org/usviews20.

sexes. They all neglect scientific facts to some or a large degree, and still attract large numbers of people, while web-based encyclopedias are at hand for any citizen of the world. Even worse, while around a decade ago most of the encyclopedia information was trustworthy, in recent years a growing percentage of the information related to political or ideological issues became infected by fake news primarily from social media.

Again, one might ask – are these non-scientific theories a sign of a declining Western civilization? Or are they even a sign of a potential decline of the whole of human civilization? Whatever the case, there is further cultural/societal danger – mass media and social media transforming citizens into conflictual people, who do not support overall progress. Even before the pandemic, around half of all Americans (49%) indicated in questionnaires that the media is very biased, according to the *Gallup/Knight* poll "American Views 2020: Trust, Media and Democracy"[40]. The majority of the 20,000 polled Americans believed that the media are becoming propaganda tools, and 74% of them believed that the output of the media is directed by owners. Similar polls and papers indicate that a large part of the population, and in particular the younger population, is under a strong mental and cognitive influence that affects their behavior in an undesirable way.

When these brain-washing effects (i.e., coercive persuasion seducing normal people into conspiracy theories) are revealed to the groups, even students believing in some anti-scientific thesis (e.g., flat Earth), negative feelings are the most commonly demonstrated – indicating that these objectively false ideas have penetrated deeply into the system of beliefs of the individual minds, even smart young people[41]. To make things worse, online social networks, as reported in studies and events like the Facebook whistleblower at the end of 2021, turned harmful emotionally and concerning science. They enhance herd instincts through seemingly innocent mechanisms like "likes", encouraging the worst in the masses, attacks on dissidents, polarization, violence, increases in self-harm, suicide, hatred, and depression. Even AI recommendation algorithms in the service of capitalism's profits purport nonsensical ideas and again unfortunately, our brains cannot defend well against supercomputers with AI algorithms, particularly if the brains are young and extra sensitive. Please note that AI is a dis-

40 Knight Foundation (2020), American Views 2020: Trust, Media and Democracy. kf.org/usviews20.

41 *Parsa* (2019) Artificial Intelligence Dangers to Humanity: AI, U. S, China, Big Tech, Facial Recognition, Drones, Smart Phones, IoT, 5G, Robotics, Cybernetics, and Bio-Digital Social Program. The AI Organization.

cipline with a fascinating speed of progress[42] that significantly benefits the progress of human civilization; however, its power can easily be misused for less benevolent activities.

The dark side of the online media was revealed in public for example by The Social Dilemma (https://www.youtube.com/watch?v=7mqR_e2seeM) and Worldnet. The landmark report of The Social Dilemma was introduced by the Academy's Science and Technology Council. It showed that several online mechanisms are in effect negative for individuals and society, with the likes available on social networks being an example. The video presents several developers of web giants like Facebook and Google as introducing problematic methods. An example would be their expectation that the likes will promote kindness and positive emotions all over the networld, rewarding good ideas and positive feelings. In reality, it was the contrary: netizens behaved surprisingly primitively and performed massive brutal attacks on particular victims, sometimes chosen randomly as if ostracism was revived again. Just compare the number of readers of a superb scientific paper with the number of reads of an attractive video or profanity by social media influencers.

The effectiveness of these mechanisms in social media and mass media might still not exceed the effects of the strongly censured media in a dictator's regime, but it is more disturbing because it is not clear who or what is the driving force behind it – it might be the capitalist interests, the conflicting ideologies and political parties, the political and business elites, decadency and profanity of masses demonstrated through social media, or it might even be an emerging property of our civilization to prevent overpopulation, for example.

Second, the effect on the average netizen is negative in terms of feelings and loss of sense of reality, demonstrated by the growing number of nervous ticks or self-destructive behaviour. Several studies showed that the number of hours spent on digital networks daily was directly proportional to the number of negative thoughts in a retrospective way, including thoughts of suicide. Secondly, as a consequence, the number of people believing in proven wrong, unscientific opinions significantly increased. For example, the number of conferences about a flat Earth has been on the rise in the last decade. Only recently have some of the studies revealed potential sources and the mechanisms behind these negative effects.

On the other hand, the role of generative AI in enhancing the capabilities of digital networks cannot be overstated. Recent innovations in AI-driven content generation have transformed media production, advertising, and even personal-

42 *Russel/Norvig* (2014) Artificial Intelligence: A Modern Approach 3rd Edition Pearson Education Limited.

ized education by providing more engaging and tailored content. Generative AI's ability to produce large volumes of high-quality text, images, and interactive media has profound implications for content accessibility and diversity. This dynamic field's potential and challenges are comprehensively discussed in recent publications by *Gupta* et al.[43], on the ethical use of AI in media, and by *Patel* et al.[44]. which explores the use of AI in personalized learning environments. These studies highlight the positive transformative impact of generative AI on the information society, emphasizing its dual role as a facilitator of innovation and a subject of critical ethical scrutiny.

VI. Discussion and conclusions

No doubt there are several dangers facing the current progress of human civilization, and with the growing power of new technologies the dangers will escalate. The COVID-19 crisis revealed that these dangers, including the existential ones, are not fictive, but lurk in the near future. Scientists need to study them in detail and recognize the dangerous scenarios in advance, thus enabling humans to prevent or at least decrease the dangers when they occur. While it is possible that some of the dangers will inevitably emerge, it is like any catastrophe – when we are properly prepared, the damage can be much smaller.

Among the dangers often mentioned by visionaries like *Bill Gates* and technological super geniuses like *Elon Mus*k, the list includes ecology, demography, biological agents, AI, and social eclipse. We have briefly discussed some of them in this paper.

It is important to differentiate between the tools and the social use of them. For example, the internet remains one of the best and most democratic media in the world and most helpful for the progress of human civilization, with AI potentially turning the current information society into another civilization epoch, the one where progress will jump to an unimagined higher level. Even with their dark side, social networks cannot spoil the overall effect. Probably, it is the cultural/societal degrading processes in Western civilization that is being highlighted by social networks, and we must be aware of them.

---

43 *Gupta/Royer/Wright/Khan/Heath/Galinkin/Khurana/Gnapini/Fancy/Sweidan/Akif/Butalid* (2021) The State of AI Ethics Report (January 2021).

44 *Patel/Tabassam/Hussain/Sultana/Muniasamy/Bhatnagar* (2022) Deep Learning for Predictive Analytics in Healthcare. In Lecture Notes in Electrical Engineering, Springer, Cham, pp. 32-42.

As we stand on the brink of potentially existential threats due to climate change, resource depletion, and societal divides, generative AI offers a beacon of hope. Superintelligence could enable us to optimize resource distribution, develop sustainable materials, and manage complex environmental data that is beyond human capability to process effectively. By leveraging AI in climate modeling and disaster response strategies, we could predict and mitigate the effects of catastrophes and disasters before they occur, saving countless lives. Recent research by *Unal* et al.[45] demonstrates the potential of AI-driven models to significantly improve the accuracy of climate predictions, providing governments and organizations with the tools to implement more effective environmental policies.

Moreover, the advent of superintelligence holds the promise of solving complex global health challenges by accelerating medical research and innovation. Generative AI can be used to simulate the effects of pandemics, enhance vaccine development, and tailor medical treatments to individual genetic profiles. This individualized approach, supported by AI's processing power, could lead to breakthroughs in curing diseases that have long plagued humanity. The concept of using AI in medicine is supported by findings from *Singh* et al.[46] who outlined how AI has already started reshaping healthcare by predicting disease outbreaks and personalizing treatment plans in ways previously unimaginable.

Finally, on a societal level, superintelligence could play a crucial role in bridging the widening socio-economic divides that threaten the fabric of global stability. By analyzing vast amounts of economic data, AI could help policymakers design more equitable economic systems, predict market and social shifts, and provide recommendations for preventing severe crises. Furthermore, as discussed by *Qin* et al.[47], AI's capability to monitor and analyze social trends can also be utilized to promote understanding and cooperation across cultural and political divides, fostering a more inclusive and positive community.

Studies of longevity indicate that there are around 1,000 to 10,000 years of growth of human civilization ahead of us, and then our civilization will most

---

45 *Unal/Asan/Sezen/Yesilkaynak/Aydın/Ilıcak/Unal* (2023) Climate model-driven seasonal forecasting approach with deep learning.

46 *Singh/Sillerud/Advitya Singh* (2023) Artificial intelligence, chatbots and ChatGPT in healthcare – narrative review of historical evolution, current application, and change management approach to increase adoption, Journal of medical artificial intelligence, Vol. 6.

47 *Qin/Xu/Wang/Skare* (2023), Artificial Intelligence and Economic Development: An Evolutionary Investigation and Systematic Review, Journal of the Knowledge Economy.

likely collapse to the point of no return. This seems to be confirmed by the lack of contact with other civilizations. Yet, there is a potential solution that is rarely mentioned in the media: with the appearance of superintelligence, i.e., artificial intelligence that is superior to the human mind, there is a reasonable possibility that in a synergy between AI and humans, we will conquer and enrich our galaxy and not struggle to survive.

Personal Data Supplying: The Issue of Bundled Consent*

*Tereza Pertot***

Abstract

Despite the increasing attention given to the phenomenon of supplying personal data in order to get a content or a service, there are still many questions arising from the use of data instead of money that need to be answered. In particular, it is still debated whether personal data can be legitimately considered a tradeable asset or not. In this regard, the relationship between contract and data protection law is to be more precisely defined. Article 7(4) of the GDPR does not seem to prevent a data subject's consent from being bundled to the conclusion of a contract and/or to the contractual performance, as is usually the case when digital contents and services are supplied against data. However, scholars, courts, national and European authorities still have different opinions not only with regard to the question of whether Article 7(4) of the GDPR provides for a (strict or weak) ban on tying, but also regarding the question of which specific facts must be considered when determining the consent's freedom and validity (despite the link existing with the contract and the contractual performance).

Keywords: Personal data, Data protection, Data subject's consent, Bundled consent, Directive no. 2019/770, Article 7(4) of the GDPR

I. General Introduction

New technologies enable enterprises to collect large amounts of data. Collected datasets may consist of personal or of non-personal data, depending on whether the information relates to an identified or identifiable natural person or not [cf.

---

* A version of this paper has been previously published in "Juscivile" as: "Personal Data Supplying: The Issue of Bundled Consent" Juscivile, 3/2023, pp. 673–691 (EISSN 2281-3918 / 2421-2563; Giappichelli, Torino).

** Associate professor, University of Udine, Italy.

Article 4(1) of the GDPR and Article 3(1) of the Regulation (EU) 2018/1807].[1] Delineating the boundary between personal and non-personal data could be difficult in practice, as datasets are often mixed and as even data not related to an individual and/or which has been rendered anonymous may become personal by matching it with data from other sources.[2] Keeping this in mind, the paper will, however, only focus on the processing involving personal data.[3] The latter, in fact, presents some specific problems, which arise where data is collected and used for commercial purposes, as increasingly happens nowadays.

There are many different ways in which personal data may be processed and monetized. For example, data concerning consumers' habits may be used to establish their preferences and, subsequently, for targeted advertising.[4] Moreover, (anonymized) personal data might be processed to train artificial intelligence systems as well as to verify their outcomes.[5] It may also be "transferred"

1 According to Article 3(1) of the Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union, (non-personal) data "means data other than personal data as defined in point (1) of Article 4 of Regulation (EU) 2016/679" of the European Parliament and of the Council of 27 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 – GDPR). For a general definition of "data", see now Article 2(1) of the Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act – DGA). Cf. Article 2(1) of the Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), COM/2022/68 final.

2 See *Irti*, Personal Data, Non-personal Data, Anonymised Data, Pseudonymised Data, De-identified Data, in Senigaglia/Irti/Bernes (eds.), Privacy and Data Protection in Software Service, Springer, 2022, pp. 49 et seq. For restrictions concerning the "re-identification of data subjects from anonymised datasets", see Recital no. 8 of the Data Governance Act – DGA.

3 As regards datasets composed of both personal and non-personal data, which could be "inextricably linked", see Article 2(2) of the Regulation (EU) 2018/1807.

4 For some restrictions in this regard, see now, e.g., Articles 26(3) and 28(2) of the Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act – DSA). On the DSA in general, see *Raue/Heesen*, Der Digital Services Act, in NJW, 2022, 3537 et seq.

5 On the AI, see the Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain union legislative acts, COM/2021/206 final.

from individuals to (many) enterprises as well as from one enterprise to another, against payment.[6]

Building on the assumption that data are essential for innovation and economic growth, it is not surprising that the goal of the latest European strategy is to remove barriers for access to data in order to make it available to different players.[7] This should be especially achieved by designing and putting in place fair and safe mechanisms of data sharing. Some of them are now provided, e.g., by the so-called Data Governance Act (hereinafter: DGA),[8] which seeks *inter alia* to regulate trustworthy intermediaries, serving as neutral organizers of the exchange of data – personal and not – between data subjects and data holders, on the one side, and data users on the other [Articles 2(11) and 10 et seq.]. By providing for many safeguards in order to encourage voluntary data sharing (which may also occur for altruistic purposes: so-called data altruism, Articles 16 et seq.) as well as to promote the re-use of information held by the public sector (Articles 3 et seq.), the DGA clearly aims at developing both, the social and the economic potential of data, preventing its concentration and so avoiding lock-in effects (see Recital no. 2).[9]

---

6 Diversity in the structure and functioning of data markets is highlighted by *Zeno-Zencovich*, Do "Data Markets" Exist?, in MediaLaws, 2/2019, pp. 22 et seq., available at https://www.medialaws.eu/wp-content/uploads/2019/03/2-2019-Zeno-Zencovich.pdf (accessed on March 28, 2025); cf. *Gallo*, Il consenso al trattamento dei dati personali come prestazione, in Riv. dir. civ., 2022, pp. 1054 et seq.; *Bravo*, Il commercio elettronico dei dati personali, in Pasquino/Rizzo/Tescaro (eds.), Questioni attuali in tema di commercio elettronico, ESI, 2020, pp. 83 et seq.

7 In particular, "the European data strategy aims to make the EU a leader in a data-driven society. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers and public administrations": see https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en (accessed on March 28, 2023). Cf. G. Resta, Pubblico, privato, collettivo nel sistema europeo di governo dei dati, in Id./Zeno-Zencovich (eds.), Governance of/through big data, II, Roma TrE-Press, 2023, pp. 605 et seq.; *Picht/Richter*, EU Digital Regulation 2022: Data Desiderata, in GRUR Int., 2022, pp. 395 et seq.; *Poletti*, Gli intermediari dei dati, in EJPLT, 2022, pp. 46 et seq.

8 See fn. 1. For additional schemes of data sharing, see also the Data Act Proposal (mentioned in fn. 1).

9 On the DGA, cf. *Bravo*, «Destinatario» dell'informazione e trattamento dei dati personali nell'evoluzione dell'ordinamento europeo, in D'Auria (ed.), I problemi dell' informazione nel diritto civile, oggi. Studi in onore di Vincenzo Cuffaro, Roma TrE-Press, 2022, pp. 431 et seq.; Id., Intermediazione di dati personali e servizi di data sharing dal GDPR al Data Governance Act, in Contr. impr., 2021, pp. 199 et seq.; *Poletti*, Gli intermediari dei dati, cit., pp. 46 et seq.; *Hennemann/v. Ditfurth*, Datenintermediäre und Data Governance Act, in NJW, 2022, pp. 1905 et seq.; *v. Ditfurth/Lienemann*, The Data Governance Act: – Promoting or Restricting Data Intermediaries?, in Competition

Currently, large amounts of data, including personal data, are, in fact, still held and managed by a few market players, especially tech giants, which often obtain it directly from users' online activity and interaction with different technological devices.[10] In this regard, users' willingness to disclose data also depends on what they receive in return. Therefore, aware of the economic value of data,[11] enterprises usually create occasions for collection of information, e.g. by offering performances that users can only get (or can get for a cheaper price) if they allow their data to be processed by the supplier for specific, especially commercial purposes.

Such bundling practice, in which personal data is *de facto* somehow used as a counter-performance in exchange for services, contents and (other) goods (and from which intermediaries are now prevented according to the DGA),[12] is widespread in the field of supplying digital content and services:[13] while access to

---

and Regulation in Network Industries, 2022, 270 et seq.; *Resta*, Pubblico, privato, collettivo nel sistema europeo di governo dei dati, cit., pp. 605 et seq., pp. 612 et seq.; *Richter*, Looking at the Data Governance Act and Beyond: How to Better Integrate Data Intermediaries in the Market Order for Data Sharing, in GRUR Int., 2023, pp. 458 et seq. For an article-by-article commentary, see *Specht/Hennemann* (eds.), Data Governance Act, Hart, Beck, Nomos, 2. ed. 2025.

10 For gatekeepers' practices of data collection, see Recital no. 36 of the Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act – DMA). As regards the gatekeepers' obligations, see Article 5 of the DMA.

11 Cf. *Hacker*, Regulating the Economic Impact of Data as Counter-Performance: From the Illegality Doctrine to the Unfair Contract Terms Directive, in Lohsse/Schulze/Staudenmayer (eds.), Data as Counter-Performance – Contract Law 2.0?, Hart Publishing-Nomos, 2020, pp. 48 et seq.; *Resta/Zeno-Zencovich*, Volontà e consenso nella fruizione dei servizi di rete, in Riv. trim. dir. proc. civ., 2018, pp. 416-415; *Malgieri/Custers*, Pricing Privacy – The Right to Know the Value of Your Personal Data, in Computer Law & Sec. Rev., 2018, pp. 289 et seq.

12 See Article 12(a) of the DGA: "the data intermediation services provider shall not use the data for which it provides data intermediation services for purposes other than to put them at the disposal of data users".

13 On data as counter-performance, see the proceedings collected in *Lohsse/Schulze/Staudenmayer* (eds.), Data as Counter-Performance – Contract Law 2.0?, cit. See also, among others, *Bachelet*, Il consenso oltre il consenso. Dati personali, contratto, mercato, Pisa, 2023, pp. 11 et seq.; *Ricciuto*, L'equivoco della privacy. Persona vs. dato personale, ESI, 2022; *Bauermeister*, Die „Bezahlung" mit personenbezogenen Daten bei Verträgen über digitale Produkte, in AcP, 2022, pp. 372 et seq.; *Walker*, Die Kosten kostenloser Dienste, Duncker Humboldt, 2021; *La Spina*, La trasmisión de los datos de carácter personal del consumidor para la adquisición de servicios y contenidos digitales, in Juscivile, 2021, pp. 1663 et seq.; *Versaci*, La contrattualizzazione dei dati personali dei

such contents and services is generally advertised as being free of charge (according to one view misleadingly),[14] consumers' personal data is often required to gain access to them. Data-based business models are used, for example, by social media platforms as well as by online newspapers and other internet websites, which increasingly demand users choose between reading their articles and contents while being tracked by (non-necessary) cookies and paying a certain fee to access them without being tracked.[15] Similar business models are then al-

consumatori, ESI, 2020; *Mischau*, Daten als „Gegenleistung" im neuen Verbrauchervertragsrecht, in ZEuP, 2020, pp. 335 et seq.; *Bravo*, Lo "scambio di dati personali" nei contratti di fornitura di servizi digitali e il consenso dell'interessato tra autorizzazione e contratto, in Contr. impr., 2019, pp. 34 et seq.; *Hacker*, Daten als Gegenleistung: Rechtsgeschäfte im Spannungsfeld von DS-GVO und allgemeinem Vertragsrecht, in ZfPW, 2019, pp. 148 et seq.; *Resta*, I dati personali oggetto del contratto. Riflessioni sul coordinamento tra la Direttiva 2019/770 e il Regolamento 2016/679, in Annuario del contratto 2018, *Giappichelli*, 2019, pp. 125 et seq.; *Zöchling-Jud*, Daten als Leistung, in Forgó/Zöchling-Jud (eds.), Das Vertragsrecht des ABGB auf dem Prüfstand: Überlegungen im digitalen Zeitalter, Manz, 2018, pp. 241 et seq.; *Thobani*, Diritti della personalità e contratto: dalle fattispecie più tradizionali al trattamento in massa dei dati personali, Ledizioni, 2018, pp. 158 et seq.; *Langhanke*, Daten als Leistung. Mohr Siebeck, 2018; *De Franceschi*, La circolazione dei dati personali tra privacy e contratto, ESI, 2017; *Specht*, Daten als Gegenleistung – Verlangt die Digitalisierung nach einem neuen Vertragstypus?, in JZ, 2017, pp. 763 et seq.; *Metzger*, Dienst gegen Daten: Ein synallagmatischer Vertrag, in AcP, 2016, pp. 817 et seq.; *Perlingieri*, Profili civilistici dei social network, ESI, 2014; *Caterina*, Cyberspazio, social network e teoria generale del contratto, in AIDA, 2011, pp. 93 et seq. For more publications, see *Metzger*, A Market Model for Personal Data: State of Play under the New Directive on Digital Consent and Digital Services, in Lohsse/Schulze/Staudenmayer (eds.), Data as Counter-Performance, cit., pp. 25 et seq., fn. 1, 6 and 13 as well as *Pagliantini*, L'attuazione minimalista della Dir. 2019/770/UE: riflessioni sugli artt. 135 octies – 135 vicies ter c.cons.la nuova disciplina dei contratti b-to-c per la fornitura di contenuti e servizi digitali, in NLCC, 2022, pp. 1499 et seq.

14 See, e.g., *Langhanke/Schmidt-Kessel*, Consumer Data as Consideration, in EuCML, 2015, 218. See also the Italian Council of State – Consiglio di Stato 29 March 2021, no. 2631, in Foro it., 2021, 6, 3, 325. On this point, see (also for further references). *Solinas*, Circolazione dei dati personali, onerosità del contratto e pratiche commerciali scorrette, in Giur. it., 2021, pp. 320 et seq.; *De Franceschi*, Digitale Inhalte gegen personenbezogene Daten: Unentgeltlichkeit oder Gegenleistung?, in Schmidt-Kessel/Kramme (eds.), Geschäftsmodelle in der digitalen Welt, JWV, 2017, pp. 115 and 131-132. As to the possibility to additionally apply contract and consumer law (remedies), *Ricciuto*, L'equivoco della privacy, cit., pp. 179 et seq. In the sense that "the infringement of a rule relating to the protection of personal data may at the same time give rise to an infringement of rules on consumer protection or unfair commercial practices", see CJEU 28 April 2022, C-319/20 – Meta Platforms Ireland, point 78.

15 As regards the so-called "cookie-walls", see, also for references to French and Austrian Data Protection Authorities' statements, *Schulz,* Artikel 7 GDPR, in Gola/Heckmann

so used in other fields, e.g. in that of telematics and so-called black box car insurance, where the insured may get a discounted premium, if he/she allows the insurer to collect data concerning his/her driving patterns. Such data is usually processed for risk assessment and fraud prevention; nevertheless, it may be also used for other (commercial) purposes, which allow the insurance company to profit from the information collected (and the insured to receive, potentially, an additional insurance premium reduction).

Even though exchange of personal data on the market is a widespread practice, researchers still disagree on how to deal with it from a legal point of view. On the one hand, data protection law (mainly laid down in the GDPR) primarily deals with personal data from a fundamental, personality rights perspective:[16] hence, it does not present an exhaustive legal framework for managing the economic interests of subjects involved in transactions concerning their information. On the other hand, contract law seems to be the legal branch apt to govern the exchange of data for (digital) contents, services and (other) goods, ensuring a functioning and fair market, allowing users to exercise their autonomy consciously and even profit from monetary advantages deriving from the processing of their data.[17]

However, it is debated whether and how personal data can be legitimately used as a *contractual* (counter-)performance. One could also argue that data monetization and data trade are unethical and therefore undesirable. As such, they should not only be morally disapproved, but also legally banned.[18] The lat-

(eds.), Datenschutz-Grundverordnung – Bundesdatenschutzgesetz. Kommentar, Beck, 2022, Rn. 31.

16 However, the purpose of the GDPR is not only the protection of the data subject. It also aims at protecting the controller's right to process personal data, providing for the latter's free movement. The different "souls" of the GDPR are pointed out by *Zorzi Galgano*, Le due anime del GDPR e la tutela del diritto alla privacy, in Zorzi Galgano (ed.), Persona e mercato dei dati. Riflessioni sul GDPR, Wolters Kluwer-Cedam, 2019, pp. 35 et seq. With specific regard to the right to portability, which may be considered a tool to promote a data market, see *Troiano*, Il diritto alla portabilità dei dati personali, in Zorzi Galgano (ed.), Persona e mercato dei dati, cit., pp. 195 et seq.

17 Cf., for such consideration, *Staudemayer*, Article 3, in Schulze/Staudenmayer (eds.), EU Digital Law, Hart, Beck, Nomos, 2020, pp. 88-89, Rn. 141; *Mak*, Contract and Consumer Law, in Mak/Tjong Tjin Tai/Berlee (eds.), Research Handbook on Data Science and Law, Edward Elgar Publishing, 2018, pp. 17, 20, 32 and 35; *Helberger/Zuiderveen Borgesius/Reyna*, The Perfect Match? A Closer Look at the Relationship between EU Consumer Law and Data Protection Law, in CMLRev, 2017, pp. 1427; *Langhanke/Schmidt-Kessel*, Consumer Data, cit., pp. 219-220.

18 See, e.g., the European Data Protection Supervisor – EDPS Opinion 4/2017 on the Proposal for a Directive on certain aspects concerning contracts for the supply of digital

est legislative development at the European level would probably make such conclusion hard to accept. Nevertheless, the ambiguous character of some European provisions shows the existence of a tangible tension between different perspectives and instances, which clearly adds complexity to the issue of data contractualization.

II. Personal data as contractual (counter-)performance: still an open question?

As a matter of fact, the question of whether personal data may be the object of contracts and contractual performances has been touched on by the European legislator. By adopting Directive no. 2019/770 on certain aspects concerning contracts for the supply of digital content and digital services (hereinafter: DCD), the application of contractual provisions and remedies was extended to cases in which "the trader supplies or undertakes to supply digital content or a digital service to the consumer, and the consumer provides or undertakes to provide personal data to the trader" [Article 3(1) of the DCD].[19] Cases in which the

content, 7, point 17, note 27, available at https://edps.europa.eu/sites/edp/files/publication/17-03-14_opinion_digital_content_en.pdf (accessed on March 28, 2025).

19 On the DCD, see i.a. *Beale*, Digital Content Directive And Rules For Contracts On Continuous Supply, in JIPITEC, 2021, pp. 96 et seq.; *Rosenkranz*, Spezifische Vorschriften zu Verträgen über die Bereitstellung digitaler Produkte im BGB, in ZUM, 2021, pp. 195 et seq.; *Cassart/Loriaux/Cruquenaire*, La Directive 2019/770/UE du 20 mai 2019 relative à certains aspects concernant les contrats de la fourniture de contenus numériques et de services numériques, in Ninane (ed.), Vers des relations entre entreprises plus équilibrées et une meilleure protection du consommateur dans la vente de biens et la fourniture de services numériques?, *Larcier*, 2021, cit, pp. 209 et seq.; *Chacón*, Some Considerations on the Material Scope of the New Digital Content Directive: Too Much to Work Out for a Common European Framework, in ERPL, 2021, pp. 517 et seq.; *Vanherpe*, White Smoke, but Smoke Nonetheless: Some (Burning) Questions Regarding the Directives on Sale of Goods and Supply of Digital Content, in ERPL, 2020, pp. 251 et seq.; *Schulze*, Die Digitale-Inhalte-Richtlinie – Innovation und Kontinuität im europäischen Vertragsrecht, in ZEuP, 2019, pp. 695 et seq.; *Camardi*, Prime osservazioni sulla Direttiva (UE) 2019/770 sui contratti per la fornitura di contenuti e servizi digitali. Operazioni di consumo e circolazione dei dati personali, in Giust. civ., 2019, pp. 499 et seq.; *Spindler/Sein*, The new Directive on Contracts for the Supply of Digital Content and Digital Services – Parts 1 and 2, in ERCL, 2019, pp. 257 et seq. and pp. 365 et seq.; *Zolinski*, Contrats de fourniture de contenus et de services numériques. À propos de la directive (UE) 2019/770 du 20 Mai 2019, in La Semaine Juridique, 2019, pp. 2062 et seq.; *Bach*, Neue Richtlinie zum Verbrauchergüterkauf und zu Verbraucherverträgen über digitale Inhalte, in NJW, 2019, pp. 1705 et seq.; *Stau-*

consumer does not pay a price in money but provides personal data to the trader are also considered by Directive no. 2019/2161 (so-called *Omnibus* Directive),[20] which aims at extending the scope of application of Directive no. 2011/83 (hereinafter: CRD) to transactions in which "the trader supplies or undertakes to supply digital content […] or a digital service to the consumer and the consumer provides or undertakes to provide personal data to the trader" [see Article 4(2) and Recitals 31 et seq. of the *Omnibus* Directive; cf. the new Article 3(1a) of the CRD].[21]

However, such legislation does not further define the supply of digital contents and services in exchange for data in terms of contract,[22] even going so far as to exclude that personal data may be considered a commodity (see Recital no. 24 of the DCD).[23] The application of the consumer (contract) law provisions to

denmayer, Auf dem Weg zum digitalen Privatrecht – Verträge über digitale Inhalte, in NJW, 2019, pp. 2497 et seq. See also the article-by-article commentary *Schulze/Staudenmayer* (eds.), EU Digital Law, cit. As regards the implementation of the Directive in selected Member States (France, Hungary, Portugal, Spain, Italy, Luxembourg, Belgium, Denmark), cf. the contributions (written by *Senechal/Szilágyi/Morais Carvalho/Arroyo Amayuelas/De Franceschi/Pflücke/Keirsbilck/Terryn/Sørensen*) published in EuCML, 2021-2022.

20 An analysis may be found in *Versaci*, Le tutele a favore del consumatore digitale nella "Direttiva Omnibus", in Pers. mercato, 2021, pp. 583 et seq. and in *Đurović*, Adaptation of Consumer Law to the Digital Age: EU Directive 2019/2161 on Modernisation and Better Enforcement of Consumer Law, in Anali Pravnog fakulteta u Beogradu, godina, LXVIII, 2/2020, pp. 62 et seq. For the implementation of the Directive in Italy, see now the D.Lgs. no. 26/2023.

21 For a broad understanding of "remuneration" see recital no. 16 of the Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast). See also the interpretation of Article 2(4) by *De Cristofaro*, Legislazione italiana e contratti dei consumatori nel 2022: l'anno della svolta. Verso un diritto "pubblico" dei (contratti dei) consumatori?, in NLCC, 2022, pp. 10-11. A first reference to the business model of paying with data was made in recital no. 18 of the Proposal for a Regulation on a Common European Sales Law.

22 The DCD's dispositions apply "where the trader supplies or undertakes to supply digital content or a digital service to the consumer, and the consumer provides or undertakes to provide personal data to the trader": see Article 3(1) of the DCD and cf. Article 3(1a) of the CRD as amended by Omnibus Directive.

23 By avoiding taking a stand on the controversial issue of data as contractual counterperformance, the European legislator probably tried to soothe the criticism already expressed regarding the Directive's proposal COM(2015) 634: see EDPS Opinion 4/2017, 7, point 17, note 27. The main criticisms have been identified by *Morais Carvalho*, Sale of Goods and Supply of Digital Content and Digital Services – Overview of Directives 2019/770 and 2019/771, in EuCML, 2019, p. 197. On the contrary, data may be consid-

cases in which consumers receive contents and services against the disclosure of their data could be read as implicit assignment of contractual nature to such transactions: there will be a (synallagmatic) contract both when paying the price (in money) and when supplying personal data in exchange for digital content or a service [see § 327(3) of the German BGB;[24] cf. Preamble of the Spanish *Real Decreto-ley* 7/2021, IX 20].[25] Nevertheless, the inclusion of those cases into the scope of application of the Directives' provisions could otherwise be considered merely the result of the European legislator's intention to better protect consumers providing their data in order to get a content or a service (advertised as being) free of charge.[26] A more agnostic approach was taken e.g. by the Italian legislator: when implementing the two Directives it replicated the formula(s) used by Article 3(1) of DCD and by Article 4(2) of the *Omnibus* Directive [see Articles 46(1-bis) and 135 *octies*(4) of the Italian *Codice del consumo*],[27] without taking a stance on the opportunity to qualify the case concerned in terms of a (synallagmatic) contract.

---

ered as a tradable asset according to *Perlingieri*, Data as the object of a contract and contract epistemology, in Pertot/Schmidt-Kessel/Padovini (eds.), Rechte an Daten. Mohr Siebeck, 2020, pp. 207 et seq. and pp. 210; *Metzger/Efroni/Mischau/Metzger*, Data-Related Aspects of the Digital Content Directive, in JIPITEC, 2018, p. 94; *Ricciuto*, L'equivoco della privacy, cit., pp. 153 et seq., pp. 166 et seq.; *De Franceschi/Lehmann*, Data as Tradeable Commodity and the new Instruments for their Protection, in The Italian Law Journal, 2015, pp. 51 et seq. For the controversial issue concerning the qualification and the legal treatment of data, see *v. Erp*, Management as Ownership of Data, in Lohsse/Schulze/Staudenmayer (eds.), Data as Counter-Performance, cit., pp. 77 et seq.; *Hürlimann/Zech*, Rechte an Daten, in sui-generis, 2016, pp. 89 et seq. For a monographic study, see *Angiolini*, Lo statuto dei dati personali. Uno studio a partire dalla nozione di bene, Giappichelli, 2020.

24 Nevertheless, the German legislator avoided to use the term "Gegenleistug" (counter-performance): see *Metzger*, Vorbemerkung (vor § 327 BGB), in Münchener Kommentar zum BGB, Beck, 2022, Rn. 15.

25 See *Morais Carvalho*, Sale of Goods, cit., p. 197, fn. 50. For the qualification issue, see then *Mak*, Contract and Consumer Law, cit., pp. 17 and 33 and, from an Italian perspective, *Ricciuto*, L'equivoco della privacy, cit., pp. 152-153, 156 et seq., 162 and 166; *Buset*, Brevi note sull'attribuzione del godimento nel prisma della evoluzione tecnologica, in Juscivile, 2022, p. 512, nt. 4; *Gallo*, Il consenso al trattamento, cit., pp. 1064-1065; *Ubertazzi*, Models of Information Circulation and the Function of Privacy, in EuCML, 2022, pp. 210-211.

26 Cf. *Camardi*, Prime osservazioni, cit., pp. 508-509.

27 See however *Ricciuto*, L'equivoco della privacy, cit., pp. 140 and 151-152: in his opinion, there is a slight difference between the European and the Italian (implementing) provision (which replaces the verb "undertakes" with the verb "obliges"), showing that Article 135 octies(4) of the Italian Codice del consumo is less neutral than Article 3 of the DCD.

Actually, the contractualization of personal data seems to be implied also in the above-mentioned DGA and in the provided mechanisms of information sharing, which may involve data subjects and data holders (having the right to grant access to or to share certain data, including the personal data of others), on the one hand, and data users (that may process the accessed data for commercial purposes too) on the other [cf. Articles 2(7 et seq.) and 10]. The existence of contractual relationships between those who exchange data – directly or through an intermediary – could be gleaned, e.g., from Article 2(10) of the DGA, that defines 'data sharing' as the provision of data that may be "based on voluntary agreements". Also, the 'commercial relationships' that the 'data intermediation service' aims at establishing for the purpose of data sharing according to Article 2(11) of the DGA are unlikely to be carried out without passing through a contractual regulation. However, although the "agreements", "exchanges", and "commercial relationships" to which the DGA refers need (*inter alia*) contracts to be concluded between the involved parties,[28] the qualification, structure and content of the latter did – once again – not receive specific attention by the legislator.

In light of the divergent positions still existing at the national and European level, the question of whether and of how personal data may be legitimately considered the subject matter of contracts – specifically as a *contractual* (counter-)performance – is therefore still relevant, even more so considering that, by taking a position on new legislative developments in the field of data law, which clearly aims at making more data available for different, also commercial, uses, both – the European Data Protection Board (EDPB) and the European Data Protection Supervisor (EDPS) – recently confirmed the criticism towards the phenomenon of personal data "commodification", already expressed regarding the Directive's proposal COM(2015) 634.[29] On the one hand, such "commodification" is somehow implied in many European provisions [see now also Article

28 According to Article 2(11) of the DGA data intermediation services may establish "commercial relationships" through many different, including legal, means.

29 Cf. EDPS Opinion 4/2017, 7, point 17, note 27; EDPB Statement 05/2021 on the Data Governance Act in light of the legislative developments, 4, available at https://edpb.europa.eu/system/files/2021-05/edpb_statementondga_19052021_en_0.pdf (accessed on March 28, 2023) and EDPB-EDPS Joint Opinion 2/2022 on the Proposal of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), 8, note 15 and 18, note 63, available at https://edpb.europa.eu/system/files/2022-05/edpb-edps_joint_opin-ion_22022_on_data_act_proposal_en.pdf (accessed on March 28, 2025).

12(h) of the DGA], while on the other, there is some hesitation when it comes to explicitly considering personal data as a commodity.[30]

III. Personal data supplying and privacy consent: the relationship between (consumer) contract and data protection law

By extending some contractual provisions to cases in which personal data are provided by consumers in order to obtain digital services and contents offered on the market and by defining set of rules to promote the sharing of data, including the personal data, the European legislator did not even clarify what personal data provision consists of in the considered cases.[31]

As a combined reading of the provisions laid down in the above-mentioned legislation shows, personal data may be actually provided by different actors (data subjects or data holders) and within various relationships (it may be shared with data users directly or through a provider of a data intermediation service). Without ignoring the different perspectives from which the problem concerning personal data provision may be investigated,[32] in the following only the data subject's point of view will be analysed. More specifically, the attention will focus on the provision of personal data made by consumers, who disclose their data directly to the supplier of content and services in order to get the provided performance in return. The selected point of view should allow us to address and to deepen a specific question – that of the bundled data subject's consent – which is crucial and actually of preliminary nature when deciding on if and on how consumers' personal data may legitimately enter the market and become the object of economically valuable transactions.

Focusing the attention on the provision of personal data from the mentioned point of view, the first question that arises is whether such provision consists of the delivery of personal data as such or if something more than data sup-

30 *Poletti*, Gli intermediari dei dati, cit., pp. 51, 54.

31 On this point see *Langhanke/Schmidt-Kessel*, Consumer Data, cit., p. 220; *De Franceschi*, Italian consumer Law after the Transposition of Directives (EU) 2019/770 and 2019/771, in EuCML, 2022, p. 73; *Irti*, Consenso "negoziato" e circolazione dei dati personali, Giappichelli, 2021, p. 52; *Buset*, Brevi note, cit., pp. 511 et seq.; *Graf von Westphalen/Wendehorst*, Hergabe personenbezogener Daten für digitale Inhalte – Gegenleistung, bereitzustellendes Material oder Zwangsbeitrag zum Datenbinnenmarkt?, in BB, 2016, p. 2181; *Specht*, Daten als Gegenleistung, cit., pp. 763 et seq.; *Perlingieri*, Data as the object of a contract, cit., pp. 207 et seq.

32 See *Poletti*, Gli intermediari dei dati, cit., pp. 53-54.

plying is required from the data subject acting as a consumer. In this regard, assuming the need for a specific GDPR legal basis for the processing of personal data, most scholars consider the European consumer law provisions laid down in the currently implemented DCD and *Omnibus* Directive to be based on the idea that consumers, by concluding the contract for the supply of digital content or service with the trader,[33] also agree to the processing of their data for accessory purposes, giving their consent under Article 6(1)(a) of the GDPR:[34] the latter is, in fact, essential to assign to the trader the right to use the information gathered, unless another legal basis for processing is applicable in the specific case.[35]

---

33 For the gratuitous structure of such contracts, see *Camardi*, Prime osservazioni, cit., pp. 508-509. According to other Authors (cf. *Ricciuto*, Il contratto ed i nuovi fenomeni patrimoniali: il caso della circolazione dei dati personali, in Riv. dir. civ., 2020, pp. 652-653.; *Buset*, Brevi note, cit., p. 512, fn. 4), there would be an "exchange" ("scambio") between a performance and a counter-performance. Further, German authors qualify the contract entered into by the consumer as a "schuldrechtlicher Vertrag" (contract with obligatory effects): see *Metzger*, § 327 BGB, in Münchener Kommentar zum BGB, cit., Rn. 18.

34 *Metzger*, A Market Model, cit., pp. 33; *Staudenmayer*, Article 3, cit., p. 73, Rn 60-61, 64; *Arroyo Amayuelas*, The Implementation of the EU Directives 2019/770 and 2019/771 in Spain, in EuCML 2022, p. 37; *Irti*, Consenso "negoziato", cit., p. 52; *Langhanke/Schmidt-Kessel*, Consumer Data, cit., p. 220. As to the role of data subject's consent by "paying" with data, see *De Cristofaro*, Die datenschutzrechtliche Einwilligung als Gegenstand des Leistungsversprechens, in Pertot/Schmidt-Kessel/Padovini (eds.), Rechte an Daten, cit., pp. 151 et seq.; *Schmidt-Kessel*, Consent for Processing of Personal Data and its Relationship to Contract, in De Franceschi/Schulze (eds.), Digital Revolution – New Challenges for Law, Beck-Nomos, 2019, pp. 75 et seq.; *Ricciuto*, L'equivoco della privacy, cit., pp. 137 et seq. and 160; *Buset*, Brevi note, cit., pp. 511 et seq. On the consent to data processing see also *Schulz*, Artikel 6 DSGVO, in Gola/Heckmann (eds.), Datenschutz-Grundverordnung Datenschutz-Grundverordnung - Bundesdatenschutzgesetz, Beck, 2022, Rn. 21 et seq.; *Gentili*, La volontà nel contesto digitale: interessi del mercato e diritti delle persone, in Riv. trim. dir. proc. civ., 2022, pp. 701 et seq.; *Irti*, Consenso "negoziato", cit.; Vivarelli, Il consenso al trattamento dei dati personali nell'era digitale. Sfide tecnologiche e soluzioni giuridiche. Quaderni de «Il Foro napoletano», ESI, 2019; *Bravo*, Le condizioni di liceità del trattamento di dati personali, in Finocchiaro (a cura di), La protezione dei dati personali in Italia. Regolamento UE n. 2016/679 e d.lgs. 10 agosto 2018, n. 101, *Zanichelli*, 2019, pp. 110 et seq.

35 See e.g. *Metzger*, § 327 BGB, cit., Rn. 20: legal basis other than consent – especially those in article 6(1)(d)(e) and (f) – could also be relevant in the given case. On the contrary, the DCD would not add an additional legal basis to those provided in the GDPR: *Staudenmayer*, Article 3, cit., p. 88, Rn. 140. The same goes, e.g., for the DGA, which "does not create a legal basis for the processing of personal data": see Article 1(3) and cf. Recital no. 4. Cf. Article 5(2) and Recital no. 36 of the DMA, which restrict legal basis for data processing gatekeepers may rely on in some cases.

As a result, scholars further investigate the relationship between contractual consent and the one concerning data processing.[36] Many questions arise in this respect. There is discussion, e.g., of whether the privacy consent can be still regarded as freely given under the GDPR, when the data subject, by entering into the contract, commits to agreeing to the use of his/her information: the consent could in fact not be considered as freely given according to the GDPR, if the data subject took on an obligation to give it.[37] It is further debated, whether it makes sense to distinguish between the data subject's consent and the contractual one: while, according to some authors, they would necessarily be separate from each other and the validity of the privacy consent would be "no prerequisite of a valid contract to provide for (a right to use) personal data",[38] in another view users would only give consent once, which would be subject to both con-

36 *García Pérez*, Interacción entre protección del consumidor y protección de datos personales en la Directiva 770/2019: Licitud del tratamiento y conformidad de los contenidos y servicios digitales, in Arroyo Amayuelas/Cámara Lapuente (directed by), El Derecho privado en el nuevo paradigma digital, Marcial Pons, 2020, pp. 175 et seq. For the coordination issue, see also *Schmidt-Kessel*, Consent for Processing, cit., pp. 75 et seq.; *Irti*, Consenso "negoziato", cit., passim; *Versaci*, La contrattualizzazione dei dati personali, cit., 113 et seq., passim; *Senechal*, The Implementation of the EU Directives 2019/770 and 2019/771 in France, in EuCML, 2021, p. 266; *De Franceschi*, Italian Consumer Law, cit., p. 76.

37 For the capability of the consent of being object of an obligation, see *Schmidt-Kessel*, Consent for the Processing, cit., p. 78; Id., Right to Withdraw Consent, cit., p. 131: "the GDPR understands consent as being something 'under' the contract, which might even become the object of a promise so becoming the object of a contractual obligation". Cf. *Metzger*, § 327 BGB, cit., Rn. 18. Contra *Irti*, Consenso "negoziato", cit., p. 103; *Marino*, Mercato digitale e sistema delle successioni mortis causa, ESI, 2022, pp. 129-130.

38 *Schmidt-Kessel*, Consent for the Processing, cit., pp. 77-78: in his opinion "the Regulation turns out to think of consent and contract as being different and at least somewhat separated institutions". Cf. *Metzger*, A Market Model, cit., pp. 33-34; Id., § 327 BGB, cit., Rn; *Riehm*, Freie Widerrufbarkeit der Einwilligung und Struktur der Obligation. Daten als Gegenleistung?, in Rechte an Daten, cit., pp. 186-187. For the existence of two different consents (and two different layers), see *Camardi*, Prime osservazioni, cit., p. 510; *Irti*, Consenso "negoziato", cit., p. 77. The idea that there are different validity requirements for the two consents could find a confirmation in Article 8 GDPR on child's consent: in fact, the provision "shall not affect the general contract law of Member States such as the rules on the validity, formation or effect of a contract in relation to a child". A coordination between the general capacity requirements and the data protection law ones would be therefore necessary: see *Senigaglia*, Minore età e contratto. Contributo alla teoria della capacità, Giappichelli, 2021, pp. 75 et seq. As specifically regards the consent given by a child, see, for the effects of considering the two consents as completely separate and independent from each other, *Ricciuto*, L'equivoco della privacy, cit., p. 139; cf. *Thobani*, Diritti della personalità e contratto, cit., pp. 195 et seq.

tract and data protection law requirements.[39] Moreover, as the data subject may withdraw his/her consent at any time under Article 7(3) of the GDPR, one could also ask what the impact of such a withdrawal on the contract concluded with the supplier would be.[40]

The European legislator did not give specific answers to all these questions. In fact, with a formula that is typical for European acts also involving personal data, it only stated that data protection law should prevail [over the contract law provisions: Article 3(8) and Recital no. 37 of the DCD; cf. also Recital no. 4 of the DGA]. However, by doing so, he failed to clarify any aspects regarding the interaction of the latter with (consumer) contract law.

Some national legislators have addressed certain issues regarding the interplay between different legal fields, such as that concerning the impact of exercising a data subject's right, by explicitly providing for the automatic termination of the contract [Article 7:50ab(5) of the Dutch WB] or at least for the possibility of such a termination after the withdrawal of consent [or after the consumer's objection: see e.g. § 327q(2) of the German BGB and Article 119 *ter*(7) of the Spanish *Texto Refundido de la Ley General de Defensa de los Consumidores y Usuarios* – TR-LGDCU].[41] On the contrary, other legislators rather opted for a simple implementation of the European dispositions, merely confirming the priority of data protection law (see e.g. Article 135-*novies*(6) of the

39 *Ricciuto*, L'equivoco della privacy, cit., pp. 144 et seq., spec. 149, 152-153 and 155: according to him specific rules (stemming from the GDPR) would (additionally) apply to contracts to the supply of goods, when data are used as counter-performance. Cf. *Gallo*, Il consenso al trattamento, cit., pp. 1067 and 1070: in case of a conflict, data protection law requirements would however prevail over the contractual ones; thus, a consent would be valid, for example, even when given by a child (not yet 18 years old).

40 See *Schmidt-Kessel*, Right to Withdraw Consent, cit., pp. 129 et seq.; *Riehm*, Freie Widerrufbarkeit der Einwilligung, cit., pp. 175 ss; *Metzger*, A Market Model, cit., p. 35; *Kull*, Withdrawal from the Consent to Process Personal Data Provided as Counter-Performance: Contractual Consequences, in Juridiskā zinātne/Law, No. 13, 2020, pp. 33 et seq.; *Versaci*, La contrattualizzazione dei dati personali, cit., pp. 182 et seq.; *Irti*, Consenso "negoziato", cit., pp. 112 et seq.; *Thobani*, Diritti della personalità e contratto, cit., pp. 186 et seq. Another question that arises as to the relationship between contract and data protection law is that concerning the possibility to consider the failure to comply with the GDPR as a lack of conformity according to the DCD: see *Ubertazzi*, Models of Information, cit., p. 211 and, referring to the French implementation act, *Senechal*, The Implementation of the EU Directives, cit., p. 266.

41 Cf. *Metzger*, § 327q BGB, in Münchener Kommentar zum BGB, cit., Rn. 3 et seq. and *Arroyo Amayuelas*, The Implementation, cit., p. 37: "the hypothesis on which this remedy granted to the trader is based has nothing to do with breach of contract and, consequently, it is questionable whether what is in fact only a right to withdraw from or to rescind the contract should be classified as a termination ("resolución")".

Italian *Codice del consumo*),[42] hence leaving the relationship between the latter and contract (consumer) law to be ascertained by way of interpretation.[43]

It is hardly necessary to mention that similar coordination issues also arise with regard to other legal frameworks now applying to personal data, which only can be legitimately processed when a legal basis according to the GDPR exists and the data user complies with other provisions laid down therein.[44]

IV. The meaning of Article 7(4) GDPR and the legitimacy of a bundled consent

When determining the interaction between data protection and (consumer) contract law, there is one provision in particular that should be preliminarily consid-

---

42 As regards the effects of the consent's withdrawal, from an Italian perspective, *Gallo*, Il consenso al trattamento, cit., pp. 1088 et seq.; *Thobani*, Diritti della personalità e contratto, cit., pp. 186 et seq.; *Irti*, Consenso "negoziato", cit., pp. 113-114; *Pagliantini*, L'attuazione minimalista della Dir. 2019/770/UE, cit., pp. 1522 et seq.
Further, the specific issue of the contractual consequences of the consent withdrawal was not explicitly addressed by the French legislator: cf. *Senechal*, The Implementation, cit., p. 266, in whose opinion "when the consumer's consent is the legitimate basis for the processing of his personal data, the withdrawal of consent cannot affect the survival of the contract concluded between the consumer, the holder of the data, and the trader, even if the contract does not provide for a price to be paid by the consumer".
Provisions concerning the consequences of the consent's withdrawal are also missing in Austria, where some Authors argue for the survival of the obligation (after the consent's withdrawal) as a natural obligation (Naturalobligation): for the implementation of the DCD in Austria, cf. *Flume/Kronthaler/Leimer* (eds.), VGG – Verbrauchergewährleistungsgesetz, Verlag Österreich, 2022, passim.

43 The different approaches taken in some selected legal orders are pointed out by *Versaci*, Il valore negoziale dei dati personali del consumatore: spigolature sul recepimento della direttiva 2019/770/UE in una prospettiva comparata, in Cremona/Laviola/Pagnanelli (eds.), Il valore economico dei dati personali tra diritto pubblico e diritto privato, Giappichelli, 2022, pp. 163 et seq.

44 Cf. *Resta*, Pubblico, privato, collettivo nel sistema europeo di governo dei dati, cit., pp. 623-624; *Bravo*, Intermediazione di dati personali e servizi di data sharing dal GDPR al Data Governance Act, cit., pp. 199 et seq.; *Hennemann/v. Ditfurth*, Datenintermediäre und Data Governance Act, cit., 1910; *Geradin/Bania/Karanikioti*, The Interplay Between the Digital Markets Act and the General Data Protection Regulation, 2022, available at https://ssrn.com/abstract=4203907 (accessed on June 04, 2023); *Steinrötter*, Verhältnis von Data Act und DS-GVO. Zugleich ein Beitrag zur Konkurrenzlehre im Rahmen der EU-Digitalgesetzgebung, in GRUR, 2023, pp. 216 et seq.; *Specht-Riemenschneider*, Der Entwurf des Data Act, in MMR, 2022, pp. 810-811.

ered in order to establish if, when and how consumers may lawfully give consent to the processing of their personal data by concluding a contract for the supply of (digital) contents or services. The reference here is to Article 7(4) of the GDPR, according to which "when assessing whether consent is freely given, utmost account shall be taken of whether, *inter alia*, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract".

In following the attention will be focused on this disposition, which apparently covers instances that fall within the scope of European consumer law and especially of the DCD. The latter, in fact, does not apply when data is exclusively processed for the purpose of supplying the content or the service [i.e. for the contractual performance, or for allowing the trader to comply with legal requirements: Article 3(1) subpara 2 of the DCD]. Moreover, traders generally accept data instead of money only if they have the possibility of monetizing it, by using information for secondary purposes which are extraneous to the performance of the contract concluded with the data subject. Such use of personal data typically requires consent according to Article 6(1)(a) of the GDPR, on which the performance of the contract is therefore conditional.

Indeed, the extracontractual use of data could be also based on a legitimate interest according to Article 6(1)(f) of the GDPR,[45] which, however, does not allow the processing of all categories of personal data: for example, it is not a suitable basis for processing data according to Article 9 of the GDPR or by automated individual decision-making *ex* Article 22 of the GDPR. Additionally, the existence of a legitimate interest requires an assessment on a case-by-case basis in order to establish if it is overridden by other interests and fundamental rights and freedoms of the data subject. Moreover, relying on Article 6(1)(f) of the GDPR is not permitted, e.g., in case of some gatekeepers' data processing activities [cf. Article 5(2) and Recital no. 36 of the DMA]. Following, Article 6(1)(f) of the GDPR would in many cases not constitute an appropriate legal basis for the secondary use of data, which is usually pursued by traders supplying digital contents and services (free of charge). On the contrary, consent according to Article 6(1)(a) of the GDPR would often be essential for this purpose.[46]

45 Legal basis ex Article 6(1)(d) and (e) could be relevant as well: see *Metzger*, § 327 BGB, cit., Rn. 20.

46 The role of data subject's consent seems to be even reinforced according to the latest European legislation (see especially the provisions laid down in the DGA and in the DMA).

Regardless of whether such consent may be considered separate from the contractual one or not, it would in any case be subject (also) to the GDPR provisions, including Article 7(4) of the GDPR. However, it is unclear if the latter disposition, on the one side, and the contract law provisions (contained in the DCD as well as in the national implementing laws), on the other side, may be reconciled. One could argue, for example, that consent bundling is highly undesirable or even prohibited according to Article 7(4) of the GDPR. This would lead to a coordination issue or rather to a conflict between data protection law and the DCD, which applies *inter alia* where the consent is tied to the performance of the contract for the supply of digital content or a service, i.e. where the consumer allows the supplier to use his/her data for purposes not necessary for the contractual performance and where the consumer's consent to such a use of data is often essential if he/she wants to obtain the content or the service offered by the trader (or, at least, to get it without paying a monetary price).

Considering the bundled consent, on which the phenomenon of "paying" with personal data is typically based, as prohibited according to Article 7(4) of the GDPR, could even lead to a deprivation of consumer rights when contents and services are supplied against the data subject's information. According to the priority given by the European legislator to data protection law [see Article 3(8) and cf. Recital no. 37 of the DCD] and therefore also to Article 7(4) of the GDPR, contracts the performance of which is made dependent upon the consent to personal data processing that is not needed for the performance itself would be in infringement of the GDPR and could be regarded as illegal and eventually as void.[47] Consequently, the contract law provisions and remedies of the DCD, which imply the existence of a (valid) contract, would not apply.[48] This conclusion would also follow from an understanding of consent and contract as separate but (functionally) related acts which, as a rule (and unless adhering to the German principle of abstraction), exist and fall together (*simul stabunt, simul cadent*).[49]

Nevertheless, such conclusion could render Article 3(1) of the DCD meaningless or, at least, of little relevance, as consumer (protection) law would only

---

47 *Staudenmayer*, Article 3, cit., 89, Rn. 142; *Metzger*, A Market Model, cit., p. 33; Id., § 327 BGB, cit., Rn. 18 and 20; cf. § 327q BGB, cit., Rn. 3-4.; *Hacker*, Regulating the Economic Impact, cit., pp. 48 et seq.

48 For some criticism, see Authors in fn. 47.

49 Cf. (also for some solution proposals) Versaci, La contrattualizzazione dei dati personali, cit., pp. 177 et seq.; *Pagliantini*, L'attuazione minimalista della Dir. 2019/770/UE, cit., pp. 1528 et seq. See however (from a German perspective). *Metzger*, § 327q BGB, cit., Rn. 3; Id., A Market Model, cit., p. 33; *Lahusen*, Verdinglichung durch Datenschutz, in AcP, 2021, pp. 14-15; *Specht*, Daten als Gegenleistung, cit., p. 768.

apply when personal data processing would (and could) be exceptionally based on legal basis other than consent. Hence, an interpretation such as that mentioned above can only be shared if Article 7(4) of the GDPR cannot be understood otherwise. As will be shown, however, coordination between different legal frameworks (i.e. between data protection and consumer contract law) is certainly possible.

1. The strict ban on tying

Supposing that the European (consumer) contract law provisions are, in principle, based on the assumption that consumers give their consent to data processing, the possibility to reconcile them with Article 7(4) of the GDPR depends eventually on whether the latter really provides for a bundling prohibition and, if so, on how such a prohibition shall be understood.[50]

This has already been discussed before the GDPR entered into force. Although Directive no. 95/46/EC did not contain any provision that was analogous to Article 7(4) of the GDPR, some national legislators provided for a specific rule concerning the ban on tying within their national laws [see e.g. the former § 28(3b) of the German BDSG]. Furthermore, in some Member States which did not implement specific rules on the ban on tying, data protection authorities derived the existence of such a ban from the principle of freedom to consent [cf. Articles 2(h) and 7 of Directive no. 95/46/EC].[51]

However, even providing that a prohibition of coupling privacy consent and contract exists, there are different ways of how to interpret it. For example, some scholars, courts and authorities reckon that the bundling prohibition (does not only exist, but) should also be interpreted strictly. In this view, consent cannot be considered as freely given if the contractual performance (or the conclusion of the contract) is conditional on the data subject's consent to process his/her data for purposes extraneous to it.[52]

---

50 See, for the different interpretations, *Resta*, I dati personali oggetto del contratto, cit., 137 et seq.; Id./*Zeno-Zencovich*, Volontà e consenso nella fruizione dei servizi di rete, cit., pp. 426 et seq. and 430 et seq.; *Versaci*, La contrattualizzazione dei dati personali, cit., pp. 98 et seq.; *Pagliantini*, L'attuazione minimalista della Dir. 2019/770/UE, cit., pp. 1515-1516, nt. 74; *Gentili*, La volontà nel contesto digitale: interessi del mercato e diritti delle persone, cit., p. 711.

51 It. Garante della Privacy 28 May 1997, in Corr. giur., 1997, pp. 915 et seq. (with the case note by *Zeno-Zencovich*, Il "consenso informato" e la "autodeterminazione informativa" nella prima decisione del Garante).

52 Cf. *Voigt/vd Bussche*, EU-Datenschutz-Grundverordnung (DSGVO), Springer, 2018, p. 123; *Gierschmann*, Was „bringt" deutschen Unternehmen die DS-GVO? – Mehr Pflich-

A similar approach was taken by the Austrian Supreme Court in 2018:[53] there would be a strong presumption of invalidity of the consent bundled with the acceptance of contractual terms and conditions that cannot be renounced (without renouncing the contract, too) and such presumption could not be overcome by simply demonstrating the lack of the controller's monopoly position in the market.

Also, according to Guidelines no. 05/2020 of the EDPB, consent bundled to the contractual performance should be presumed not to be freely given[54] (for such presumption see then Recital no. 43 of the GDPR). In fact, the data subject – not wishing to make his/her information available for uses not strictly necessary for the contractual performance – would be unable to refuse the consent without renouncing the service or the content to the supplying of which the consent is tied. In other words, if interested in the contract, he/she would be "forced" to agree with the extracontractual use of data. As the compulsion would hinder the free exercise of the data subject's will, and would therefore render his/her consent invalid, the possibility of coupling consent and contract (and, eventually, of "paying" with personal data) would be excluded.

Indeed, cases in which the consent would be free and valid, despite conditionality, could exist from both the Austrian Supreme Court's and the EDPB's point of view. Nevertheless, such cases would be highly exceptional. To overcome the (strong) presumption of the consent's invalidity, the controller would need to prove that the data subject was effectively able to choose between paying with data (allowing its use for purposes not strictly necessary for contractual performance) and getting an equivalent performance (from the same controller) without consenting to data processing.[55] By lack of such evidence, the data subject's consent would be invalid and the question concerning the validity of the

---

ten, aber die Rechtsunsicherheit bleibt, in ZD, 2016, p. 54; *Damman*, Erfolge und Defizite der EU-Datenschutzgrundverordnung – Erwarteter Fortschritt, Schwächen und überraschende Innovationen, in ZD, 2016, p. 311. According to *Härting*, Internetrecht. Otto Schmidt, 2017, A. II Rz. 56, the bundling prohibition could even be regarded as reinforced by the GDPR. For the unlawfulness of the tying operations "in principle", *Gentili*, La volontà nel contesto digitale: interessi del mercato e diritti delle persone, cit., p. 711.

53 OGH 31 August 2018 – 6 OB 140/18 H. For a case note, see *Schwamberger*, Reichweite des Koppelungsverbots nach alter und neuer Rechtslage, in GPR, 2019, pp. 57 et seq.

54 EDPB Guidelines 05/2020, cit., pp. 10 et seq., 12, point 35.

55 EDPB Guidelines 05/2020, cit., 10 et seq., 12, points 35, 37-38; OGH 31 August 2018 – 6 OB 140/18 H; cf. *Golland*, Das Kopplungsverbot in der Datenschutz-Grundverordnung. Anwendungsbereich, ökonomische Auswirkungen auf Web 2.0-Dienste und Lösungsvorschlag, in MMR, 2018, pp. 134-135.

contract, which is conditional on it, would also arise. In order not to deprive consumers of the protection given by the DCD when the contract is based on an invalid consent and is therefore in infringement of the data protection law, one could only argue that the occurrence of a data breach does not automatically result in the Directive's non-application, regardless of the validity of the contract entered into by the data subject to which the (invalid) consent is tied.

2. The possibility to bypass the bundling prohibition by use of legal basis for processing other than consent

In another opinion, the ban on tying, whether existing or not, would, on the contrary, not hinder the possibility to (legitimately) use personal data in order to "pay" for the service or the content supplied. A consent according to Article 6(1)(a) of the GDPR would in fact not be necessary for the purpose. As data monetization is closely linked with the performance of the contract concluded with the trader supplying contents, services or (other) goods,[56] in the discussed cases data processing would rather find its legal basis in Article 6(1)(b) of the GDPR [cf. Article 7(b) Directive no. 95/46/EC], which provides for the lawfulness of data processing "necessary for the performance of a contract to which the data subject is party".[57] Accordingly, the collection and use of a consumer's data would be possible and lawful regardless of his/her consent, and Article 7(4) GDPR (which only applies "where processing is based on consent") would play no role by determining whether the practice of "paying" with data is legitimate or not.

Such interpretation is not convincing, as Article 6(1)(b) of the GDPR only considers cases in which data processing is necessary for the contractual performance and data is not used for any other purpose. However, this is not the case when a service or a content is supplied against data. As stated above, the trader is only willing to waive payment (in money), if he has the possibility to monetize data, which typically requires the possibility to process it for purposes

56 Although the DCD only applies to the supply of digital contents and services, personal data may be potentially used also in order to "pay" non-digital content and services as well as other goods.

57 See (before the GDPR entered into force) *Bräutigam*, Das Nutzungsverhältnis bei sozialen Netzwerken - Zivilrechtlicher Austausch von IT-Leistung gegen personenbezogene Daten, in MMR, 2012, p. 640; *Weichert*, Die Ökonomisierung des Rechts auf informationelle Selbstbestimmung, in NJW, 2001, p. 1467. Cf. also *Wendehorst*, Die Digitalisierung und das BGB, in NJW, 2016, p. 2612; Id./*Graf von Westphalen*, Das Verhältnis zwischen Datenschutz-Grundverordnung und das AGB-Recht, in NJW, 2016, p. 3747.

not necessary to the performance of the contract. Consequently, Article 6(1)(b) of the GDPR does not constitute an appropriate legal basis for the processing of data provided to get content or a service.[58]

The idea that consumers "paying" with personal data need to accept the use of the latter for extracontractual purposes seems also to be confirmed by the wording of Article 3(1) subpara 2 of the DCD [cf. Article 4(2) of the *Omnibus* Directive and the new Article 3(1a) of the CRD]. According to this provision, which clearly wants to address cases where consumers "pay" with their own data, European contract – or, rather, consumer – law does not apply where personal data are exclusively processed by the trader for the purpose of supplying the digital content or digital service in accordance with the Directive (or for allowing the trader to comply with legal requirements to which the trader is subject) and the trader does not process data for any other purpose.[59]

Considering the similarities between the exceptions to the DCD's scope of application and the legal basis laid down in Article 6(1)(b) and (c) of the GDPR [as well as the limited relevance of those mentioned in Article 6(1)(d) and (e) of the GDPR in the cases under discussion],[60] providing data in order to get a digital content or service under the European consumer law could be essentially

---

58 Cf. *Schmitz/Buschuew*, (Be-)Zahlen mit Daten. Im Spannungsverhältnis zwischen Verbot mit Erlaubnisvorbehalt und Privatautonomie, in MMR, 2022, pp. 172-173; *Sattler*, Autonomy or Heteronomy – Proposal for a Two-Tier Interpretation of Art. 6 GDPR, in Lohsse/Schulze/Staudenmayer (eds.), Data as Counter-Performance, cit., pp. 241-242; *Frenzel*, Artikel 7, in Paal/Pauly (eds.), Datenschutz-Grundverordnung, Beck, 2021, Rz. 20. Additionally, relying on Article 6(1)(b) of the GDPR is not permitted, e.g., in case of some gatekeepers' data processing activities: see Article 5(2) and Recital no. 36 of the DMA. As regards the legal basis of Article 6(1)(b) of the GDPR, see now CJEU 4 July 2023, C-252/21 – Meta Platforms and Others, points 97 et seq., 125. For a case note, see *Bachelet*, La Corte di giustizia sul caso Meta: trattamento dei dati e "prezzo" del consenso, in Pactum, 2023, pp. 483 et seq.

59 This is basically what data intermediation service providers only can do according to the DGA: in fact, as stated by Article 12(1)(a) of the DGA, an intermediary "shall not use the data for which it provides data intermediation services for purposes other than to put them at the disposal of data users".

60 *Metzger*, A Market Model, cit., 2020, p. 33; cf. *Staudenmayer*, Article 3, cit., p. 73, Rn 60-61 and 64: according to the latter, similarities of the exception in Article 3(1) subpara 2 of the DCD and Article 6(1)(b) and (c) of the GDPR, "are not to be interpreted as references to the legal grounds for processing personal data". For the possibility of a synchronization between Directive no. 2019/770 and the GDPR based on Article 6(1)(b) of the GDPR, see *Sattler*, Autonomy or Heteronomy, cit., pp. 241-242: even if "the relationship between Art. 3(1) sentence 2 DSCD and Art. 6(1)(b) is less clear than the respective wording suggests", "it is unlikely that Art. 6(1)(b) provides an option to synchronize the DCSD and the GDPR". For a synchronization based on Article 6(1)(f) GDPR, see then pp. 242 et seq.

based whether on a trader's legitimate interest [Article 6(1)(f) of the GDPR] or on the data subjects' consent [Article 6(1)(a) of the GDPR]. However, as there are many cases in which Article 6(1)(f) of the GDPR can also not be considered a suitable basis for data processing,[61] the data subject's consent would often likely be essential for the extracontractual use and, therefore, for the monetization of data, the possibility of which is the requirement that the trader does not want to do without when supplying a content or a service "for free".[62]

3. Conditionality as one of several circumstances to be considered by assessing the freedom of consent

From a different point of view, "paying" with one's own data would also be admitted by identifying the basis of processing in the data subject's consent. This would be possible, even though the latter is bundled up as a condition of the contractual performance. To consider the bundled consent freely given in a specific case, it would be only necessary to interpret Article 7(4) of the GDPR differently, trying a relaxation of the ban on tying.[63] One could argue, e.g., that the GDPR provision, when interpreted literally, only addresses cases in which the contractual performance and not the conclusion of the contract is conditional on the data subject's consent, which is not necessary for the performance itself. As in many cases in which consumers "pay" with their data, the consent according to Article 6(1)(a) GDPR is essential in order to enter into the contract with the

61 See above, para 4. See now also C-252/21 – Meta Platforms and Others, points 105 et seq., 126.

62 As highlighted by *Staudenmayer*, Article 3, cit., 73, Rn. 64; *Metzger*, A Market Model, cit., 33.

63 See *Becker*, Eine Materialisierung des datenschutzrechtlichen Koppelungsverbots. Zur Regulierung des vertragslosen Tauschs von Daten gegen Leistungen, in CR, 2021, pp. 230 et seq.; *Bijok*, Kommerzialisierungsfester Datenschutz. Rechtliche Problemlagen der Datennutzung in der Informationswirtschaft, Nomos, 2020, pp. 129-130, 212 et seq., 234, 260, 317, 388, 412, 419; *Sattler*, Neues EU-Vertragsrecht für digitale Güter — Die Richtlinie (EU) 2019/770 als Herausforderung für das Schuld-, Urheber-, und Datenschutzrecht, in CR, 2020, p. 152; *Versaci*, La contrattualizzazione dei dati personali, cit., pp. 98 et seq. In the sense that Article 7(4) GDPR would even not provide for a prohibition, i.a., *Faust*, Ausschließlichkeitsrecht an Daten? In Stiftung Datenschutzrecht, Dateneigentum und Datenhandel, Erich Schmidt, 2019, p. 90. Also, according to *Wendehorst*, Die Digitalisierung, cit., p. 2612, the significance of the ban on tying should be reconsidered.

trader (rather than to perform it), Article 7(4) GDPR would therefore not apply to them.[64]

However, also extending the scope of application of Article 7(4) GDPR, affirming its applicability to cases in which the conclusion of the contract is conditional on the data subject's consent, would not prevent the consideration of such contracts in accordance with the GDPR. Whether the connection between contractual conclusion and/or performance and the data subject's consent should be allowed or not would depend, in fact, not only on the link existing between consent and contract, but also on other circumstances:[65] among others on the data subject's relationship to the other party (see Recital no. 43, sentence 1, of the GDPR)[66] and on the specific performance to be carried out,[67] as well as on the possibility of further access to it (see Recital no. 42, sentence 5, of the GDPR).[68]

Additionally, in some scholars' opinion, the consent would be freely given and consequently valid – independent of the trader's monopoly position[69] – if the latter makes clear that a contract is going to be concluded between the parties (including the use of data as counter-performance within the purposes for

64 Cf. *Resta*, I dati personali oggetto del contratto, cit., p. 140.

65 See e.g. *Frenzel*, Artikel 7, cit., Rn. 18.

66 The above-mentioned recital contains a reference to an imbalance that would exist, e.g., "in the employment context […] between the employer and the employee" and "whenever the controller is a public authority": so EDPB Guidelines 05/2020, cit., pp. 7 et seq. Cf. *Frenzel*, Artikel 7, cit., Rn. 18. An imbalance is also typical for the relationship between a costumer and a bank: see, e.g., Cass. 21 October 2019, no. 26778, in Dir. inf., 499 et seq. (with the case note by *Thobani*, Richieste preventive di consenso al trattamento dei dati: quando la tutela rischia di essere eccessiva).

67 *Thobani*, I requisiti del consenso al trattamento dei dati personali, Maggioli, 2016, p. 56.

68 *Metzger*, § 327q BGB, cit., Rn. 5; *Plath*, Artikel 7, in Plath (ed.), BDSG/DSGVO, Otto Schmidt, 2018, Rz. 14; *Stemmer*, Artikel 7 DS-GVO, cit., Rz. 49.1. See also the Austrian Data Protection Authority 30 November 2018, no. DSB-D122.931/0003-DSB/2018, available at https://www.ris.bka.gv.at/Dokumente/Dsk/DSBT_20181130_DSB_D122_931_0003_DSB_2018_00/DSBT_20181130_DSB_D122_931_0003_DSB_2018_00.pdf (accessed on March 28, 2025): in order to consider the consent as freely given, the data subject should have the possibility to choose between payment of a price in money and "payment" by consenting to data access (e.g. for tracking purposes).

69 See however *De Franceschi*, Digitale Inhalte gegen personenbezogene Daten, cit., p. 119. For the question as to whether the application of Article 7(4) of the GDPR also depends on a monopoly position of the data controller or not, *Stemmer*, Artikel 7, in Wolff/Brink (eds.), BeckOK Datenschutzrecht, Beck, 2022, Rn. 46-47.

which the data subject's permission is given);[70] additionally, if the data subject is made aware of the possibility to withdraw the consent already given: the right of withdrawal according to Article 7(3) of the GDPR would, in fact, present the real safeguard of the data subject's freedom of choice in the case of a bundled consent.[71] According to this view, the (weak) ban on tying – if it actually exists – would therefore primarily fulfil a transparency function (*Transparenzfunktion*).[72]

The idea that the existence of a conditionality does not prevent from affirming the freedom of consent and from considering paying with personal data as legal is also shared by some national courts. For example, in a decision from 2018 the Italian Supreme Court stated that the link established between the contractual performance and the consumer's consent to the processing of his/her data does not hinder the voluntary nature (*i.e.* the freedom) of the latter[73]. In the case decided by the Italian judges, the access to a newsletter service was conditional on the consent to the use of the consumer's data. Unlike the *Garante della Privacy*[74], the Court did not consider the circumstance of bundling as an impediment to the validity of the operation, rather focusing on the attributes of the data subject's consent as the prerequisite of a legitimate personal data disclosure. According to the judges, "paying" with (or giving access to) personal data would be allowed, provided that free, informed and specific consent was given by the data subject when concluding the contract. With special regard to the freedom of consent, the latter would not be excluded just because of the tying if the counterparty's performance were fungible (i.e. replaceable with an analogous one) and deniable by the data subject (without detriment). In case of a newsletter service, e.g., the user would have the possibility to get the same information through *other* (chargeable) internet sites or newspapers and could therefore deny his/her consent to data processing without suffering any negative effect: hence, the link between such a performance (delivery of news through a newsletter ser-

70 *Langhanke*, Daten als Leistung, cit., pp. 136-137; *Schmidt-Kessel*, Consent for the Processing, cit., p. 77; Id./*Grimm*, Unentgeltlich oder Entgeltlich?, in ZfPW, 2017, p. 91.

71 *Versaci*, Consenso al trattamento dei dati personali e dark patterns tra opzionalità e condizionalità, in NLCC, 2022, p. 1144.

72 See Authors in fn. 70-70.

73 Cass. 2 July 2018, no. 17278, in Giur it, 2019, 530 et seq., with the case note by *Thobani*, Operazioni di tying e libertà del consenso.

74 It. Garante della Privacy 25 September 2014, n. 427, available at https://www.garanteprivacy.it/web/guest/home/docweb/-/docweb-display/docweb/3457687 (accessed on March 28, 2023).

vice) and the consent would not automatically lead to an exclusion of the freedom requirement.

The question concerning the interpretation of the so-called *Koppelungsverbot* (i.e. the German expression for the ban on tying) was further addressed by the Court of Appeal of Frankfurt am Main,[75] which eventually shared the view of the Italian judges. However, while the latter decided on a case still covered by the "old" law, the German case fell *ratione temporis* under the GDPR. Nonetheless, the judges did not focus on the interpretation of Article 7(4) of the GDPR, but rather assessed the effects of the conditionality only in the light of the principle of freedom of consent *ex* Article 4(11) of the GDPR [also referring to the rules of Directive no. 95/46/EC: see Article 2(h)]. They stated in particular that the consent to processing of personal data for advertising purposes may be considered freely given, even if the participation in a lottery is conditional on it. For this purpose, it would be only necessary to ensure that the data subject's consent to the use of data is expressed without pressure (*ohne Zwang*), giving him/her the possibility to refuse or to withdraw the consent, without any prejudice (see Recital no. 42 of the GDPR).

Although the German Court's decision can be understood as a confirmation of the weak character of the bundling prohibition, it does, however, deserve some criticism, as the judges did not explicitly consider Article 7(4) of the GDPR, avoiding taking a position on its role by assessing the freedom of consent, as well as by determining the legality of the widespread practice of "paying" with personal data. A statement on this point would have been desirable, as other authorities still prefer a different, stricter interpretation of the bundling prohibition, which clearly increases the uncertainty on the manner in which the Regulation's disposition should be interpreted.

V. Adhesion to the opinion sub 3

The opinion on the existence of a weak ban on tying is surely preferable as it does allow better coordination with the existing consumer law provisions and with the needs rising from today's digital and data economy. Moreover, it seems to be in line with the European data protection law and specifically with the *ra-*

75 OLG Frankfurt a.M. 27 June 2019 – Az.: 6 U 6/19, in BeckRS, 2019, 17820.

tio of the European Regulation, that "adheres to the freedom of contract", considering its "illegality and voidness as the exception" (and not *vice versa*).[76]

Also, the wording of Article 7(4) of the GDPR (cf. Recitals no. 42 and 43) does not allow an argument against the freedom and therefore the validity of the consent just because the access to information and its use is required for (the conclusion of the contract and/or for) the contractual performance. On the contrary, according to the GDPR, there is simply the need to take "utmost account" of the conditioning by determining, whether consent has been freely given or not. As the situation of tying has only to be considered "*inter alia*", the link between consent and contractual performance is therefore only one of the factors that shall be taken into account when deciding about the freedom of the data subject's consent.[77] Thus, it is not enough to conclude on its invalidity and for the illegitimacy and/or the illegality of contractual operations involving personal data. This is also what those preferring a strict interpretation of Article 7(4) of the GDPR basically admit: by confirming the existence of a strong presumption of the invalidity of the consent tied to the performance of the contract, they cannot deny that there is still a "limited space for cases where […] conditionality would not render the consent invalid".[78]

One can only ask whether the proof of the possibility for the data subject to get the identical (or at least an equivalent) content or service from the same (or from another) supplier without consenting to data use for additional purposes really represents the only exonerating circumstance for the controller [as regards gatekeepers, see, e.g., Recital no. 36 of the DMA];[79] or whether disclosure of

---

76 *Schmidt-Kessel*, Right to Withdraw Consent, cit., pp. 134 et seq. See, also for the history of Article 7(4) of the GDPR, *Versaci*, La contrattualizzazione dei dati personali, cit., pp. 98 et seq. Further, arguments against the above-mentioned opinion cannot be drawn from the EDPB's statements. In fact, by arguing that "the controller to whom consent has been provided by the data subject to the processing of her or his personal data is not entitled to 'exchange' or 'trade' personal data (as a so-called 'commodity') in a way that would result as not being in accordance with all applicable data protection principles and rules" (EDPB Statement 05/2021, cit., 4), the EDPB left open the possibility that personal data may be exchanged and traded by the controller to whom the data subject gave his/her consent in a manner that is compliant with the data protection law.

77 See also *Metzger*, A Market Model, cit., p. 34.

78 EDPB Guidelines 05/2020, cit., 11, point 35.

79 It is debated, however, if the consent can be considered as freely given also when a "choice exists between" the controller's "service that includes consenting to the use of personal data for additional purposes on the one hand, and an equivalent service offered by a different controller on the other hand": see (against such possibility) EDPB Guidelines 05/2020, cit., 11, point 38; on the contrary, according to *Metzger*, § 327q BGB, cit., Rn. 5, consent would be free if there were the possibility for the consumer to switch

appropriate information about the use of consumers' data [and the possibility of a withdrawal according to Article 7(3) of the GDPR] is enough, including by lack of alternatives, in order to ensure the data subject a genuine and free choice (see Recital no. 42, sentence 5, of the GDPR) and to conclude for the validity of the consent given. Only by opting for the latter interpretation would traders offering services or contents not available otherwise (exclusively) against personal data actually have a possibility to have their business model recognized as GDPR compliant and therefore as legally acceptable, provided they are not subject to stricter provisions[80] and their users were appropriately informed as to the use and the significance of their data within the specific transaction [also receiving the pre-contractual information according to the CRD as amended by the *Omnibus* Directive].[81]

In this regard, it may be incidentally noted that the need to ensure the data subject's capacity for self-determination is crucial whenever personal data enter the market. Such need now additional receives attention within the latest legislation at European level.[82] For example, the already mentioned DGA provides for a specific category of neutral data intermediation services, the purpose of which is to grant assistance to data subjects "in exercising their rights under Regulation (EU) 2016/679, in particular giving and withdrawing their consent to data processing". The providers of such services should ensure "that there are no misaligned incentives that encourage individuals to use such services to make more

---

to a paid offer from the same provider or if there were (only) the possibility to gain a comparable services from other providers.

80 For gatekeepers and intermediaries, cf. Recital no. 36 of the DMA ("to ensure that gatekeepers do not unfairly undermine the contestability of core platform services, gatekeepers should enable end users to freely choose to opt-in to" certain "data processing and sign-in practices by offering a less personalised but equivalent alternative, and without making the use of the core platform service or certain functionalities thereof conditional upon the end user's consent") and Article 12(a) of the DGA ("the data intermediation services provider shall not use the data for which it provides data intermediation services for purposes other than to put them at the disposal of data users").

81 See especially Article 6(1)(e) of the CRD. For personal data as counter-performance and to the coordination with the CRD (no. 2011/83), see *Đurović*, Adaptation of Consumer Law to the Digital Age, cit., p. 68; *De Franceschi*, Personal Data as Counter-Performance, in Senigaglia/Irti/Bernes (eds.), Privacy and Data Protection in Software Services, cit., p. 65; *Addante*, La circolazione negoziale dei dati personali nei contratti di fornitura di contenuti e servizi digitali, in Giust. civ., 2020, pp. 912 et seq.; *Ubertazzi*, Models of Information Circulation, cit., pp. 211-212. Additional information duties are now provided by the Digital Services Act – DSA (see in particular Articles 15 and 24 et seq.).

82 Cf. *Resta*, Pubblico, privato, collettivo nel sistema europeo di governo dei dati, cit., pp. 617-618.

data relating to them available for processing than would be in their interest". They should also advise "individuals on the possible uses of their data […] making due diligence checks on data users before allowing them to contact data subjects, in order to avoid fraudulent practices" (Recital no. 30; cf. also Recital no. 31). However, as specific provisions concerning personal data should be without prejudice to data protection law, the assistance provided would hardly be considered sufficient to avoid a data breach where the entity actually processing personal data would not be GDPR compliant.

VI. The (ongoing) evolution of CJEU case-law

The view which considers conditionality as (only) one of the several circumstances to be considered by assessing the freedom of consent deserves approval. However, the uncertainty that still exists due to the ambiguous formulation of Article 7(4) of the GDPR, the non-binding character of the Regulation's recitals and (consequently) due to the different opinions concerning the facts to be taken into account by assessing the freedom of the (bundled) consent would make a clarifying statement by the European Court of Justice desirable.[83]

Indeed, the European judges have already taken a stand on some questions concerning the validity requirements of the data subject's consent given in connection with the conclusion and/or the performance of a contract (especially, with a controller using so-called dark patterns).[84] For example, in *Orange România*, they confirmed the link between transparency and freedom of consent, stating that the latter "cannot be regarded as freely given or, moreover, as having been given in an informed manner" if the contractual terms are misleading as to the possibility of concluding the contract without giving it.[85] Nevertheless, in the case referred to the Court, the contract was not properly conditional on the

83 This is pointed out also by *Faust*, Ausschließlichkeitsrecht an Daten?, cit., p. 90.

84 For an analysis, see *Versaci*, Consenso al trattamento dei dati personali, cit., p. 1134 and *Pagliantini,* L'attuazione minimalista della Dir. 2019/770/UE, cit., pp. 1501, 1516, 1518-1519., 1534. As regards so-called dark patterns, see now Articles 25 and 31 of the Digital Services Act-DSA. For a definition, cf. Recital no. 67.

85 CJEU 11 November 2020, C-61/19 – Orange România, point 41. See the case notes written by *Angiolini*, A proposito del Caso Orange Romania deciso dalla Corte di Giustizia dell'UE: il rapporto fra contratto e consenso al trattamento dei dati personali, in NLCC, 2021, pp. 247 et seq.; *Dornis*, Sammlung und Aufbewahrung von Ausweiskopien durch TK-Anbieter, in GRUR-Prax, 2020, pp. 625 et seq.

consent to the processing of one's personal data, as *Orange România* did not refuse to conclude contracts with those who did not allow the storage of their data.[86]

On the contrary, this appeared to be the case in *Planet49*, where the user's consent to the processing of his/her data for advertising purposes (given by a pre-selected checkbox) was a prerequisite to participate in a promotional lottery.[87] However, the question of whether a data subject's consent can be tied or not has been left open by the Court, as it was not explicitly referred to.[88]

Finally, the opportunity to address the issue of the validity of a bundled consent has come with the *Meta Platforms* case.[89] In fact, one of the questions referred for a preliminary ruling also concerns the validity of the consent to the processing of personal data. In particular, the national court is asking whether such consent may be given effectively and freely to an undertaking having a dominant position in the market. As consent to process data (from different sources) appears to be an essential requirement for using the social network operated by the undertaking involved in the specific case, the CJEU will not be exempt from assessing the validity of consent conditional to the conclusion and performance of the contract.[90] In his (nonbinding) opinion the Advocate General has already suggested an answer to the question referred to the Court, stating that the circumstance of enjoying a dominant position by the recipient cannot, on its own, render the user's consent invalid.[91] The market power of the controller may certainly play a role by assessing the consent's freedom (which is for the controller to demonstrate). Nevertheless, other factors should be consid-

86 C-61/19 – Orange România, point 25.

87 CJEU 1 October 2019, C-673/17, Planet49. For a case note, see *Ogorek*, Zustimmung zur Speicherung von Cookies, in JA, 2020, pp. 478 et seq. See also the opinion delivered by the Advocate General on 21 March 2019 (point 99).

88 See point 64 of the judgment. Instead, the issue was addressed by the Advocate General, who explicitly excluded that the prohibition on bundling has an absolute character (point 98-99. of his opinion).

89 C-252/21 – Meta Platforms and Others. At the time of writing the case (decided on 4 July 2023) was still pending before the CJEU.
For an analysis of the (German) Facebook case and the interplay between competition law and data protection law, see e.g. *Herber/Zolna*, The German Facebook case: the law and economics of the relationship between competition and data protection law, in European Journal of Law and Economics, 2022, pp. 217 et seq.

90 As highlighted by *Versaci*, Consenso al trattamento dei dati personali, cit., p. 1148.

91 See the opinion delivered on 20 September 2022, points 71-77.

ered as well.[92] As far as it matters, according to the Advocate General, the ban on tying seems therefore not to be absolute in its nature. Hence, the fact that a consent is the condition to the conclusion of a contract does not prevent it from being regarded as freely given, if other circumstances (examined on a case-by-case basis) allow it. As regards big market players, the question should be now evaluated also considering the latest development in the EU legislation, which provides for stricter requirements for large digital companies, especially for online platforms qualified as "gatekeepers".

VII. Final remarks

Despite the increasing attention given to the flow of personal data and especially to the phenomenon of supplying personal data in order to obtain content or a service, there are still many questions arising from the use of data instead of money and its exchange on the market that need to be answered. In particular, it is still debated whether personal data can be legitimately considered a tradeable asset or not. In this regard, the relationship between contract and data protection law is to be more precisely defined.

The wording, as well as the *ratio,* of Article 7(4) of the GDPR does not seem to prevent a data subject's consent from being bundled to the conclusion of a contract and/or to the contractual performance, as is usually the case when (digital) contents, services and (other) goods are supplied against data. Bundling should be taken into account by determining whether the consent can be regarded as freely given or not. However, by evaluating the freedom and therefore the validity of consent other circumstances may and should be considered as well.

As scholars, courts, and national and European authorities still have different opinions not only with regard to the question of whether Article 7(4) of the GDPR provides for a (strict or weak) ban on tying, but also regarding the ques-

92 Point 77 of the opinion delivered by the Advocate General.
In its decision from 4 July 2023, the CJEU answered the question referred to it by ruling "that point (a) of the first subparagraph of Article 6(1) and Article 9(2)(a) of the GDPR must be interpreted as meaning that the fact that the operator of an online social network holds a dominant position on the market for online social networks does not, as such, preclude the users of such a network from being able validly to consent, within the meaning of Article 4(11) of that regulation, to the processing of their personal data by that operator. This is nevertheless an important factor in determining whether the consent was in fact validly and, in particular, freely given, which it is for that operator to prove".

tion of which specific facts must be considered when determining the consent's freedom and validity (despite the link existing with the contract and the contractual performance), a clarifying statement by the European Court of Justice would be certainly desirable.[93]

Additionally, as there would still be cases in which conditionality could render the data subject's consent invalid, there would eventually be a need to confirm the application of the DCD regardless of a GDPR infringement: otherwise, consumers could be deprived from the protection provided therein and traders infringing data protection law could be put in a better position than the ones respecting it.[94]

93 For the role dominance plays by assessing the consent's validity, see now C-252/21 – Meta Platforms and Others, points 140 et seq.

94 As stated by *Staudenmayer*, Article 3, cit., p. 89, Rn. 143 ("the trader who did not respect the GDPR would be in a better position than the trader that respect it"); *Metzger*, A Market Model, cit., p. 33 ["the application of the DCSD does not require the consent of the consumer (or data-subject) to be valid under Article 6(1) GDPR" as, "otherwise, the controller would profit from its non-compliance with the conditions of the GDPR"]; Id., § 327 BGB, cit., Rn. 18 and 20; cf. § 327q BGB, cit., Rn. 3-4; *Hacker*, Regulating the Economic Impact, cit., pp. 48 et seq. For the effects of an invalid privacy consent, see, from an Italian perspective, *Thobani*, Diritti della personalità e contratto, cit., pp. 198 et seq. For some solution proposals, see then *Versaci*, La contrattualizzazione dei dati personali, cit., pp. 177 et seq.

Digital Services Act: New Generation of Regulation or Regulatory Burden?

Hana Horak[*]

Abstract

Online platforms became very important in the digitized world from a legal, social and economic perspective. Regulatory framework in European Union remained unchanged for twenty years. Digital Services Act (DSA) is a piece of legislation that should bring a new regulatory framework for highly fragmented internal market rules for digital services. In this article the author will discuss if new legislation can address all the challenges brought up by new technologies, ensure clarity and protect fundamental rights of EU citizens.

Keywords: online platforms, digital services, Digital Services Act, EU

I. Introduction

Fast development of technology in the previous century speeds up in the new one, strongly changing every aspect of human life and our environment, our habits and our culture. The changes are radical since they do not only affect changes of our environment, culture and living habits, but also challenge the human role in this development. The digital environment, the digital economy and the digital market are characterized by rapid changes requiring constant adjustments. We all have a certain pile of information, that is, a lot is known to us, but still unknown when it comes to consumer rights in the digital environment. It is important that consumers are familiar with the rules that apply in the digital market. The rules must be clear and transparent in order to strengthen the position of the consumer and his position on the market, and to ensure trust in all processes between consumers, businesses and online platforms when purchasing

* Tenured full professor, University of Zagreb, Faculty of Economics and Business, Croatia.

goods and providing services. The creation of the Digital Single Market is an important part of the Digital Agenda for Europe 2020 and was defined in 2015 through the Digital Single Market Strategy for Europe.[1]

The strategy defines three main pillars of the digital market:

- Better access of consumers and businesses to digital services. That means facilitating cross-border e-commerce, tackling location-based denial of access, modernizing copyright regulation and simpler VAT provisions.

- Creating an environment conducive to the development of digital networks and services with special emphasis on rules in the field of telecommunications and media, modernization and regulation of Internet platforms and regulation of Internet services with special emphasis on data protection.

- Creating a European digital economy and a society with long-term growth potential. In order to create and use the European digital economy and having in mind the sharing of large amounts of data *i.e.*, Big Data which nowadays represents a new currency (big data = big business), it is necessary to regulate the data ownership as well as the data protection itself.

An important segment of the digital market development is cloud computing, *i.e.*, cloud data storage, as well as e-services in all areas, such as e-register of companies, e-health, e-government.

The big data sector achieves an annual growth of 40%, which is seven times the rate of the overall IT market. In order to take full advantage of digital and data technologies, it is necessary to constantly work on removing a number of technical and legislative barriers, especially with regard to consumer protection.

Online marketplaces, collaborative or "sharing" economy[2], platforms, communication platforms, social networks, video-sharing networks, search engines, maps, news aggregators, music platforms, video sharing platforms, pay-

1 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions: A Digital market Strategy, COM/2015/0192 final/.

2 See more in *Bodiroga-Vukobrat/Pošćić/Martinović*, "Old Economy" Restrictions in the Digital Market for Services, InterEULawEast: Journal for the International and European Law, Economics and Market Integrations, Vol. 5 No. 2, 2018, https://doi.org/10.22598/iele.2018.5.2.6.

ment systems, app stores, forums[3], have become the key infrastructure of our lives, but at the same time, these are the places where data and information about our habits, physical, mental and emotional state are collected, recorded, analysed and exchanged.

Customer data becomes a new "oil", thus new product on the market, and a row material for artificial intelligence tools, not only enabling prediction of future behaviour or needs but also influencing and streaming customers' behaviour in specific direction[4]. Thus, the usage of smart devices enables not only automatic data collection, but vice versa also, as it enables influence and change, *e.g.,* to automate human behaviour.

Social networks spread fast all over the world becoming popular platforms for social activities, but also for tracking activities and preferences of their members. There are number of cases of unauthorized data leaking and usage of social networks users, which abuses human rights and General Data Protection Regulation (GDPR), and attracts attention of government institutions in several countries.

Facebook currently owns four of the biggest social media platforms, all with over one billion monthly active users each: Facebook (core platform), WhatsApp, Facebook Messenger, and Instagram[5]. German competition regulators concluded that Facebook has a dominant position in the social networking segment in Germany and is abusing it. They banned Facebook from collecting data from other websites, saying they were giving them an unfair advantage over the competition[6].

"According to Facebook's terms and conditions users have so far only been able to use the social network under the precondition that Facebook can collect user data also outside of the Facebook website in the internet or on smartphone apps and assign these data to the user's Facebook account. All data collected on the Facebook website, by Facebook-owned services such as WhatsApp and In-

3 Online Platforms and the Digital Single Market, House of Lords, Select Committee on European Union 10th Report of Session (2015–16) https://publications.parliament.uk/pa/ld201516/ldselect/ldeucom/129/129.pdf. Accessed 22 March 2025.

4 *Zuboff,* Big other: surveillance capitalism and the prospects of an information civilization, Journal of Information Technology (2015) 30, pp.75-89.

5 According to: Most popular social networks worldwide as of April 2021, ranked by number of active users https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/. Accessed 22 March 2025.

6 Bundeskartellamt prohibits Facebook from combining user data from different sources, https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html. Accessed 22 March 2025.

stagram and on third party websites can be combined and assigned to the Facebook user account.

The authority's decision covers different data sources:

- Facebook-owned services like WhatsApp and Instagram can continue to collect data. However, assigning the data to Facebook user accounts will only be possible subject to the users' voluntary consent. Where consent is not given, the data must remain with the respective service and cannot be processed in combination with Facebook data.

- Collecting data from third party websites and assigning them to a Facebook user account will also only be possible if users give their voluntary consent.

If consent is not given for data from Facebook-owned services and third-party websites, Facebook will have to substantially restrict its collection and combining of data. Facebook is to develop proposals for solutions to this effect."[7]

The Facebook handling of user data was under investigation in USA by the Justice Department, the Federal Bureau of Investigation, the Securities and Exchange Commission, the Federal Trade Commission[8] and under investigation of several government agencies in Europe[9].

Facebook is under constant breach of most competition rules on the EU market, but obviously without sanctions, probably until the new rules apply[10].

The dynamic of the social networks requires constant institutional efforts, attention and care, which should be oriented to data usage on social networks platforms and obeying human rights and privacy regulation at the same time.

---

7 Bundeskartellamt prohibits Facebook from combining user data from different sources, https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html. Accessed 22 March 2025.

8 https://www.ftc.gov/about-ftc/foia/frequently-requested-records/facebook Accessed 22 March 2025.

9 *Singer* (2018 December 22), Why the F.T.C. Is Taking a New Look at Facebook Privacy, The New York Times, https://www.nytimes.com/2018/12/22/technology/facebook-consent-decree-details.html Accessed 22 March 2025.

10 *Sweeney* (2021 June 7), France fines Google for abusing online advertising dominance, The Guardian, https://www.theguardian.com/technology/2021/jun/07/france-fines-google-for-abusing-online-advertising-dominance. Accessed 22 March 2025.
The French regulator said its decision could open the way for publishers who felt disadvantaged to seek damages from Google. The decision to sanction Google is of particular significance because it's the first decision in the world focusing on the complex algorithmic auction processes on which the online ad business relie.

As some of the authors noted, the political art of human rights policy consists of placing the individual at the heart of all efforts, while at the same time considering traditions, culture and religion[11].

The user's behaviour, data unauthorized collection, usage, distribution and monetization erode privacy and pose threat to fundamental human rights. Human rights, united with security and development, form the framework for every human society, and the efforts of the government should be focused on carefully balancing these three-key issues regarding benefits of citizens and society. There is still a conflict between data flow and data protection.

In 2010, the late Steve Jobs has warned that privacy means people know what they are signing up for and they should know precisely what are you going to do with their data[12].

In the same year, Steve Jobs also said that privacy should be sacrosanct for tech companies. Today, in the light of the constant privacy scandals, from the political Cambridge Analytica[13] Case to the sharing of sensitive health data (EDRi/CookieBot) in France and Germany, and Privacy International (PI) investigations, we can see that results are exposing strong lack of confidence in data protection.

General Data Protection Regulation[14] (GDPR) is an effort to manage this highly sensitive and fast changing area balancing privacy and human rights.

It is obviously that additional efforts of regulators and government institutions are required if there is a need to determine the process and procedures of granting supervisory means in accordance with GDPR more precisely, in order to avoid such problems where surveillance means are used for collecting and tracking personal data and where this was concerned as a security issue. The

---

11 *Nooke*, Human Rights Before and After the Fall of the Berlin Wall, Puente Democratico. Year XIV N° 59, November 9, 2016, DocumentoPD59en.pdf. Accesed 22 March 2025.

12 *Yurieff,* Steve Jobs warned about privacy issues in 2010. Mark Zuckerberg was in the audience, CNN Business, 2018 March 27, https://money.cnn.com/2018/03/27/technology/steve-jobs-mark-zuckerberg-privacy-2010/index.html?sr=fbCNN032718steve-jobs-mark-zuckerberg-privacy-20100221PMStory. Accessed 22 March 2025.

13 The New York Times reported that data included information from over 50 million profiles breaching Facebook's rules. Confessore, N. (2018 April 4). Cambridge Analytica and Facebook: The Scandal and the Fallout So Far. The New York Times. https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html Accessed 22 March 2025.

14 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 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 OJ L119, 27.4.2016.

GDPR is a landmark piece of legislation and is changing the world, at least in terms of how people look at their privacy and data protection rights. The Digital Services Act (DSA) package has the potential to reshape the Internet, affect how individuals' rights online are respected, and in so doing profoundly transform the way the European Union – and possibly the world – communicates, buys, works and lives online[15].

The digital single market should enable consumers and businesses to take full advantage of the opportunities offered by the Internet and digital technologies.

The EU data economy was estimated at €272 billion in 2015 (annual growth of 5.6%) and employing 7.4 million people in 2020. In 2016, this value increased to 300 billion euro and to 739 billion euro at the end of 2020, representing 4% of the overall EU GDP. The Commission intends to support the creation of European Data space (also called the "seamless data space") with the scale to enable the development of new products and services based on data. Also, data should be available for reuse and recycling (we recycle garbage more or less successfully so why not data) as a key source for innovation and growth.

Almost all transactions nowadays depend on a smooth and free flow of data. After years of discussion, we have witnessed the adoption of GDPR, the right to be forgotten and there is always a struggle between the fundamental right to privacy and the free movement of data.

Free flow of data is definitely an expression of freedom of movement but in its own sense, of course, and much different from other four freedoms. Production of new rules providing the regulatory framework which has similarities with four freedoms *e.g.,* balancing pro-integration arguments with legitimate interest, removal of barriers and coordination mechanisms, happens on a daily basis.

Still, from the legal point of view there is a difference between the free flow of data and other freedoms because the former lacks primary law status like the other four freedoms have!

It is important to bear in mind that free flow of data is subordinated to other primary law rules, first of all, the right of privacy and personal integrity! As a new freedom, compared to the 60 years of development of the old four freedoms, we are missing continuity and development in practice. The Court of Justice of the European Union (CJEU) is working hard and results are here, but as pointed out many times, it is questionable if all these actions are taken fast enough to follow technological development. Despite its primary great applica-

15 *Ponce Del Castillo*, ETUI Policy Brief N°12/2020 European Economic, Employment and Social Policy the Digital Services Act package: Reflections on the EU Commission's policy, 2020, https://www.etui.org/publications/digital-services-act-package. Accessed 22 March 2025.

tion, the GDPR in practice is exposing that it is not fully applicable to all sectors, so specific detailed rules regarding data protection in sectors like health, finance, insurance etc. are needed in addition. Therefore, it is up to a business practice to adapt and find out a specific sector solution in the current circumstances.

Digital services are another comprehensive field and not easy to regulate. According to the available studies, the platform economy has given rise to new sources and types of power that challenge basic concepts upon which the existing regulatory frameworks are built. Various policy reports have tried to conceptualize these new forms of power and have proposed some different terms: digital gatekeepers, unavoidable trading partners, structuring platforms, market players holding strategic market status, market players of paramount significance for competition across markets, etc[16].

It is evident today that the power held by platforms also challenges societies and individuals at large. This includes regulations designed to protect them, such as data protection, consumer and media law. Discussions about regulating platform power should therefore not only consider the control held by platforms over their business users but also over consumers[17]. Analyses of the last difficult period exposed that the COVID-19 pandemic has created a unique situation where confinement measures and closure of frontiers have led all sectors of industry and society to digitise at lightning speed in order to be able to pursue their activities. Although digitalisation of traditional sectors could already be observed before the COVID-19 pandemic, the latter has significantly accelerated its pace, and exposed the opportunities and weaknesses of the platform economy[18].

Data suggested that the traffic share and revenues have increased for social media, search engines and some national marketplaces while they have decreased for platforms in the tourism and travel sectors. The top 5 platforms (Google, Apple, Facebook, Amazon, Microsoft) have been quite resilient and recorded profits in 2020. In addition, the pandemic led to an acceleration of the

16 *Busch/Graef/Hofmann/Gawer,* Uncovering blindspots in the policy debate on platform power: Final report. European Commission, 2021, https://platformobservatory.eu/app/uploads/2021/03/05Platformpower.pdf. Accessed 22 March 2025.

17 Ibidem.

18 *Lechardoy/Sokolyanskaya/Lupiáñez-Villanueva*, Study on "Support to the Observatory for the Online Platform Economy", Analytical paper on the structure of the online platform economy post COVID-19 outbreak. Resource document. Observatory on the Platform Economy., 2021, https://platformobservatory.eu/app/uploads/2021/01/AP6-COVID19-impacts-final.pdf. Accessed 22 March 2024.

digital transition of sectors that were still very much offline (*e.g.,* health, education), and to the emergence of new platforms in these fields[19].

As far as the EU digital initiatives are concerned, on 15 December 2020 the European Commission proposed rather ambitious reform of the digital space, a comprehensive set of new rules for all digital services, including social media, online marketplaces, and other online platforms that operate in the European Union: the Digital Services Act[20] **(**DSA**)** and the Digital Markets Act[21]. These two regulatory pieces are the outcome of the European Union's Shaping Europe's Digital Future Strategy[22] as a digital umbrella proposal. The Strategy outlines three key objectives: (i) Technology that works for people: connectivity is a building block of digital transformation, and the Commission aims to foster investment in innovation and cybercrime prevention, (ii) A fair and competitive economy: a frictionless single market with fair competition, facilitated by a European single market for data, and effective enforcement of rules offline and online to prevent gatekeeping from platforms with market power, and (iii) An open, democratic and sustainable society: a trustworthy environment in which citizens are empowered in how they act and interact, and of the data they provide both online and offline.

According to Eurobarometer 61% of surveyed EU citizens say they have come across illegal content online, and 65% say they do not think the Internet is safe for use. A large majority (90%) agree that arrangements need to be in place to limit the spread of illegal content online. A large majority (85%) agree that freedom of expression needs to be protected online. Furthermore, 44% agree online hosting services are effective in tackling illegal content and 90% of surveyed citizens agree that online hosting services should immediately remove content flagged as illegal by public or law enforcement authorities[23] Moreover, 70% of respondents believe disinformation is spread by manipulating algorith-

19 Ibidem., p. 11.

20 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, COM/2020/825 final.

21 Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act), COM/2020/842 final.

22 Shaping Europe's Digital Future (February 2020). Resource document. European Commision, https://ec.europa.eu/info/sites/default/files/communication-shaping-europes-digital-future-feb2020_en_4.pdf. Accessed 22 March 2025.

23 Flash Eurobarometer 469, Tackling illegal content online (September 2018.) European Commission. Flash Eurobarometer on illegal content | Shaping Europe's digital future (europa.eu). Accessed 22 March 2025.

mic processes on online platforms[24]. When we analyse these numbers, we see that the roles and responsibilities of online platforms regarding data flows and issues such as illegal content and the sale of dangerous or counterfeiting goods must be made clear. As noted in the Strategy: "Digital technologies, as advanced as they may be, are just a tool. They cannot solve all of our problems. Yet they are making things possible which were unthinkable a generation ago." The success of Europe's digital strategy will be measured in how well we are able to put these tools to work in delivering public goods to European citizens and this is one of the essentials to analyse regulatory proposal of the Digital Services Act; to foresee these regulatory solutions as a tool.

For a better understanding of EU activities in this field, it is also important to mention the European Union's Digital Compass[25] presenting the vision of EU's digital transformation by year 2030 considering an enormous range of changes and challenges appearing during and after the COVID 19 pandemic with an emphasis on the use of digital tools by the European citizens. This European way for the digital society is also based on ensuring respect of EU fundamental rights in full, as for the freedom of expression, access to diverse, trustworthy and transparent information and other economic freedoms like the freedom to set up and conduct a business online, protection of personal data and privacy, right to be forgotten, and protection of the intellectual creation of individuals in the online space. According to the EU Digital Compass it is equally important to set up a comprehensive set of digital principles that will allow to inform users and guide policy makers and digital operators such as: Universal access to internet services; A secure and trusted online environment; Universal digital education and skills for people to take an active part in society and in democratic processes; Access to digital systems and devices that respect the environment; Accessible and human-centric digital public services and administration; Ethical principles for human centric algorithms; Protecting and empowering children in the online space; Access to digital health services[26].

For the above mentioned, one of the most important issues is to know in advance and to set the rules on the "level playing field". As Commissioner for Internal Market *Thierry Breton* have said: "Many online platforms have come to

24 Summary Report on the open public consultation on the Digital Services Act Package. Resource document. European Commission (15 December 2020) https://ec.europa.eu/digital-single-market/en/news/summary-report-open-public-consultation-digital-services-act-package. Accessed 22 March 2025.

25 2030Digital Compass, The European Way for The Digital Decade. (March 2021) Resource document. European Commission, https://digital-strategy.ec.europa.eu/en/policies/digital-compass. Accessed 22 March 2025.

26 Ibidem p. 8.

play a central role in the lives of our citizens and businesses, and even our society and democracy at large. With today's proposals, we are organising our digital space for the next decades. With harmonised rules, ex ante obligations, better oversight, speedy enforcement, and deterrent sanctions, we will ensure that anyone offering and using digital services in Europe benefits from security, trust, innovation and business opportunities."[27].

From the author's perspective it is of the utmost importance to focus on how to put the human in centricity of the regulatory framework, and not only platforms.

According to the Commission, the new rules will better protect consumers and their fundamental rights online, and will lead to fairer and more open digital markets for everyone. A modern rulebook across the single market will foster innovation, growth and competitiveness and will provide users with new, better and reliable online services. It will also support the scaling up of smaller platforms, small and medium-sized enterprises, and start-ups, providing them with easy access to customers across the whole single market while lowering compliance costs. Furthermore, the new rules will prohibit unfair conditions imposed by online platforms that have become or are expected to become the gatekeepers to the single market.

The Commission announced a number of specific legislative initiatives related to data, the first of which is the proposed Data Governance Act[28], launched in November 2020, which aims to foster the availability of data for use by increasing trust in data intermediaries and by strengthening data-sharing mechanisms across the EU. Proposal for a new Data Act is expected later this year. This initiative, known as the "Data Act", aims to facilitate access to and use of data, including business-to-business and business-to-government, and to review the rules on the legal protection of databases. It seeks the right balance between rights to access data and incentives to invest in data, without changing the current data protection rules[29].

Network and cybersecurity are also critical to the EU achieving "digital sovereignty". Together with European Union Agency for Cybersecurity

27 Europe fit for the Digital Age: digital platforms. (15 December 2020). Resource document. Press corner. European Commission. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2347. Accessed 22 March 2025.

28 Proposal for a Regulation on European data governance (Data Governance Act) – COM (2020) – 767 final2020/0340 (COD).

29 Data Act & amended rules on the legal protection of databases. Resource document. European Commission https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13045-Data-Act-&-amended-rules-on-the-legal-protection-of-databases_en. Accessed 22 March 2024.

(ENISA) initiatives, the Commission aims to strengthen a high common level of security of network and information systems with a horizontal regulatory proposal. The European Commission also introduced a proposal for a revised directive on the Security of Network and Information Systems (NIS 2.)[30]. Approach to Artificial Intelligence (AI)[31] has been tabled by the European Commission. The aim is to adopt an EU-wide framework to ensure legal certainty for both citizens and businesses, while avoiding fragmentation of the internal market. Given the specific characteristics of AI technologies, the new rules will focus on two areas where the use of AI is expected to entail higher risks: fundamental rights (including privacy and data protection), as well as safety and liability at the heart of many of the EU's proposals. In addition, it should be mentioned that EU has an ambitious Consumer Agenda with sustainability, digital transformation, consumer rights and accessibility at its core, but also the fact that the preparatory work for development of new regulation on electronic identification, authentication and trust services (eIDAS)[32] for electronic transactions is due to replace the 2014 eIDAS Regulation. The new eIDAS Regulation seeks to create a new European digital identity to make it easier and safer for citizens to engage with businesses and public services online all across Europe and to ensure that citizens have greater control over the data that they share and on how the data is used.

At the time of writing this article we are in the medias res of efforts to regulate digital services and replace after 20 years[33] e-commerce directive[34]. At

30 Proposal for a Directive of the European Parliament and of the Council on measures for a high common level of cybersecurity across the Union, repealing Directive (EU) 2016/1148, COM/2020/823 final.

31 Europe fit for the Digital Age: Commission proposes new rules and actions for excellence and trust in Artificial Intelligence. (21 April 2021). Resource document. European Commission Press corner. Proposal for a regulation to harmonise rules on Artificial Intelligence (COM (2021) 206 final). Accessed 22 March 2025.

32 Building a Trusted and Secure European Digital Identity – Brochure. Resource document. European Commission, https://digital-strategy.ec.europa.eu/en/library/building-trusted-and-secure-european-digital-identity-brochure. Accessed 22 March 2025.

33 The Committee on Civil Liberties, Justice and Home Affairs adopted the own-initiative report by (Kris PEETERS, EPP, BE) on the Digital Services Act and fundamental rights issues posed. Members stressed that fundamental rights, such as the protection of privacy and personal data, the principle of non-discrimination, as well as freedom of expression and information, need to be ingrained at the core of a successful and durable EU policy on digital services. The types of digital services and the roles of digital service providers have drastically changed since the adoption of the e-Commerce Directive 20 years ago. https://oeil.secure.europarl.europa.eu/oeil/popups/printficheglobal.pdf?id=710054&l=en. Accessed 22 March 2025.

the moment we are witnessing a number of amendments added to the original proposal[35].

EU lawmakers are to battle over the issue of whether online platforms should be required to open their algorithms to scrutiny, making them accountable for fundamental rights violations, after the European Parliament published its initial revisions to the planned Digital Services Act.[36]
Amendments to the draft Report on the Digital Services Act by the European Parliament's Internal Market Committee is 1 July 2021 and their vote is expected on 8 November 2021, followed by a vote in the EU Parliament's plenary session in December 2021. It is such a long regulatory train while lots of things can happen from the manipulative algorithms or sharing illegal and harmful content.

II. Overview of regulatory initiatives and amendments

1. Digital Services Act and fundamental rights and digital principles

The fundamental rights and digital principles are rooted in primary EU law, notably the Treaty on European Union (TEU) article 2, the Treaty on the Functioning of the European Union (TFEU) articles 16 and 114, and the Charter of Fundamental Rights articles 6, 7, 8, 11, 13, 21, 22, 23, 24, 26, 38 and 47[37].

---

34 Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce) OJ L 178, 17.7.2000.

35 Draft Report on the 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 (COM(2020)0825 – C9-0418/2020 – 2020/0361(COD)) Committee on the Internal Market and Consumer Protection Rapporteur: *Christel Schaldemose* (28.5.2021). Resource document. European Parliament, https://www.europarl.europa.eu/doceo/document/IMCO-PR-693594_EN.pdf. Accessed 22 March 2025.

36 *Bertuzzi*, Make online platforms accountable for their algorithms, leading MEP says, EURACTIV.com., 2021 June 9, https://www.euractiv.com/section/digital/news/make-online-platforms-accountable-for-their-algorithms-leading-mep-says/. Accessed 15 May 2025.

37 Treaty of Lisbon amending the Treaty on the European Union and the Treaty Establishing the European Community, OJ C 306 of 17 December 2007, for the consolidated version thereof see Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, OJ C 115 of 9 May 2008; Charter of Fundamental Rights of the European Union (2000/C 364/1).

The Proposal for Digital Services Act contains horizontal rules with an aim to cover all services and types of illegal contents including goods and services. It will be complementary with other secondary sources of EU legislation[38] sector specific rules regulating number of issues, *i.e.,* within the aforesaid GDPR and e - Commerce directive, Directive on privacy and electronic communications[39], Copyright Directive[40]. It also applies to a soft law instruments like Commission's Recommendation of 1 March 2018 on measures to effectively tackle illegal content online [41] and the Europol Internet Organised Crime Threat Assessment (IOCTA) of 18 September 2018. And of course, the case-law of the Court of Justice of the European Union[42].

In addition to the existing regulation, three areas have been identified as non-harmonized or unregulated in the area of digital service provision.

a) Security of citizens in the online use of services and protection of fundamental rights

In its proposal, the European Commission is trying to maintain a fair balance with fundamental rights, such as the freedom of expression. At the very core of the text there is a protection of freedom of expression. This includes protection against government interference in the freedom of expression and information of the people. Horizontal rules regulating the fight against illegal content are care-

38 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, COM/2020/825 final. "This is the case of existing legislation, *e.g.,* the Consumer Sales and Guarantees Directive, the European Accessibility Act, the European Electronic Communication Code, the Audiovisual Media Service Directive, the Single Digital Gateway Regulation or the Cybersecurity Act, as well as legislation that has been proposed and should be rapidly adopted by the EU co-legislators and ratified by national Parliaments such as the Digital Services Act and the Digital Markets Act."

39 Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector OJ L 201, 31.7.2002.

40 Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC OJ L 130, 17.5.2019.

41 Commission's Recommendation of 1 March 2018 on measures to effectively tackle illegal content online, C/2018/1177, OJ L 63, 6.3.2018.

42 See *e.g.,* judgements in Case C-18/1, *Eva Glawischnig-Piesczek v Facebook Ireland Limited*, EU:C:2019:821; Case C-314/12, *UPC Telekabel Wien*, EU:C:2014:192; Case C-484/14, *Tobias McFadden v. Sony Music*, ECLI:EU:C:2016:689.

fully weighed and accompanied by strong safeguards for freedom of expression and an effective right to compensation – to avoid both under-removal and over-removal of illegal content. Using advanced technologies, the amount of all types of user-generated content and services provided on online platforms, including cloud services, has increased exponentially, including illegal content, such as images depicting child sexual abuse material on the Internet, content which is legal but can be detrimental to society and democracy, such as misinformation about COVID-19 drugs. The Digital Services Act does not specifically define what is considered illegal content. The proposal contains provisions harmonizing due diligence obligations for platforms and hosting services and liability exemptions for online intermediaries. Each member state is left with the possibility to precisely define by its national laws what is considered to be an illegal content.

Also, hate speech and misinformation on the Internet are more widespread through the use of Internet platforms for political purposes, as well as through the operation of certain Internet platforms regarding collection and analysis of user data in order to generate more traffic and "clicks", and collect more profile data, with proportional increase in profit and intense use of sensationalism. Bearing in mind that hate speech and misinformation are detrimental to the public interest because they undermine honest and decent public discourse, and because they can incite real-world violence, they pose a threat to public safety. Combating such content is the key to ensuring respect for fundamental rights and protecting the rule of law and democracy in the EU.

Furthermore, one of the threats are automated algorithms which decide on how to handle third-party content on Internet platforms, and in that context prioritize, distribute and delete that content. This raises questions about the rule of law, legality, legitimacy and proportionality.

The existence of a small number of mainly non-European service providers that have significant market power and affect the rights and freedoms of individuals through control of the information, services and products placement, which then has a major impact on the functioning of Member States and their citizens, considering the fact that "decisions" of these platforms can have far-reaching consequences for freedom of expression and information and for media freedom and pluralism.

b) Fragmentation of the single market through different actions across Member States

The fight against illegal content on the Internet in the EU has been based on voluntary cooperation between Member States, and a number of Member States are inconsistently enacting additional national legislation to combat illegal content, leading to the fragmentation of the single market. The Digital Services Act will propose a set of rules for the whole of the EU. All citizens in the EU will have the same rights, the common enforcement mechanism will protect them in the same way and the rules for network platforms will be the same across the Union. This implies the adoption of standardized procedures for reporting illegal content, the same approach to complaints and redress mechanisms in the single market, the same standard of transparency of moderating or content advertising systems and the same controlled risk mitigation strategy where very large network platforms are concerned.

c) Ineffective control and exchange of information

The regulatory approach applied by the platforms alone does not provide adequate transparency, accountability and oversight, as such an approach neither provides adequate information to public authorities, civil society or users on how the platforms address illegal content and activities that violate their content, nor ensures conditions on how the content should generally be regulated. Regulatory oversight in the EU is sectoral in nature and it is necessary to comprehensively coordinate the various oversight bodies across the EU. The new enforcement mechanism, consisting of national and EU-level cooperation, will supervise how online intermediaries adapt their systems to the new requirements. Each Member State will need to appoint a Digital Services Coordinator, an independent authority which will be responsible for supervising the intermediary services established in their Member State and/or for coordinating with specialist sectoral authorities. To do so, it will impose penalties, including financial fines. Each Member State will clearly specify the penalties in their national laws in line with the requirements set out in the Regulation, ensuring they are proportionate to the nature and gravity of the infringement, yet dissuasive to ensure compliance. For the case of very large platforms, the Commission will have direct supervision powers and can, in the most serious cases, impose fines of up to 6% of the global turnover of a service provider. The enforcement mechanism is not only limited to fines. The Digital Services Coordinator and the Commission

will have the power to require immediate actions where necessary to address very serious harms, and platforms may offer commitments on how they will remedy them.

2. What are the changes brought by new Digital Services Act and what are the amendments of initial proposal?

The aim of the Digital Services Act as already elaborated above is to reform e-commerce directive and to modernize the regulation on digital services while ensuring the proper functioning of the internal market in relation to the provisions of cross border digital services with a specific focus on intermediary services. The Regulation is divided into five Chapters.

Chapter I sets out general provisions, including the subject matter and scope of regulation and the definitions of key terms used[43]. Specifically, important is the definition 'to offer services in the Union' which means enabling legal or natural persons in one or more Member States to use the services of the provider of information society services which has a substantial connection to the Union; such a substantial connection is deemed to exist where the provider has an establishment in the Union. What is moreover important in the absence of such an establishment, the assessment of a substantial connection is based on specific factual criteria, such as a significant number of users in one or more Member States or the targeting of activities towards one or more Member States. Furthermore, the definition of the term 'intermediary service' which can consist of a mere conduit, caching service and hosting services which fall under information society services and what is finally defined within the DSA.[44]

The key provisions in Chapter II provisions are on the exemption of liability of providers of intermediary services. the conditions under which providers of mere conduit, caching and hosting services are exempt from liability for the

43 Article 1, 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, COM/2020/825 final.

44 Ibidem, Article 2f: Mere conduit service consists of the transmission in a communication network of information provided by a recipient of the service, or the provision of access to a communication network.
Caching Service means service that consists of the transmission in a communication network of information provided by a recipient of the service, involving the automatic, intermediate and temporary storage of that information, for the sole purpose of making the information's onward transmission to other recipients upon their request. While hosting service consists of the storage of information provided by, and at the request of, a recipient of the service.

third-party information they transmit and store[45]. It also provides that the liability exemptions should not be disapplied when providers of intermediary services carry out voluntary own-initiative investigations or comply with the law and it lays down a prohibition of general monitoring or active fact-finding obligations for those providers[46]. The DSA proposal also imposes an obligation on providers of intermediary services in respect of orders from national judicial or administrative authorities to act against illegal content and to provide information[47].

Chapter III sets out the due diligence obligations for a transparent and safe online environment, in five different sections.

Section 1 lays down obligations applicable to all providers of intermediary services, in particular: the obligation to establish a single point of contact to facilitate direct communication with Member States' authorities on each Member State[48], the European Commission and the European Board for Digital services[49].

In the Section 2, additional obligations applicable to hosting providers are laid down. In particular, that section obliges those providers to put in place mechanisms to allow third parties to notify the presence of alleged illegal content[50]. Section 3 lays down obligations applicable to all online platforms online platforms excluding platforms that are micro or small enterprises[51]. It is also important to point out the obligation for online platforms to provide an internal complaint-handling system in respect of decisions taken in relation to alleged illegal content or information incompatible with their terms and conditions. The novelty is obligation for platforms to engage with certified out-of-court dispute settlement bodies to resolve any dispute with users of their services[52]. Within this section there is an important provision with a requirement for online platforms to inform competent enforcement authorities in the event they become aware of any information giving rise to a suspicion of serious criminal offences involving a threat to the life or safety of persons[53]. Article 24 of Proposal regulates online advertising transparency which is one of the important features of

45 Ibidem, Article 3, 4, 5.

46 Ibidem, Article 6, 7.

47 Ibidem, Article 8, 9.

48 Ibidem, Article 10.

49 Ibidem, Article 47.

50 Ibidem, Article 14.

51 Ibidem, Article 16.

52 Ibidem, Article 18.

53 Ibidem, Article 21.

this proposal. Online platforms that display advertising on their online interfaces are obliged to ensure that the recipients of the service can identify, for each specific advertisement displayed to each individual recipient, in a clear and unambiguous manner and in real time that the information displayed is an advertisement. On whose behalf the advertisement is displayed and information about the main parameters used to determine the recipient to whom the advertisement is displayed.

In Section 4, some additional obligations for very large online platforms to manage systemic risks are provided. Very large online platforms are defined as online platforms providing their services to a number equal to or higher than 45 million of average monthly active service recipients in the European Union[54]. They are obliged to conduct risk assessments on the systemic risks brought about by or relating to the functioning and use of their services and to take reasonable and effective measures in order to mitigate those risks. Very large platforms need to submit themselves to external and independent audits.

Section 5 contains transversal provisions concerning due diligence obligations, namely the processes for which the Commission will support and promote the development and implementation of harmonised European standards and to point out among the other provisions a provision on crisis protocols to address extraordinary circumstances affecting public security or public health[55].

In Chapter IV there are the provisions concerning the implementation and enforcement of the Digital Services Act. Namely, provisions concerning national competent authorities, including Digital Services Coordinators, which are the primary national authorities designated by the Member States for the consistent application of the DSA[56]. For the very large platforms there are specific rules regarding supervision and rules that apply in case of infringement investigation, enforcement and monitoring. There is a possibility that Commission intervenes, carry out investigation and proceed with a further necessary action[57]
Common provisions on enforcement are contained in Section 4 with an emphasis on the Information sharing system which should ensure communication with Digital Service Coordinators, EU Commission and European Board for Digital Services[58].

54 Ibidem, Article 25.

55 Ibidem, Article 37.

56 Ibidem, Article 38.

57 Ibidem, Articles 50-66.

58 Ibidem, Article 67.

a) What are the amendments to the initial proposal?

As mentioned above, at the time of writing this article the amendments to initial proposal have been published on behalf of Rapporteur *Christel Schadelmose*, the Danish MEP[59].

In the explanatory note, the horizontal nature of Proposal has been recognized but with the consideration that "one size fits all" approach, it fails to tackle the problems with illegal products and services sold through online marketplaces. The opinion is that stricter rules on online marketplaces should be introduced in order to create a level playing field and ensure the principle of "what is illegal offline should also be illegal online". According to the Rapporteur, it is necessary to strengthen some provisions to ensure that no Member State becomes a safe haven for online platforms. In order to prevent and solve the issue with illegal products, further conditions to the exemption of liability and obligations must be introduced to ensure consumer protection. In line with consumer protection, more strict conditions for the exemptions of liability specifically targeting online marketplaces were proposed. Amongst other things these conditions include requirements to comply with certain due diligence obligations and conditions to ensure that if there is a trader from a third country which does not have an economic operator liable for the product safety, the marketplace will not benefit from the exemption of liability. This is done to ensure liability of any product sold to European consumers, including e-commerce, dangerous and/or non-compliant products from being offered online and obligations to cooperate with national authorities when necessary regarding dangerous products already sold[60]. As far as illegal content is concerned, introduction of two sets of timelines has been proposed in order to grant digital platforms time to assess the legality of content, also bearing in mind that some content has a very high impact and may pose a greater threat to society or significant damage to the individual. It is thus reasonable to foresee smaller timeframes for such a high impact content in the Proposal.

Online advertising should be disciplined through transparency requirements as proposed in DSA but the amendments propose a new article aiming to allow consumers to navigate through online platforms without being subject to targeted advertising in a manner that targeted advertising is set off by default and that consumers can easily opt-out. Furthermore, when online intermediaries process data for targeted advertising, it shall not carry out activities that can lead to per-

59 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, COM/2020/825 final.

60 Ibidem, p. 136.

vasive tracking. The Rapporteur also proposes switching off by default the recommender systems, in order to enable online platforms to present their users the preference in content they deem is more for them. Regarding the recommender system it is also proposed to extend the scope of regulation to the platforms with less than 45 million active users because they also have a significant impact on users. When consumers are subject to a recommender system which is using profiling, they should be able to view and delete any profiles used to curate the content they see. The algorithms used in the recommender system should be designed to prevent dark patterns and rabbit holes from happening. It is of utmost importance to ensure that information of public interest is high-ranked in the platform's algorithms. It is suggested that greater accountability on algorithms should be introduced in the proposal[61]. The future regulatory train will show the outcome of the DSA proposal.

III. Instead of Conclusion

Regulatory framework has been set up on European and national level. There is a great number of legislative proposals. Institutions and legislators are rushing to keep going with digitalisation, platforms, algorithms, Big Data, personal data protection, in order to protect fundamental rights. In her work, author is discussing if legal actions are taken fast enough for the new digital society? However, there is another more important question – are we losing battle with the digital revolution and digital tools? Digital tools should be contributing, but not as a causal factor to legal certainty. From the author's perspective, it is of the utmost importance to focus on how to put the human in the centricity of the regulatory framework and not only platforms. It is obvious that digitalisation requires skills, information sharing systems and protection from the standing point of consumers' and citizens' fundamental rights. It is quite demanding to understand the regulatory framework as a lawyer if you don't have enough knowledge of information technology. So, it is reasonable to question ourselves how the ordinary man can reach information and protect himself in such a comprehensive regulatory framework.

The demanding legal framework is clearly multiplying in an attempt to regulate digital reality but digital solutions are always one step ahead of legal solutions. Over-regulation, especially when it comes to content that is fluid and constantly changing, and obligations arising from such content, is not good.

61 Ibidem.

In a compromise resolution of the situation and in favour of the recipients and providers of digital services, it seems that the users are still losing. The solution should certainly be found through independent and public media and educational initiatives aimed at media literacy, and by raising the level of citizens' awareness beside the work on the European Union and the national level.

Special attention should be paid to the most vulnerable social groups, especially children who use the Internet considering their exposure to online abuse, sexual abuse, pornography, violence or self-harm. It is also necessary to raise awareness of the problem of personal data collecting when using the digital service, given that the data collected in this way provide an in-depth insight into the personality and thus numerous opportunities to act on individuals. Of course, national competent authorities also play an important role in the implementation of the regulatory framework, and they should act promptly when making decisions on the legality of internet activities, and actions taken for removing and blocking access to illegal content.

When applying the new regulatory framework, care should be taken to protect fundamental rights by ensuring access to diverse and quality content on the Internet to ensure that citizens are properly informed and that the removal of content is in line with human rights standards and limited to content that is manifestly illegal or following a decision made by the competent authority that the content is illegal. Only by adopting and then applying in practice a new regulatory framework, as well as resolving future litigation, will the effectiveness of the proposed legal framework be demonstrated. Until then, we can deliberate Harari's words rather than concluding:

"[…] Just as divine authority has legalized religious mythology, and human authority has been justified by a liberal story, so the upcoming technological revolution might establish the authority of Big Data algorithms, thus undermining the very idea of individual freedom"[62]. Hopefully not!

62 *Harari, Y., N.*, 21 Lessons for the 21st Century, FOKUS, 2018, p. 61.

Working in a Dematerialized Office Supported by Artificial Intelligence (Experiences from the EDIH Adria Project)

Damir Medved[*] and *Tamara Grubiša*[**]

Abstract

Global crises often serve as catalysts for significant social and economic change, and the COVID-19 pandemic was no exception in this regard. It has transformed workplaces, accelerating the adoption of remote work, digital collaboration tools, and ultimately the wider application of artificial intelligence (AI) in business processes of companies or public administrations. Contrary to first fears, many organizations have found that remote work and the application of AI technologies increase productivity and reduce operational costs. This change paved the way for a new type of workplace: the AI-assisted dematerialized office.

Keyords: artificial intelligence, digital transformation, EDIH ADRIA project

I. Introduction

Advances in artificial intelligence have further transformed office work, enabling the automation of routine tasks, the introduction of advanced analytical technologies, and the improvement of the processing of large data sets. The concept of a fully virtual office supported by AI is no longer science fiction, but an emerging reality even in the Republic of Croatia.

This article shows how artificial intelligence affects office work in small and medium-sized enterprises (SMEs) or public service organizations (PSOs), what are their main needs, which technologies enable their digital transfor-

* MSc, Director of the EDIH ADRIA project.

** MSc. iur., Coordinator of the implementation of the EDIH Adria project.

mation, and finally, what challenges in the application of AI we will face in the coming period – all based on the[1] experiences of the EDIH ADRIA project.

II. Application of AI in the workplace

1. AI-powered productivity tools

Tools based on artificial intelligence technologies are becoming key to improving the business of public institutions or SMEs, revolutionizing the way tasks are performed and employees interact. The integration of artificial intelligence into business processes encompasses multiple technological domains, significantly increasing the efficiency, reliability and credibility of the work of organizations and companies that apply them.

The starting point for business transformation is large language model (LLM) technologies, which represent significant advances in the field of artificial intelligence (AI) and natural language processing (NLP). These technologies are based on long-known deep neural network concepts, especially transformer models, trained on vast amounts of textual data to "understand" user queries and generate responses with satisfactory precision. Transformer models are specially designed for efficient processing of sequential data and enable better interpretation and analysis of text.

Examples of LLM technology include large language models such as GPT-3 and GPT-4 developed by OpenAI[2], which are based on publicly available data. These models can “understand” context, answer questions, translate languages, create creative texts, and more. Thanks to the advanced algorithms and large datasets on which they are trained, models such as GPT-3 and GPT-4 can generate highly coherent and grammatically correct answers to questions, making them extremely useful for a variety of business applications[3].

LLM technology (and AI in a broader sense) has found wide application in various business domains such as entertainment, education, healthcare, finance or security. In the healthcare sector, LLM models are used to analyze large sets of medical data and help doctors diagnose and treat patients. In finance, they help analyze the market and predict economic trends. In education, they are used

1 EDIH ADRIA – www.edihadria.eu.

2 Open AI - https://openai.com/.

3 AI and digital tools in workplace management and evaluation – EPRS_STU(2022) 729516_EN.pdf.

to develop smarter and personalized educational tools, while in the entertainment industry, they help create content like scripts, articles, and games. Particularly important is the application in the field of security, where they can help detect and eliminate numerous security risks.

Despite its many advantages, the technology of large language models also comes with major challenges. One of the main challenges is the need for enormous computing resources to train and run models, which in turn is associated with high energy consumption, and an increased carbon footprint. Furthermore, there are serious concerns about ethics and accountability, especially regarding possible misuses of technology, as well as the issue of bias and discrimination in the outcomes that models generate. That is why it is important to ensure continuous research and development with the aim of using LLM technology responsibly. In the near future, it is expected that the technology of large language models will continue to develop rapidly and become more sophisticated, opening up new possibilities and applications in various domains of human activity with a real risk that the legislative framework for its application will not follow at a satisfactory pace.

As part of the implementation of the EDIH ADRIA project and communication with about fifty organizations, the following key areas have crystallized in which artificial intelligence can have a significant impact on the optimization of business processes:

Automatic Query Classification: LLMs can analyze the content of a user's query and automatically classify it according to distinct categories, such as service appointment booking inquiries, complaints, information requests, urgent inquiries, and the like. This allows service personnel, for example, to quickly identify priority queries that require immediate attention and resolution.

Urgency Assessment: LLMs can evaluate the tone and context of a query to determine the urgency of a query. For example, a query that mentions urgent reservation changes or equipment failures may be marked as high priority, while general inquiries may be ranked in lower priority.

Answer Recommendation: Based on the analysis of earlier similar queries, LLMs can suggest answers that have proven effective in the past. This can greatly reduce the time it takes for service personnel to respond to an inquiry and improve the consistency and quality of responses.

Sentiment analysis: LLMs can analyze sentiment in queries to identify users who are dissatisfied or frustrated. These queries can be prioritized to resolve faster, prevent potential issues or escalations in advance, and improve the user experience.

Key information extraction: LLMs can extract key information from the query, such as the type of service needed, possible descriptions of complaints or failures, the user's communication preferences, and contact information. This allows for faster and more correct handling of incoming inquiries without having to manually review each message.

Integration with CRM systems: LLMs can be integrated with existing customer relationship management (CRM) systems to ensure that all queries are tracked and specifically responded to enriched with accurate data from the CRM platform. Automatically assigning queries to the right service personnel based on their expertise and current workload can further improve an organization's efficiency.

Performance Monitoring: Query analysis using LLMs can provide valuable insights into query patterns and service staff performance. For example, the service can identify the most common queries and take steps to improve the information on the website or train staff to better handle certain types of queries.

Multilingual support: LLMs can recognize the language of queries and automatically translate queries, allowing service staff to communicate effectively with users (especially tourists) regardless of possible language barriers.

These areas of application of large language model technology have enormous potential to transform the functioning of public administration and MPS, enabling them to provide a better user experience, increase efficiency and expand their business capabilities. The integration of LLM technology can be key to the success of SMEs in increasingly competitive and dynamic EU markets, but also in global markets[4].

2. Insights into the results of the EDIH ADRIA project

DMA (Digital Maturity Assessment) carried out in 40 SMEs and 44 PSOs within the EDIH Adria project pointed to major shortcomings that are present in Croatian companies in the application of artificial intelligence and advanced technologies (only 24.84%) and in the levels of data security and interoperability (40.89% and 36.80%, respectively). The emergence of artificial intelligence and digital technologies is fundamentally changing the dynamics of the workforce, presenting opportunities and challenges that organizations in Croatia are relatively struggling to cope with. There is a lack of adequate education and educated workforce, and I can see two key problems:

4 HRM, Artificial Intelligence and the Future of Work: Insights from the Global South, SpringerLink.

- *Lack of required skills*: As AI automates routine and repetitive tasks, the demand for employees with advanced, specialized skills is increasing. This change requires a commitment to continuous learning and professional development. Organizations need to invest in training programs that equip employees with the necessary competencies to work with AI systems, such as data analysis, machine learning, and digital literacy. Addressing skills gaps not only improves employees' abilities but also ensures that the workforce remains adaptable to evolving technological trends.
- *Digital transformation issues*: Automation and artificial intelligence have the potential to replace jobs in certain roles, leading to anxiety and uncertainty among employees. To alleviate these concerns, organizations should develop comprehensive reskilling and upskilling initiatives that provide pathways for employees to transition into new roles created by technological advancements. This proactive approach demonstrates a commitment to employee well-being and helps preserve organizational knowledge and expertise. Additionally, fostering a culture of innovation and flexibility can encourage employees to embrace change and seek new opportunities within the organization.

However, the positive fact is that the owners and management are aware of the needs of digital transformation, informing employees, as well as the importance of education (Figures 1, 2, 3, 4) and that they are ready to finance them.

Figure 1 *Average scores (overall scores and by dimensions) in all dependent SMEs.*

Figure 2 *Average scores (total and by dimension) for all dependent PSOs.*

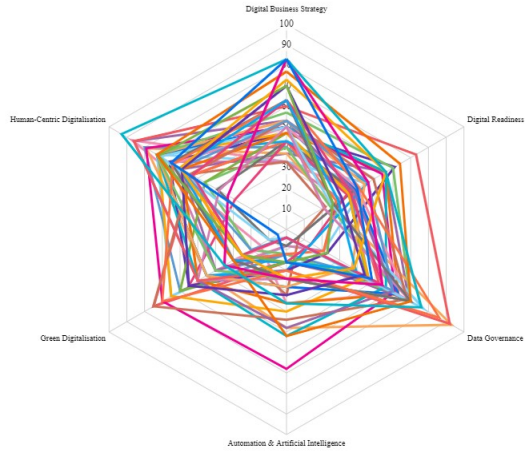

Figure 3 *DMA results distributed among 40 SMEs*

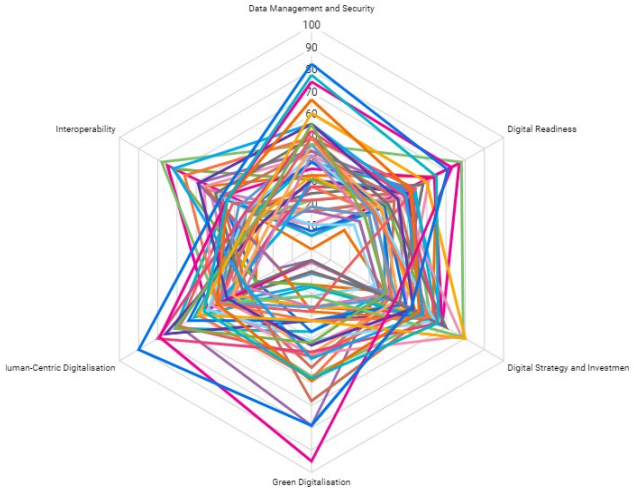

Figure 4 *DMA results on 44 PSO organizations*

Based on the analysis of user cases that were processed during the implementation of TBI (Test Before Invest) activities, the needs of users were crystallized, where the benefits that the application of AI technologies can bring were recognized, since most EDIH ADRIA support is focused on supporting these types of projects (Table 1):

Table 1 *TBI support provided within the EDIH ADRIA project.*

No	**Name**	**EDIH ADRIA TBI Support**
1	3T. CABLE doo	Solar power plant monitoring platform
2	ADRIA PA doo	A based RAG – sales & services assistant
3	Jatro doo	Introduction of secured documentation system
4	KD ViK doo	Optimization of business processes – improving customer experiences
5	PGŽ	Traffic optimization in Gorski kotar
6	FMTU	AI based detection and counting of student and teacher attendance
7	City of Cres	Traffic optimization
8	City of Kastav	AI based RAG – Process and documentation optimization
9	TZ City of Mali Lošinj	AI Assistant chatbot – tourist services

10	The city of Opatija	Traffic optimization
11	City of Bakar	Monitoring of energy consumption
12	Split parking	Energy, Solar, IoT – establishing interoperability
13	City of Solin	Cyber Security + HW improvements
14	Šolta municipality	Introduction of satellite imaging technology – initiative-taking monitoring
15	UNILINE doo	Digitization of business with the help of innovative technologies
16	Municipality of Matulji	Optimization of traffic around the municipality
17	KD Grada Solina doo	Digitization of the parking lot
18	Municipality of Fužine	AI Assistant for business optimization
19	City of Kaštela	Unified customer experience – Card for citizens, unified reporting
20	City of Kraljevica	AI business improvement assistant
21	Municipality of Punat	AI chatbot + information for citizens
22	IDA	AI chatbot for web, office space reservation
23	CARNET	AI System for evaluating the digital maturity of educational institutions
24	City of Pula	AI Chatbot for communication with citizens
25	City of Vodnjan	Analysis of satellite images – surveillance of the area for illegal construction and waste
26	Home for the elderly Domenico Pergolis	Consolidation of waiting lists
27	City of Labin	AI Assistant chatbot – citizen services
28	TZ of Fažana municipality	AI Assistant chatbot – tourist services
29	Home for the elderly in Raša	Ordering medicines integration with the national system
30	Home for the elderly Novigrad	Business optimization, scheduling app

31	City of Buzet	Smart mobility and parking
32	TZ of the city of Pula	Digital twins, analytical dashboards – tourist mobility improvements
33	Municipality of Gračišće	AI assistant chatbot – citizen services
34	AO16 doo	AI based RAG – Process and documentation optimization
35	City of New Vinodolski	AI chatbot + information for citizens

In this context, standardization of potential TBI solutions was carried out in order to be able to consolidate and thus accelerate their application in various organizations. Given that the origin of business processes, for example in public administration, is largely conditioned by legal regulations, and thus standardized, the possibility of unifying technical solutions has arisen (Figure 5), which has radically simplified the implementation and their acceptance by end users.

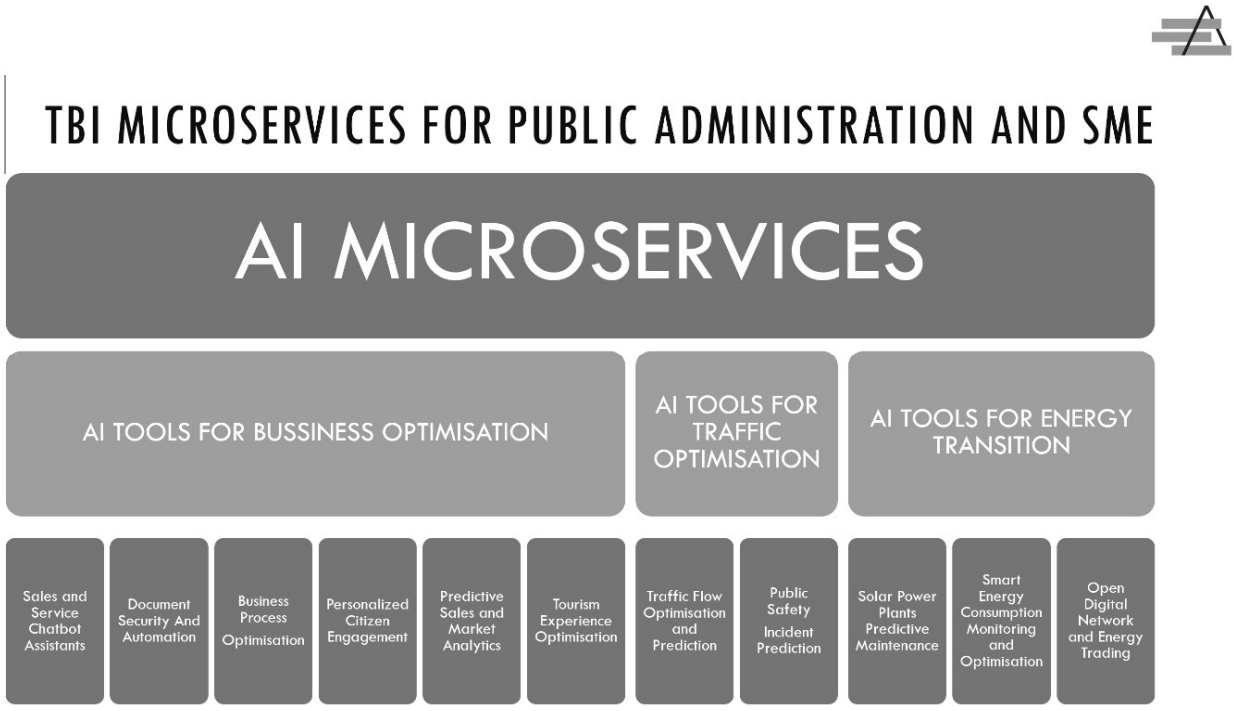

Figure 5 AI-based microservices identified within the EDIH ADRIA project.

The next chapter will explain in more detail how this was possible and what specific innovations were applied.

III. EDIH ADRIA approach to the application of artificial intelligence for public administration and SMEs using RAG

As part of the EDIH ADRIA project and the process of creating AI-based microservices, researchers from the University of Rijeka created several open-source components that were used to form an enriched retrieval system (RAG – Retrieval Augmented Generation) that is universal and can be easily adapted for multiple user case scenarios.

The diagram in Figure 6 shows the flow of information in a generic Retrieval-Augmented Generation system, illustrating how user queries are managed by context enhancement and large language models to generate accurate responses:

- **User inquiry:**

  The process starts when the user makes a query through the system.

- **Query + search query (*query* + *query*):**

  The RAG app receives a query from the user and creates a combination of queries and queries to search for relevant information.

- ***Searching for relevant information from knowledge sources*:**

  The query is used to search the database and other sources of knowledge to find information relevant to the user's query.

- **Improved *context from relevant information*:**

  Relevant information is retrieved and used to enrich the context of the user's query.

- **Query + Query + *Enhanced Context*:**

  The RAG application combines a native query, a query, and enriched context before sending a request to the Large Language Model (LLM).

- **Generated text response:**
  An LLM generates a text response based on a combination of queries, queries, and enriched context, which is then sent to the user.

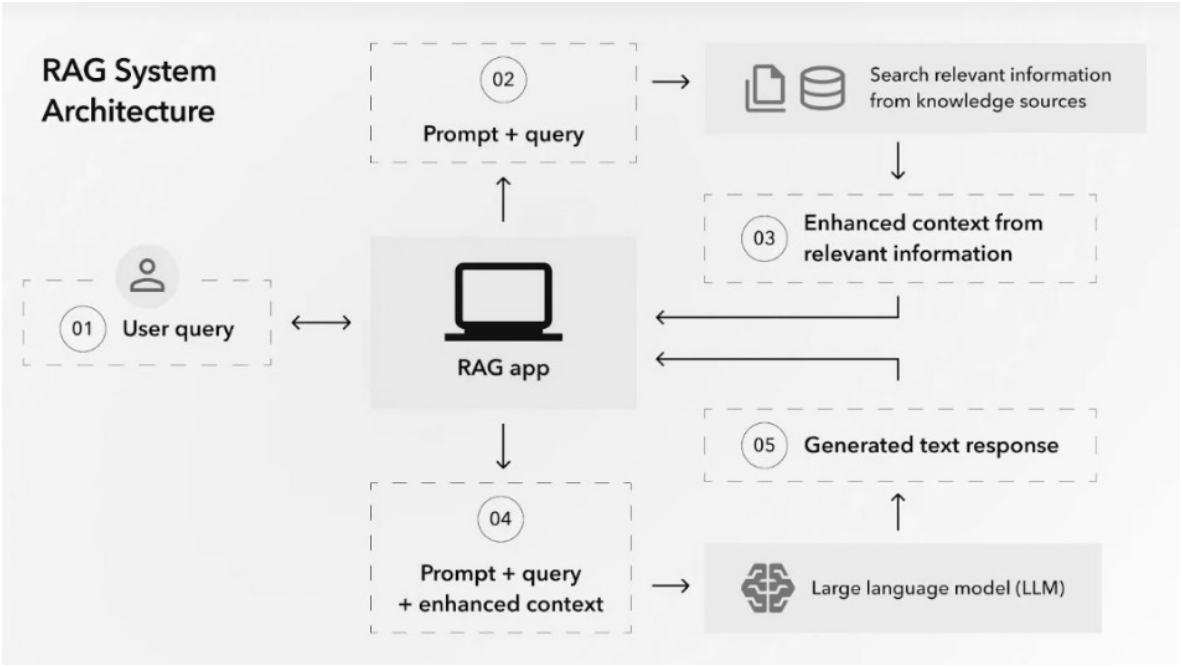

Figure 6 RAG System Architecture

The key innovation of the EDIH ADRIA project is contained in the way of collecting information and creating a knowledge base, the results showed that a multi-hour interview with employees who can describe the business process well is quite enough for the initial configuration of the AI assistant. Additional enrichment of knowledge is done with user documentation, formal regulations and decisions, regulations and other documents that define the way of working.

In practical cases where this method was applied, a functional prototype required about ten hours of conversations with employees. This approach and the application of SRP systems to create cost-effective solutions brings several significant benefits to SMEs and PSOs:

- **Improved customer support:** Users can get quick and accurate answers to their queries, whether it's general product information, service availability, pricing, or service appointments.

- **Communication automation:** A RAG system allows for the automation of responses to frequently asked questions, reducing the burden on customer support and allowing staff to focus on more complex tasks.

- **Precision and relevance of responses:** By using enriched context from various sources of knowledge, the answers generated by the LLM are more precise and relevant to the user's queries.

- **Multilingual support:** An LLM can provide support in different languages, which is especially useful for Croatian SMEs as most of the economy is based on the service industry. and the need to communicate with customers from different countries.

- **Integration with existing systems:** The RAG system can be integrated with existing CRM and ERP systems of small and medium-sized businesses or PSOs, enabling consistent and coherent communication and efficient management of customer data and interactions.

In the end, we can conclude that this application of artificial intelligence technologies can indeed radically improve business processes and productivity in organizations that apply them, that there are actually no major technological barriers to implementation, but also that numerous challenges open up that we will analyse below.

IV. Challenges and opportunities in the age of artificial intelligence and digital technologies

The rapid advancement of artificial intelligence (AI) and digital technologies has opened the potential for a serious transformation of jobs even in relatively small public organisations or SMEs, significantly improving opportunities for efficiency, innovation and growth. However, this technological revolution also raises numerous questions and doubts that are often not adequately addressed. Among the most pressing issues are issues related to bias and discrimination, privacy and protection, safety and (mental) health, legal and regulatory frameworks, and the dynamics of the evolving workforce. Addressing these areas is essential to foster trust, ensure compliance, and foster a resilient and adaptable organizational culture.

1. Bias and discrimination

Artificial intelligence and digital technologies can have a major impact on fundamental human rights, especially when it comes to equality and non-discrimination. In the labour market, there is a significant risk that AI could further contribute to discrimination. Algorithms used in recruitment, employee management, and performance evaluation can sometimes introduce biases that subtly put people at a disadvantage based on characteristics such as gender, age, or ethnicity.

However, the important fact is that artificial intelligence itself is not and should not be biased. When properly designed and used, AI can help reduce bias and discrimination, making decisions fairer. A key issue often lies in the quality of the data used to train AI systems. If this data contains bias – either directly or indirectly – the AI will reflect those same biases. Therefore, careful attention to data quality and design is essential to ensure that AI supports fairness and does not perpetuate discrimination.

Direct discrimination occurs when one person is treated less favourably than another person in a comparable situation, and indirect discrimination occurs when neutral criteria disproportionately disadvantage individuals based on protected characteristics[5].

For example, Amazon's AI recruitment tool[6], which is trained on historical data, showed a preference for male candidates over female candidates for certain jobs, highlighting how biased data can lead to unfair outcomes.

Some organizations (for example, the European Investment Bank) use AI-based assessment tools that scan facial expressions, voice, and body language; to determine how suitable a person is for the role when making hiring/hiring decisions. This type of technology can cause concern, especially for people with disabilities, as AI may fail to account for the different ways in which people express themselves, which can lead to biased outcomes[7].

Interestingly, according to PRIZMA's Review of Public Opinion Research Results on the Perception of Artificial Intelligence in Croatia 2024[8], only 13% of respondents believe that the main risks in the application of artificial intelligence are related to ethnic or biased algorithms. This may be related to a lack of

5 https://fra.europa.eu/sites/default/files/fra_uploads/fra-2018-handbook-non-discrimination-law-2018_hr.pdf.

6 https://imd.widen.net/view/pdf/z7itobahi6/tc061-18-print.pdf.

7 https://digital-strategy.ec.europa.eu/hr/policies/european-approach-artificial-intelligence.

8 https://effectus.com.hr/wp-content/uploads/2024/10/2024-Izvjestaj-AI-sazeto.pdf.

a deeper understanding of the potential implications of AI applications or how AI tools are created and used.

a) Legal context

European legislation on non-discrimination plays a key role in safeguarding equality in the context of the use of AI. The Treaty on European Union [2008] OJ C115/13[9] and the Charter of Fundamental Rights (2012/C 326/02)[10] are the legal basis for non-discrimination, further strengthened by the Employment Equality Directive (2000/78/EC).[11] Furthermore, the Court of Justice of the European Union has established the principle of equality as a general principle of EU law.

It is not a question of whether there is a legal framework prohibiting discrimination; The key question is what measures we need or need to take to effectively prevent, detect and, if necessary, correct and/or sanction discriminatory behaviour in the context of AI tools used in recruitment, internal staff management and staff performance monitoring.

The Artificial Intelligence Act (Regulation (EU) 2024/1689)[12] – the first comprehensive legal framework for AI to address risks and set out clear obligations for developers and entities implementing AI – provides the basis for addressing these issues. The Artificial Intelligence Act categorizes AI applications into four risk levels and defines AI systems as high-risk if they are intended for:

- use in the recruitment or selection of individuals (for placing targeted job advertisements, analysing and filtering job applications and evaluating candidates),

- taking decisions affecting the conditions of employment, promotions, dismissals, assignment of tasks based on individual behaviour or personal characteristics, or

- monitoring and evaluating the performance of staff.

9 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:115:0013:0045:EN:PDF.

10 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:C2012/326/02.

11 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000L0078.

12 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401689.

This means that AI tools used for recruitment, internal staff management and staff performance monitoring are subject to strict pre-market obligations, which include, among other things, appropriate risk assessment and mitigation systems, as well as high-quality datasets to minimise risks and discriminatory outcomes.

b) Human oversight and accountability

Combining AI tools with human oversight is essential to ensure fairness and transparency. Employers must be able to justify decisions made by AI, ensuring that systems remain accountable and non-discriminatory.

By balancing AI innovations with strong human oversight and regulatory frameworks, organizations can minimize the risks of discrimination and promote fairer, more inclusive hiring practices.

2. Privacy & Security

The integration of artificial intelligence into an organization's business processes itself involves the collection and analysis of large amounts of data. This increased data activity raises significant privacy and security issues that organizations must address to protect the privacy and security of their employees' and customers' data.

a) Legal context

The legal bases for the right to privacy and data protection are set out in the EU Charter of Fundamental Rights[13]. In addition, the General Data Protection Regulation (GDPR)[14] serves as a global benchmark for data protection laws, reinforcing the importance of these rights. In many EU Member States, including Croatia, constitutional laws further protect these fundamental rights.

The GDPR, which has been in force since 2018, plays a key role in regulating the use of personal data in the context of the application of AI systems. Most importantly, the GDPR explicitly prohibits decisions based solely on automated processing, including profiling, and imposes strict guidelines on how personal data is collected, processed and stored.

13 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012P/TXT.

14 https://gdpr.eu/.

As we've already seen, AI tools used for recruitment, internal staff management, and staff performance monitoring must comply with the GDPR's requirements of minimizing data collection, ensuring that data is only used for specific, legitimate purposes, and maintaining transparency about how data is handled. In other words, AI tools must ensure that they only process the data necessary for their intended purpose, and organizations must inform their employees how their data is being used. In addition, the GDPR gives individuals the right to access, rectify or delete their personal data, without setting additional barriers. Non-compliance with the GDPR can result in hefty fines and reputational damage to the public administration or company, which is why meeting the previous requirements is critical in AI applications.

A particularly contentious area involves the implementation of AI-supported biometric and facial recognition technologies, which use sophisticated algorithms to collect highly sensitive personal data. Effective guidance from national data protection authorities is essential to help organisations, especially small and medium-sized enterprises (SMEs), to implement compliant AI systems.

b) Employee Tracking

AI-driven tools that can track productivity and provide valuable insights into workflow efficiency and identify areas for improvement. However, such surveillance can infringe on employee privacy if not managed carefully. It is crucial to strike a balance between effective supervision and respect for personal space. Organizations must establish clear policies that define what data is collected, how it is used, and ensure that monitoring practices are transparent and consensual.

In addition to the already mentioned GDPR, the EU Directive 2002/14/EC[15] establishes the obligation to inform and advise employee representatives on significant changes in the organization of work and working conditions. The introduction of monitoring devices aimed at assessing the behaviour or performance of employees qualifies as a "significant change in the organisation of work", therefore it requires information and advice in workplaces.

Croatian laws ensure that if the monitoring devices monitor all movements of workers during the entire working time or if the devices are installed in such a way that the workers are at all times online during work, the employer can use

15 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0014.

the monitoring devices only with the prior consent of the works council or trade union representatives with the rights and obligations of the works council.

c) Data protection

Handling sensitive data requires strong cybersecurity measures to protect against breaches and unauthorized access. As cyber threats become more sophisticated, organizations must invest in advanced security protocols, regular system audits, and employee training on data protection best practices. Ensuring controlled access to data and maintaining its confidentiality, in addition to protecting the organization from financial and reputational damage, is also in line with legal obligations.

d) Ethical use of AI

The ethical implementation of AI systems is paramount for maintaining trust among employees, employers, and clients. The 2019 Ethics Guidelines for Trustworthy AI, developed by the independent High-Level Expert Group on Artificial Intelligence appointed by the European Commission[16], outline seven non-binding ethical principles for AI. The guidance outlines seven key requirements[17] that AI systems should meet in order to be considered trustworthy:

- Human action and oversight: AI systems should empower people, enable them to make informed decisions and nurture their fundamental rights. At the same time, it is necessary to ensure adequate oversight mechanisms, which can be achieved through the 'man in the loop', 'man on top of the loop' and 'man in command' approaches.
- Technical robustness and safety: AI systems must be resilient and reliable. They must be safe, they must provide a backup plan in case something goes wrong, as well as be up-to-date, credible and repeatable. This is the only way to ensure that even unintentional damage can be minimized and prevented.
- Privacy and data governance: In addition to ensuring full respect for privacy and data protection, it is also necessary to ensure adequate data govern-

16 https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai.

17 https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai.

ance mechanisms, considering the quality and integrity of the data and ensuring legitimate access to the data.

- Transparency: The business models of data, systems and AI applications should be transparent. Traceability mechanisms can help achieve this. Furthermore, AI systems and their decisions should be explained in a way that is tailored to the average user. Humans must be aware that they are interacting with an AI system and must be informed about the capabilities and limitations of the system.

- Diversity, non-discrimination and fairness: Unfair bias must be avoided as it can have multiple negative implications, from marginalising vulnerable groups to exacerbating prejudice and discrimination. Fostering diversity, AI systems should be accessible to everyone, regardless of disability, and involve relevant stakeholders throughout the life cycle.

- Social and environmental well-being: AI systems should benefit all people, including future generations. Therefore, their sustainability and environmental friendliness must be ensured. In addition, they should take into account the environment, including other living beings, and carefully consider their social and societal impact.

- Accountability: Mechanisms should be put in place to ensure accountability for AI systems and their outcomes. The ability to audit, which allows for the evaluation of algorithms, data, and design processes, plays a key role in this, especially in critical applications.

The ethical use of AI builds trust in an organization's commitment to fairness and equality, which is crucial in today's socially conscious environment. Its application must be subject to a risk assessment, including opportunities to improve safety and prevent harm, such as human physical integrity, psychological safety, confirmation bias, or cognitive fatigue. Framework Directive 89/391/EEC[18] imposes an obligation on employers to ensure the safety and health of workers in every aspect related to work. Employers must take measures, including preventive measures, to preserve the safety and health of workers and, most importantly, must remain vigilant and adjust measures, as necessary. As such, the Framework Directive obliges employers to consider how algorithmic management could harm the safety and (mental) health of their workforce.

18 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01989L0391-20081211.

Regarding the fundamental right to work-life balance, it is important to mention that the 2020 EU Framework Agreement on Digitalisation describes the modalities of disconnection, calling for a culture that avoids contact outside working hours and a clear understanding that the worker is not obliged to be available outside working hours. Based on that description, the right to opt-out could also provide employees with an opportunity for redress if their employer's app continues to send after-hours notifications. Such a right to opt-out could establish a clear boundary that should not be ignored when designing AI-driven dematerialised offices.

3. Legal and regulatory issues

As AI and digital technologies transform the workplace, existing legal and regulatory frameworks need to evolve to respond to new challenges and ensure the protection of workers' rights.

On 14 October 2024, the Council of the EU adopted the Platform Work Directive[19]. The Directive obliges EU Member States to establish a rebuttable legal presumption of employment at national level to correct the power imbalance between a digital labour platform and a person performing platform work. The burden of proof lies with the platform, which means that it is on the platform to prove that there is no employment relationship. The new rules ensure that a person working through platforms cannot be dismissed or dismissed based on a decision made by an algorithm or an automated decision-making system. Instead, digital labour platforms need to ensure human oversight of important decisions that directly affect people working through platforms. The directive introduces rules to protect the data of platform workers more robustly. Digital labour platforms will be prohibited from processing certain types of personal data, such as data on someone's emotional or psychological state and personal beliefs.

Once adopted, Member States have two years to incorporate the provisions of the Directive into their national legislation. Croatia was one of the first countries in the EU to introduce the directive.

19 https://data.consilium.europa.eu/doc/document/PE-89-2024-INIT/en/pdf.

a) Artificial Intelligence Act – the future of the legal framework for artificial intelligence

The Parliament and the Council of the European Union have adopted the world's most ambitious technology regulation – the Artificial Intelligence Act, which aims to set clear requirements and expectations for specific uses of AI. Although the AI Act entered into force on August 1, 2024, most of its provisions will not be implemented immediately. Instead, it will be phased in and full implementation is scheduled for 1 August 2027.

The AI Act will standardise AI regulation across the EU27, with significant extraterritorial implications, covering all AI systems that affect people in the EU, regardless of their origin. As with other recent EU regulations, the fines for non-compliance are enormous. Non-compliance with the EU AI Act will result in penalties of up to €35 million or 7% of the total global annual turnover for the previous fiscal year, whichever is greater.

Pending the full implementation of the AI Act, the European Commission is promoting the AI Pact[20], asking for a voluntary commitment by the industry to anticipate adaptation to the AI Act and to start implementing its requirements before the legal deadline. To bring together participants, the first call for expressions of interest was launched in November 2023 and received responses from more than 550 organisations of different sizes, sectors and countries.

AI governance: Establishing comprehensive AI governance frameworks is essential to prevent abuse and protect the rights of all users. Clear guidelines should specify the permitted uses of AI in the workplace, ensuring that AI applications comply with ethical standards and legal requirements. This includes setting boundaries for oversight, decision-making processes, and the use of employee data. Effective AI governance fosters accountability and ensures the responsible use of AI tools, thereby reducing the risks associated with automation and data manipulation.

4. Sustainability and a dematerialized office

The emergence of digital technologies and changing work paradigms have ushered in the era of the dematerialized office – a model that goes beyond traditional physical workplaces through remote work, virtual collaboration, digital infrastructure, and the application of artificial intelligence that plays a key role in optimizing various aspects of remote work and business processes. This transformation not only redefines the way organizations work, but also offers

20 https://digital-strategy.ec.europa.eu/en/policies/ai-pact.

significant benefits in the context of sustainability. By reducing the carbon footprint, increasing energy efficiency, and optimizing resource use, a dematerialized office serves as a key strategy in advancing environmental sustainability.

5. Reduced carbon footprint

One of the most significant benefits of a dematerialized office is the reduction of the carbon footprint. Traditional office buildings require daily commuting, often relying on fossil fuel transportation, which contributes significantly to greenhouse gas emissions. By enabling remote work, a dematerialized office minimizes the need for daily commuting, thereby reducing the overall carbon footprint of both employees and organizations. In addition, the demand for large physical office spaces is decreasing, leading to reduced energy consumption for heating, cooling, lighting, and maintenance of these facilities. For example, a study by Global Workplace Analytics[21] suggests that if those who can work remotely only did so half of the time, it would reduce greenhouse gas emissions by 54 million tons per year, which is equivalent to taking 10 million cars off the road!

6. Energy efficiency

In addition to reducing emissions, a dematerialized office increases energy efficiency through the strategic use of artificial intelligence to control energy flows. In a decentralized work environment, energy consumption patterns are shifting from large, centralized office buildings to individual home offices and data centres that support remote work. AI technologies play a key role in optimizing energy consumption in these domains. In home offices, AI-driven smart devices can regulate heating, cooling, and lighting based on households' energy profiles and usage patterns, ensuring that energy is not wasted when spaces are unoccupied or during off-peak hours. Similarly, in data centres, AI algorithms manage workloads and optimize server performance to reduce power consumption without compromising performance. This intelligent management leads to significant energy savings and reduces the overall environmental impact of digital infrastructure.

21 https://globalworkplaceanalytics.com/whitepapers.

7. Resource optimization

Efficient resource management is another critical area where a dematerialized office, empowered by artificial intelligence, contributes to sustainability. Traditional office environments often involve significant use of physical resources, including paper, office supplies, and other consumables, leading to significant waste generation. The shift to digital workflows inherently reduces the consumption of these materials. Furthermore, AI improves resource planning by analyzing usage patterns, predicting future needs, and ensuring efficient resource allocation. For example, AI-driven analytics can predict the demand for office supplies based on the activities of remote teams, preventing overstocking, and minimizing waste. In addition, AI can facilitate sustainable practices such as circular economy models, where resources are reused and efficiently recycled within organizations. By promoting accurate and informed decision-making, AI helps organizations reduce waste and foster a culture of sustainability.

IV. Conclusions – Responsible acceptance of AI

As the results of the EDIH Adria project have shown so far, artificial intelligence (AI) applied in the new dematerialized office stands out as a transformative force that can reshape public administration or SMEs and redefine their operational paradigms. For organizations that want to harness the full potential of AI for digital transformation, a gradual, strategic, and multidimensional approach is crucial. This includes investing in employee training, promoting a culture of transparency, prioritizing ethical standards, and engaging with all stakeholders in the transformation process. By addressing these key areas, organizations can effectively create dematerialized offices, integrate AI technologies, and ensure that innovation is driven while maintaining trust and accountability.

1. Investing in employee training

Successful AI integration within an organization starts with taking care of employees. Investing in employee training is paramount to equip staff with the necessary skills to work effectively in the new AI-enabled environment. As AI technologies become more sophisticated, there is an increasing demand for employees who can understand, manage, and use these systems. Comprehensive

training programmes should focus not only on technical skills, but also on fostering a mindset that encompasses continuous learning and adaptability. By empowering employees with the knowledge and confidence to use innovative technologies and AI tools, organizations can increase productivity, reduce resistance to change, and create a more innovative and agile workforce.

2. Promoting a culture of transparency

Transparency is the key to building trust and ensuring a smooth process of digital transformation of companies and the adoption of AI technologies within the organization. Promoting a culture of transparency involves clearly communicating how AI is used, the benefits it brings, but also the implications it can have on various aspects of the business. This openness helps demystify AI technologies, alleviating fears and misconceptions among employees. Involving staff in the adoption process fosters a sense of ownership and collaboration, minimizing the risks inherent in each transformation. Transparent communication also extends to stakeholders outside the organization, reinforcing the organization's commitment to the ethical and responsible use of AI.

3. Prioritizing ethical standards

As organizations integrate AI into their operations, prioritizing ethical standards becomes imperative to ensure fairness and accountability. Implementing strong ethical guidelines for the use of AI helps mitigate risks such as bias, discrimination, and unintended consequences. Those guidelines should cover principles such as data privacy, transparency in decision-making processes and accountability mechanisms. By incorporating ethical considerations into their AI strategies, organizations not only follow regulatory requirements but also build trust with customers, employees, and other stakeholders. Ethical AI practices contribute to sustainable growth and protect the organization's reputation in an increasingly conscientious market.

4. Engaging with stakeholders

The successful deployment of AI technologies requires collaboration with various stakeholders, including legal experts, policymakers and industry groups. Collaborating with these entities helps organizations stay up to date on new regulations and standards, ensuring compliance and fostering an initiative-taking

approach to AI governance. Collaboration with a wide range of stakeholders also helps to share best practices and insights, fostering shared progress in the responsible use of AI. By participating in industry forums and regulatory discussions, organizations can influence the development of frameworks that balance innovation with ethical considerations, ultimately shaping a conducive environment for AI to thrive.

5. Final Remarks

As we have seen in this text based on real experiences from the EDIH ADRIA project, the digital transformation of organizations and the use of the full potential of artificial intelligence is a strategic endeavour that requires a comprehensive approach. By investing in employee training, promoting a culture of transparency, prioritising ethical standards and engaging with stakeholders, public administrations and SMEs can effectively navigate the complexities of AI integration. These efforts not only maximize the benefits of AI technologies but also ensure that they are implemented responsibly and sustainably. As AI continues to evolve, organizations that adopt these best practices will be well-positioned to be leaders in their fields, fostering innovation while supporting trust and integrity.

The integration of artificial intelligence into office work is transforming the workplace landscape. A dematerialized office offers the benefits of flexibility, efficiency, and sustainability. However, this also presents challenges that require continuous care. By proactively addressing privacy issues, investing in human capital, and fostering an ethical approach to AI, organizations can create a future of work that is both innovative and human centric.

On Demand Platform Workers – What about Their Employment Status? Slip into Indecency?

Andrijana Bilić[*] and *Vanja Smokvina*[**]

Abstract

Digital and IT revolution together with the impact of the COVID-19 crisis have tremendously affected the standard employment relationship. New forms of employment are being introduced all around the world which mostly resulted in indecent working condition of persons performing such activities sometimes not recognised as employment activities neither. They are usually followed by low labour and social security law protection. In other words, presently, they form new groups of precarious workers with into indecent terms and conditions of work. In the background lays the unclear employment status of platform workers and the absent, unclear or incomplete terms and conditions or rules of engagement between the platform and the platform worker. In this paper, the authors give an overview of perspectives about on demand platform work. The theoretical approach, EU institutional view together with national and CJEU Case-law jurisprudence are used to detect the elements of this new form of work with suggestions that on demand platform workers should be assigned employment status and consequently applicability of labour law.

Keyword: Employment, Labour Law, Social Security, Workers

I. Introductory remarks

The Big Bang of digital revolution was triggered by the invention of the microprocessor in the early 1970s. It is a programmable miniature electronic device

* Full professor, University of Split, Faculty of Law, Split, Croatia.

** Associate professor, University of Rijeka, Faculty of Law, Rijeka, Croatia. This work has been fully supported by the University of Rijeka under the project uniri-drustv-18-252 “Legal aspects of the digital transformation of society”.

that contains arithmetic, logic and control circuitry necessary to perform the function of processing digital information. The continuous increase in performance and decrease in cost of microprocessors over the years facilitated a very rapid spread of different digital technologies such as personal computer, the internet and mobile phones etc.[1].

The digital revolution has tremendously transformed the world of work (the automation of work, digitalisation of processes and coordination by platforms[2] leaving different implications for the employment relations and applicability of labour law. The most significant trend in this digital evolution encompasses introduction of telework[3], Industry 4.0 (Fourth industrial revolution) and increasing platform economy[4].

Telework which made it possible that the worker does not have to perform his/her work on employer premises, which would result in considerable savings both for the employers and for national economies that would result from reducing commuting. Also, it would solve the problem of congestion and to some extent pollution. Also, it is a specific type of flexible distributed work towards greater emphasis on efficiency and productivity. Anyway, there are a number of factors that could explain the use of telework: individual, organisational, home-family, environmental, safety and legal[5].

Industry 4.0 (Fourth industrial revolution) which represents the fusion of technologies that is effacing the boundaries between the physical, digital and biological spheres[6] "Fourth industrial revolution relies on a new era of technological innovation: multidirectional communication between manufacturing processes and products; machine learning; Artificial Intelligence, interconnected

---

1 Eurofound, Further exploring the working conditions of ICT-based mobile workers and home-based teleworkers, 2017, p. 1.

2 Eurofound, Further exploring the working conditions of ICT-based mobile workers and home-based teleworkers, 2017, p. 14.

3 *Bilić*, Rad na daljinu prema međunarodnom, europskom i hrvatskom zakonodavstvu, Proceeding of Faculty of Law Split, Vol. 48 No. 3, 2011., pp. 631-647.

4 *Weiss*, The platform economy: the main challenges for labour law. In: Méndez (ed.) Regulating the Platform Economy, International Perspectives on New Forms of Work. Routledge, New York, 2020, pp. 11-12.

5 *Bilić*, A Telework in the Time of Covid-19 Crisis – Breaking the Old Rules and Making the New Ones, in: Exploring the Social Dimension of Europe, Essays in Honour of Nada Bodiroga-Vukobrat (Sander/Pošćić/Martinović [eds.]), Dr. Kovač, Hamburg, 2021, pp. 111- 126.

6 *Monohan*, Who will lead the fourth industrial revolution, Logistics, Management 56, no. 10, 2017. Available at: http://www.thenation.com/article/how-crowdworkers-became-ghosts-digital-machine/.

collaborative robots; simulation of interconnected machines; integration of information flow along the value chain, from the supplier to the consumer; 3D printers connected to digital development software; analysis of large databases to optimize products and processes and management of large amounts of data on open systems"[7]. Moreover, it embraces a wide range of areas, from renewables to quantum computing and from gene sequencing to nanotechnology[8].

The third trend – platform economy, and classification of legal status of platform workers, with special attention to on demand platform workers, is in the focus of this article. Some studies which have been conducted estimated that in the European Union, the number of platform workers varies from around 6% in Finland to around 16% in Portugal[9] which bring us to the conclusion that there is exponential growth of platform work and its potential to disrupt the labour market. Digital labour platforms play a key role in the digital transition of the European economy and are a growing phenomenon. The size of the digital labour platform economy in the EU has grown almost fivefold from an estimated €3 billion in 2016 to about €14 billion in 2020. Digital labour platforms bring innovation, create jobs and enhance the EU's competitiveness. They provide additional income to people, including to those whose access to the labour markets may be more difficult[10]. On the other hand, platform work entails certain challenges on the labour law in the context of guarantees of its traditional goals: protection of workers, respect of workers' dignity, privacy, and their physical and mental health.

A persistent theme in the critical literature is the fear that platforms are inducing a race to the bottom, which will end in worker exploitation and misery[11]. The policy, stakeholder and research communities broadly agree that the

---

7 *Caruso*, Digital innovation and the fourth industrial revolution: epochal social changes? AI & Society, 2017. Available at: https://doi.org/10.1007/s00146-017-0736-1. Accessed 28 April 2025.

8 *Schwab*, Welcome to the fourth industrial revolution, Rotman Management, 2016, p. 19.

9 European Commission, Platform workers in Europe, Evidence from the COLLEEM Survey (Persole at al.), Joint Research Centre, European Union, 2018, p. 15.

10 European Commission, Protecting people working through platforms: Commission launches second-stage consultation of social partners. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2944. Accessed 28 April 2025.

11 *Ravenelle/Hustle*: The lived experience of Workers in the Sharing Economy. New York: PhD Dissertation, City University of New York, 2016; *Rosenblat/Stark*, Algorithmic labor and information asymmetries: A case study of Uber's drivers. International Journal of Communication, 10, 2016, pp. 3758-3784; *Scholz*, Uberworked and underpaid: How workers are disrupting the digital economy. Cambridge: Polity Press, 2016; *Dubal*, Wage-slave or entrepreneur? Contesting the dualism of legal worker categories. California Law Review, 105, 2017, pp. 65-126.

main challenge in platform work is the unclear employment status of platform workers and the absent, unclear or incomplete terms and conditions or rules of engagement between the platform and the platform worker. The risks of precariousness include the absence of some or all forms of labour-related security: labour market security (adequate income-earning opportunities), employment security (protection against arbitrary dismissals), job security (ability and opportunity to retain a niche in employment), work security (protection against accidents and illness at work), skill reproduction security (opportunities to gain skills), income security (assurance of an adequate stable income) and representation security (possessing a collective voice in the labour market)[12].

Consequently, several important issues arise: is Labour Law applicable to platform workers? Can traditional regulations of labour standards cope with challenges that arise in platform work? Do platform workers form another group of precarious workers?

So far, policy responses in EU Member States have been rather limited and fragmented, diverse in nature and scope, and somewhat ineffective. Very few countries have taken legislative measures to address the labour and social protection of (self-employed) platform workers directly, while national court rulings differ on the employment status of platform workers[13].

In answering these questions, the authors will take into account the complexity of the classification of the work arrangements mediated by digital platforms and attempt to taxonomize online platform mediating labour by consulting labour law's scholars' views, policy intervention at international and EU level and also recent judgments on the legal status of on – demand platform workers.

II. Platform work – new business model with new control strategy

Technological developments following the invention of the microprocessor, including widespread use of computers and smaller mobile devices, together with big data processing and geolocation technique, have created conditions for the rise of new and continuously evolving economy which revolves around online platforms. In the literature, we find different terms with different conceptualisations and operationalisations of this phenomenon such as: "platform econo-

12 Standing, The Precariat. The new dangerous class, Bloomsbury, London, 2011.

13 European Commission, Study to gather evidence on the working conditions of platform workers, 2020. Available at: https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8280. Accessed 28 April 2025.

my"[14], "sharing economy"[15], "collaborative economy"[16], "on demand economy"[17] or "gig economy"[18]. The confusion around the terminology and the lack of clear definition produces a lack of indicators needed for the identification of platform workers, their number, characteristics and geographical, occupational and sectoral distribution of this portion of the workforce[19].

Platforms are digital networks that coordinate transactions in an algorithmic way. They represent hybrids of markets and firms: the network and algorithmic components of platforms perform the functions of each of those basic economic institutions. Platform work is performed within triangular structure, involving the person performing work (the worker), the end user (the customer) and company or companies providing the digital intermediary service (the platform.) But it is worth noting that platforms differ from traditional labour market intermediaries in that what they meditate is not a job in a traditional sense, but "unbundling of tasks" (larger tasks being split up and divided among a virtual

14 *Méndez*, Regulating the platform economy, International Perspectives on new forms of work, Routledge, New York, 2020.

15 *Frenken* at al., Smarter regulation for the sharing economy, The Guardian, 20 May 2015. Available at: https://www.theguardian.com/science/political-science/2015/may/20/smarter-regulation-for-the-sharing-economy. Accessed 28 April 2025.

16 *Botsman/Rogers*, What's mine is yours: The Rise of collaborative consumption. Harper, New York, 2010; *De Groen/Maselli*, The impact of colaborative economy on the labour market, No. 138. CEPS, Bruxelles, 2016; European Commission, More than profit: a collaborative economy with a social purpose. Preliminary review of how collaborative economy models can help address social challenges in Europe and the characteristics of current activities, 2016. Available at: http://ec.europa.eu/DocsRoom/documents/18443; European Commission, Communication from the Commission to the European Parliament, the Council, the EuropeaN Economic and Social Committee and the Committee of the Regions, A European agenda for the collaborative economy, 2016 {SWD(2016) 184 final}. Accessed on 28 April 2025.

17 *De Groen* et al., Impact of digitalisation and the on-demand economy on labour markets and the consequences for employment and industrial relations, Final study, European Economic and Social Committee, 2017. Available at: https://www.eesc.europa.eu/sites/default/files/resources/docs/qe-02-17-763-en-n.pdf. Accessed 28 April 2025.

18 *Friedman*, Workers without employers: shadow corporations and the rise of the gig economy. Review of Keyneisian Economics, 2(2), 2014, pp. 171-188; *Balaram* et al., Good gigs: a Fairer Future for the UK's gig economy, RSA, UK, 2017, available at: rsa_good-gigs-fairer-gig-economy-report.pdf. Accessed 28 April 2025.

19 *Huws/Spencer/Syrdal*, Online, on call: the spread of digitally organized just-in time working and its implication for standard employment models, New Technology. Work and Employment 33(2):113-129, 2018, available at: https://onlinelibrary.wiley.com/doi/epdf/10.1111/ntwe.12111. Accessed 28 April 2025.

cloud of workers)[20]. At the same time, they monitor and control performance of platform workers in the form of algorithmic management, therefore carrying out the typical function of employer. This is the form of employment that uses online platform to enable organisations or individuals to access an indefinite and unknown group or other individuals to solve specific problems or provide specific services or products in exchange for payment[21], the matching of the supply of and demand for paid labour through online platform[22].

Basically, two types of platforms can be distinguished: "internal platforms" to which only the workforce of a specific company has access and "external platforms" with open access for anybody meeting specific criteria[23]. In the latter group, we can distinguish also two groups: work on demand via app (location-based applications/apps) which allocate traditional working activities (transport, cleaning, delivery etc.) to individuals in specific geographical area (Uber, Cabify, Glovo, Deliveroo, Foodora, Bolt etc.) and online crowed work (web-based platforms, such as Amazon Mechanical Turk, Upwork etc.) where work is outsourced to an open call to a geographically dispersed crowd.

From platform worker perspective reasons explaining the eruption of platform or app-based workforce who creates ultra-flexible parallel labour market are following: flexible working conditions and better work – life balance[24]; access to paid work to workers who may face discrimination in traditional labour markets; highly skilled workers in developing countries can through the platforms access the clients in developed countries who pay higher wages.

---

20 European Commission, Second phase consultation of Social Partners under article 154 TFEU on a possible revision of the Written Statement Directive 91/533/EEC in the framework of the European Pillar od Social Rights C(2017)6121 final, p. 19.

21 Eurofound, New forms of employment, Publications Office of the European Union, Luxemburg, 2015, p. 107.

22 Eurofound, Employment and working conditions of selected types of platform work, Publications Office of the European Union, Luxemburg, 2018, p. 3.

23 *Weiss*, The platform economy: the main challenges for labour law. In: Méndez (ed.) Regulating the Platform Economy, International Perspectives on New Forms of Work. Routledge, New York, 2020, pp. 11-12; *Berg/Furrer/Harmon/Rani/Silberman*, Digital labour platforms and the future of work: Towards decent work in the online world. ILO, Geneva, 2018, pp. xv, 9.

24 *Choudary*, The architecture of digital labour platforms: Policy recommendation on platform design for worker well-being, ILO Future of Work Research Paper No.3. ILO, Geneva, 2018, pp. 6-7; *Špadina*, Digital Work, Equality and the Reconciliation of Professional Life and Private and Familly life, Compendium of Papers for XIII European Regional Congress of the International Society for Labour and Social Security Law "Work in Digital Era – Legal Challenges, Portugal, 5.-7. May 2021.

Growing interest for the use of platform work from platform side perspective are the following: the need to cope with short – run fluctuations on demand side; the desire to reduce labour costs and urgency to meet market pressures on short-time results and efficiency[25]. Explained in the words of *Bievald Lukas*, founder of the platform Crowedflower (today known as Figure Eight):" before the Internet, it would be really difficult to find someone, sit them down for ten minutes and get them to work for you, and then fire them after those ten minutes. But with technology, you can actually find them, pay them the tiny amount of money, and then get rid of them when you don't need them anymore"[26]. The aforementioned citation means that platform work allows the platforms to profit from organising labour on a large scale, while apparently limiting legal responsibilities and the need for investments. This raises the question of whether platform work has shaken up Labour Law traditional provisions where any labour standards perceived as basic up to now are unachievable[27].

What is new about the platform business model of work? The main difference compared to the traditional business model is widespread use of algorithmic management as work settings in which "human jobs are assigned, optimized and evaluated through algorithms and tracked data"[28]. It encompasses: constant tracking of workers' behaviour; constant evaluation of workers' performance through gathered data from clients' reviews; the automatic implementation of decision, with only few or no human intervention; almost all communication is mediated by platform, so there is evident lack of human interaction which could lead to feeling of isolation of platform worker and necessary feedback from their supervisors; transparency, even though algorithms rely upon an explicit set of rules, but the company rarely discloses them therefore creating very low transparency for workers and customers to gain information advantage[29].

---

25 *Dokka/Munforf/Schanzebach*, Workers and Online Gig Economy, The Hamilton Project Framing Paper, 2015. Available at: https://www.hamiltonproject.org/assets/files/workers_and_the_online_gig_economy.pdf. Accessed 28 April 2025.

26 *Mosche/Marvit*, How crowed workers become the gost sin the digital machine, The Nation, 5 February 2014.

27 *Degryse*, Digitalisation of the economy and its impact on labour markets. ETUI, Bruxelles, 2016, p. 35.

28 *Lee/Kusbit/Metsky/Dabbish*, Working with machines: The impact of algorithmic and dana-driven management on human workers. Proceedings of the Association for Computing Machinery Conference on Human Factors in Computing Systems, Seoul, 2018, pp. 1603-1612.

29 *Choudary*, The architecture of digital labour platforms: Policy recommendation on platform design for worker well-being, ILO Future of Work Research Paper No. 3. ILO, Geneva, 2018, pp. 12; *Möhlmann/Zalmason*, Hands on the wheel: Navigating algorith-

What makes this business model so unique? It is based on four elements which has transformed the world of work[30]:

- Subdivision of work in microtasks (numerous independent assignments) which would be inadequate for standard business model, but in so called "gig-economy new line of business offers companies support and advice in the organisation of work to adapt to new circumstances.

- Use of crowdsourcing which means that each microtask is outsourced to a large number of independent contractors whose number must be high enough to ensure that there is sufficient demand to meet supply at all times. Crowdsourcing production is only possible through new technologies which allow the access the large market of independent service providers.

- Service providers are considered independent contractors since in providing services they use their own means of production, bear the costs of their activity, receive payments proportional to the number of services provided and have the freedom to decide if they are going or not provide demanded service.

- Taking into account the fact that technology allows detecting the exact moment when and where the demand takes place and by using algorithm within a few seconds the task is assigned to an independent contractor who is willing to provide the service these independent contractors are hired for on demand.

So, we can conclude that the classical distinction between the hierarchical business coordination within a firm and free market coordination between independent participant can hardly be applied. Also, due to established "hybrid governance structure", fundamental distinction between "capital" and "labour" is challenged.[31] Namely, "labour", formed mainly of self-employed persons, some-

---

mic management and Uber drivers's autonomy. Proceedings of the International Conference on Information Systems, Seoul, 201, p. 5.

30 *Fabrellas*, Algorithms as subordination. The role of technology in classifying workers in platform economy, Compendium of Papers for XIII European regional congress of the International Society for Labour and Social Security Law. Work im a digital Era: Legal Challanges, Portugal, 5.-7. May 2021.

31 *Acquier*, Uberisation meets organizational theory. Platform capitalism ant the rebirth of the putting-out system. In Davidson/Finck/Infranca (eds.), Cambridge handbook of the law of sharing economy. Cambridge University Press, Cambridge, 2018, p. 15.

times poses capital (e.g., car, flat, bike etc) and are at the same time deprived of entrepreneurial freedom. The change in the structure of the firms is evident: instead of a managerial firm which is organised as an entity, platforms as market-organisation pose few assets, outsource the work, and try to avoid taking on any (social) responsibility by pretending to be only intermediary and a marketplace.[32]

Platforms like to present themselves as intermediary on the labour market and platform workers as self-employees in order to circumvent provisions of labour, social and tax law. In reality, they are "controlling autonomy"[33] of their workers in different ways, mostly by technological control (algorithmic control), human management (procedures to avoid classification of platform worker as employee, e.g. preventing continuous work with one client) and financial incentives.[34] Since the 1990s, control mechanisms are not exercised through management control but via IT were called "informational control"[35], "Taylorist informational control"[36] or "info-normative control"[37]. What was the reason for the use of informational control? It was a necessity to access and control workers who perform their work in a so called "virtual office" and who do not have a traditional obligation to obey employers' instruction and who lack personal dependence on the employer. This way, employers could ensure that their workers provide services of good quality to their customers.

Control and management exercised by platforms in relations to platform workers have also different names: "algorithmic management"[38] "algorithmic

---

32 *Acquier*, Uberisation meets organizational theory. Platform capitalism ant the rebirth of the putting-out system. In Davidson/Finck/Infranca (eds.), Cambridge handbook of the law of sharing economy. Cambridge University Press, Cambridge, 2018, pp. 15, 19.

33 *Schönefeld*, Kontrollierte Autonomie. Einblick in die Praxis des Crowdworking. In Hensel et al. (eds.), Selbstständig Unselbständigkeit, Nomos, Baden-Baden, 2019, p. 76.

34 *Hotvedt*, The contract of employment test renewed. A Scandinavian approach to platform work. Spanish Labour Law and Employment Relations Journal 7 (1-2), 2018, p. 59.

35 *Linnenkohl*, Selbstständigen-Kultur und Arbeitsmarkt, Betriebs-Berater, 1, 1999, p. 48.

36 *Wood/Graham/Lehdonvirta*, Good gid, bad gig: Autonomy and alghoritmic in the global gig economy. Work, employment and Society, 1-20, 2018, p. 6. Available at: https://journals.sagepub.com/doi/pdf/10.1177/0950017018785616. Accessed 28 April 2025.

37 *Frenken* et al., Smarter regulation for the sharing economy, The Guardian, 20 May 2015. Available at: https://www.theguardian.com/science/political-science/2015/may/20/smarter-regulation-for-the-sharing-economy. Accessed on 28 April 2025.

38 *Prassl*, Human as a service. Oxford University Press, Oxford, 2018, p. 55.

control" and "app-based management"[39]. In the identification of employment relations, some authors propose to add "informational dependence" to the concept of "personal dependence" as a consequence of the use of IT technology in "virtual" organisations.[40]

So, what are the similarities and the differences between informational and algorithmic control? The similarity lays in the fact that control is often used to monitor and evaluate work performance, fulfilment of working time regulations and to determine the amount of remuneration. Compared to informational control, algorithmic control serves one another function: selection and recruitment of platform workers. Namely, in algorithmic control, the third party (customer/client) is involved. By the virtue of their rating, the platform can select the best platform workers, but also penalise workers with less favourable working time or deactivate a worker's account on the platform. Also, digital technologies allow platforms to collect an immense amount of data and implement decisions automatically, in that way making platform workers "informational dependent"[41]. A further difference lays in the structure of control and the used sanctions. Regarding its structure, informational control represents a mix of intensive informational and management control and is combined with bureaucratic rules and procedures which serve to reward or discipline workers. With algorithm control, human management loses its significance because machine learning algorithms implement decisions automatically. So, in the case of platform work, managerial control is almost completely replaced by algorithmic control.

The business model "work on demand" requires an intensive control over work performance in order to guarantee a high quality of services for the customers. In next chapters, we shall investigate if these control mechanisms play a decisive role in court decision concerning employment classification of on demand platform workers. We shall also consult other indicators for the identification of employment relations with an aim to conclude if on demand platform workers could be classified as employees or whether they form a new group of self-employees.

---

39 *Ivanova/Bronowicka/Kocher/Degner*, The app as boss? Control and autonomy in application-based management, Arbeitspapier, 2. Europa-Universität Viadrina Frankfurt, Frankfurt (Oder), 2018, p. 6.

40 *Linnenkohl*, Selbstständigen-Kultur und Arbeitsmarkt, Betriebs-Berater, 1, 1999, p. 48.

41 *Koch*, Selbstständigkeit in der virtualisierten Arbeitswelt, Kassel University Press, Kassel, 2010, p. 142.

III. Classification of platform workers

The most problematic issue in the sphere of platform work is the legal classification of on demand platform workers under the self-employed or the salaried employee status. Namely, the classification of any contractual relation as employment status functions as an *action finium regundorum* of labour law or getaway to applicability of labour law. It is worth noting that employment classification criteria dates back to the time when managerial control was predominant. The question is: is employment classification criteria as such applicable to the present "market-organisation" model of platform work with domination of algorithmic control or does it need some modification? Despite numerous attempts of labour law scholars to taxonomize online platforms mediating labour[42] problems regarding their nomenclature and legal classification still persist. But it is worth noting that misclassification is nothing new. Long before digital revolution, business practices existed that tried to hide employment relationships under the self-employment. As back then, even today the demarcation line between employees and self-employed (independent contractors) is very difficult to draw[43].

Here we can use the ILO Employment Relationship Recommendation, 2006 (No. 198)[44] as one of the most important sources which could help us to determine the employment relationship of platform workers. The ILO (2006) Recommendation says that the National policy should at least include measures to provide guidance for employers and workers on effectively establishing the existence of an employment relationship and on the distinction between employed and self-employed workers and to combat disguised employment relationships in the context of other relationships that may include the use of other forms of contractual arrangements that hide the true legal status. ILO (2006) The recommendation noted that a disguised employment relationship occurs when the employer treats an individual as other than an employee in a manner that

42 *Schmidt*, Digital labour markets in the platform economy – mapping the political challenges of the crowd work and gig economy. Friedrich- Ebert-Stiftung, Bonn, 2017; *De Stefano/Aloisi*, European legal framework for digital labour platforms. European Commission, Luxemburg, 2018; *Howcroft/Bervall/Käreborn*, A typology of crowd platforms, Work, Employment & Society 33 (1), 2018, pp. 1-18.

43 *Davidov/Langille* (eds.), Boundaries and Frontiers of Labour Law, Oxford/Portland, 2006; *Freedland/Kountouris*, Thje Legal Construction of Personal Work Relations, Oxford, 2011.

44 ILO (2006) ILO Employment Relationship Recommendation (No. 198). Available at: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312535. Accessed 28 April 2025.

hides his or her true legal status as an employee, and that situation can arise where contractual arrangements have the effect of depriving workers of the protection they are due. For the purposes of the national policy of protection for workers in an employment relationship, the determination of the existence of such a relationship should be guided primarily by the facts relating to the performance of work and the remuneration of the worker, notwithstanding how the relationship is characterized in any contrary arrangement, contractual or otherwise, that may have been agreed between the parties. The Member States should allow a broad range of means for determining the existence of an employment relationship, provide a legal presumption that an employment relationship exists where one or more relevant indicators is present; and determining, following prior consultations with the most representative organizations of employers and workers, that workers with certain characteristics, in general or in a particular sector, must be deemed to be either employed or self-employed.

Furthermore, Member States should consider the possibility of defining in their laws and regulations, or by other means, specific indicators of the existence of an employment relationship such as the fact that the work: is carried out according to the instructions and under the control of another party; involves the integration of the worker in the organization of the enterprise; is performed solely or mainly for the benefit of another person; must be carried out personally by the worker; is carried out within specific working hours or at a workplace specified or agreed by the party requesting the work; is of a particular duration and has a certain continuity; requires the worker's availability; or involves the provision of tools, materials and machinery by the party requesting the work. Also, one important indicator is the periodic payment of remuneration to the worker; the fact that such remuneration constitutes the worker's sole or principal source of income; provision of payment in kind, such as food, lodging or transport; recognition of entitlements such as weekly rest and annual holidays; payment by the party requesting the work for travel undertaken by the worker in order to carry out the work; or absence of financial risk for the worker (ILO 2006).

On the basis of the ILO Employment Relationship Recommendation no. 198, we can conclude that the essential element of differentiation between employment and self-employment (subordinate work) is the bond of worker to the organisational, managerial and disciplinary power of employer. First of all, employees make their own productive labour (*operae*) available to employer under his/her managerial prerogatives this way making his/her integration in the entrepreneurial organisation. On the contrary, the self-employed person provides a service i.e., result of his/her activity (*opus*). Regarding managerial power of the

employer in classifying subordinate or autonomous relationships on/autonomy, we need to look if the worker is sticking to employers' directives regarding working time, place, content of work and the way the it is going to be performed (personal subordination/dependency), his economic dependency on a single employer, his obligation to be available for work, if employer provides tools and materials, bears risk of profit loss and has entrepreneurial control and make some job specific investment. Some indicators for the identification of employment relations may exist, but are not decisive for the existence of employment relations such as the right to weekly rest and annual leave, no competition clause etc.

Inevitable differences regarding indicators may exist between legal systems[45]. In civil legal systems, the approach is a typological one, contained in statutory definitions, while in common law systems, it is generally based on case law[46].

In most countries in the identification of employment relationship the will of parties regarding the nomination of contract and its content is just the starting point. What matters more is the actual features of the legal relationship, which means that the principle of primacy of facts prevails setting aside the principle of *nomen iuris*.

So, the question is: which of the previously mentioned "classical employment status indicators" are applicable to the on-demand platform workers? In most cases on demand platform workers do not have a fixed timetable and regular workplace, but this kind of freedom is ambiguous. Namely, the absence of workers' obligation to accept the task has its justification in absence of the platforms' obligation to provide work and pay, which in turn can limit platform workers' profit possibilities. In many cases they do not perform work just for a single platform. The remuneration is mainly for the result and is determined by the platform, as also the other terms and condition of work. Also, on demand platform workers bear inherent costs, such as vehicle, smartphone, fuel, phone bills etc. But, in this context we should ask the next question: which mean is essential for the development and exercise of the economic activities carried out through the digital platforms: vehicle and smartphones or digital software owned by platform (company)? It is evident that the latter presents essential means without which this sort of business could not exist. Also, not the platform work-

45 *Hotvedt*, The contract of employment test renewed. A Scandinavian approach to platform work. Spanish Labour Law and Employment Relations Journal 7 (1-2), 2018, p. 62.

46 *Supiot*, Lavoro subordinato a lavoro autonomo. Diritto delle relazioni industriali, x (2), 2000, p. 219.

er, but the platform provides corporate *know-how* as accumulated knowledge regarding skills, modes and procedures used in carrying out business in a customer recognisable way.

Workers on demand do not show typical characteristics of entrepreneurial activity in the sense that they negotiate with a customers, do not have business practice on their own (e.g. disconnection from the platform means immediate termination of that sort of economic activity for the platform worker), do not have freedom to arrange their professional activities, don't have control over information which is indispensable in order to organise provision of services and don't have autonomous capacity to decide about price charged to the customer.

Control of on demand platform workers could be direct, e.g., through the use of geolocation systems in order for the platform to control times and routes of platform worker or as indirect control when the control is outsourced to the clients through rating and evaluation mechanisms, and different forms of control (detailed instruction how to complete the work, direct supervision of work, availability for certain number of hours, requested screenshots of the executed work etc.). But this does not mean that the platform has no control over the work of their workers. Namely, rating system is provided in the structure of the platform. That way platforms have indirect control over the performance of their workers. So, we can reach the conclusion that personal and economical subordination of demand platform workers depends only in relation to the platform and not to certain clients. Also, it is not disputable that legal relationship between the platform and on demand platform workers have both autonomous and subordination features which makes classification of their legal status even more complex.

From the previously explained, it is obvious that the current criteria leave legal status of on demand platform workers unresolved and leaving them without protection which traditional goals of labour law guarantees. So, the question is: how to provide that kind of protection for on demand platform workers? In the literature on platform work, we find several proposals[47]:

47 *Weiss*, The platform economy: the main challenges for labour law. In: Méndez (ed.) Regulating the Platform Economy, International Perspectives on New Forms of Work. Routledge, New York, 2020, p. 13; *Recchia*, Gig Work and the Qualification Dilemma: From the Judicial to the Theoretical Approach. In: Wratny et al. (eds.), New Forms of Employment. Current Problems and Future Challenges. Springer, Wiesbaden, 2020, pp. 147-149; *Unterschütz*, Digital labour platforms: Dusk or Dawn of Labour Law? In: Wratny et al. (eds.), New Forms of Employment. Current Problems and Future Challenges. Springer, Wiesbaden, 2020, pp. 335-338; *Chesalina*, Platform Work as a New Form of Employment. Implication for Labour and Social Law. In: Wratny et al. (eds.), New Forms of Employment. Current Problems and Future Challenges, Springer, Wies-

- redefine and broaden the concept of employee;
- renewal and adaptation of employment relation (contract of employment) tests;
- develop intermediary category between employee and self-employed person and develop certain set of rules for their protection;
- extend the protection of labour and social security law to the self-employed persons to the certain extent;
- develop special legislation for platform workers irrespective whether they are employees or self-employed;
- creation of platform cooperatives managed by platform workers in order to retain part of the revenues generated by workers' work,
- readjust the platform business model to comply with current labour legislation.

In the next chapter we shall briefly outline the case law of some national jurisdiction, case law of European Court and employment policy intervention of European institutions' and connect with key elements of previously outlined theoretical debate in order to help us make some conclusion about legal status of on demand platform workers and possibilities regarding their legal protection on the labour market.

---

baden 2020, pp. 159-164; *Hotvedt*, The contract of employment test renewed. A Scandinavian approach to platform work. Spanish Labour Law and Employment Relations Journal 7 (1-2), 2018, pp. 68-71; *Alvarez Alonso*, Assessing the employment status of digital platform workers: renewed approach, new indicators and recent judgements. Compendium of Papers for XIII European Regional Congress of the International Society for Labour and Social Security Law "Work in Digital Era – Legal Challenges, Portugal, 5.-7. May 2021, pp. 7-11.

IV. EU Employment Policy and Courts' Perspective

1. Employment policy Perspective

As the EU recovers from the Covid-19 crisis, the objectives of promoting socially fair transitions towards climate-neutral and digital economies are more important than ever. Ensuring that all workers in the EU have decent working conditions, as well as adequate access to social protection, is essential for recovery as well as for building fair and resilient economies. Increased legal clarity and predictability should enhance sustainable growth of digital labour platforms in Europe, allowing them to make the most of the opportunities of the single market. An initiative tackling the risks for work emerging from the platform economy builds precisely on these objectives, in the knowledge that, though still a comparatively limited phenomenon, platform work is growing fast and is shaping Europe's labour markets. The increasing importance of platform work as a policy topic is reflected in the priorities and engagements of many institutional actors[48].

This resulted in a strong initiative in the European institutions. The Council of the European Union in October 2019 called on Member States and the Commission to strengthen efforts and take appropriate action as regards platform work, in line with the ILO's Centenary Declaration for the Future of Work[49]. In November 2020 the European Parliament released a report on "A Strong Social Europe for just transitions" calling on the Commission to propose a directive on decent working conditions and rights in the digital economy, also covering non-standard workers, workers on digital labour platforms and the self-employed[50]. In the same month, the European Parliament's Employment Committee held an exchange of views with the European Commission and different stakeholders on platform work and in February 2021 the Committee on Employment and Social Affairs of the European Parliament released a draft report on working conditions in platform work, with a motion for a European Parliament Resolution on fair

48 European Commission, Staff Working Document, Analytical Document Accompanying the document Consultation document Second phase consultation of social partners under Article 154 TFEU on a possible action addressing the challenges related to working conditions in platform work, 2021 {C(2021) 4230 final}, p. 5.

49 Council of the European Union, Conclusion, The Future of Work: the European Union promoting the ILO Centenary Declaration, 13436/2019, 2019. Available at: https://data.consilium.europa.eu/doc/document/ST-13436-2019-INIT/en/pdf. Accessed 28 April 2025.

50 European Parliament, Report on a strong social Europe for Just Transitions (2020/2084(INI)), 24 November 2020, paras. 27, 40.

working conditions, rights and social protection for platform workers – new forms of employment linked to digital development[51].

The EU notes that platform work is one of the key strategic initiatives for a Strong Social Europe – *The European Pillar of Social Rights* which is structured around three categories: Equal opportunities and access to the labour market; Fair working conditions, social protection and inclusion[52]. Here we must highlight that the European Commission President *Ursula von der Leyen* in her Agenda for Europe strongly declared that "digital transformation brings fast change that affects our labour markets", and highlighted the commitment to "look at ways of improving the labour conditions of platform workers"[53].

The European Commission has also taken the view that it is extremely important to regulate and safeguard the working condition of platform workers. "To ensure dignified, transparent and predictable working conditions, a legislative proposal to improve the working conditions of people providing services through platforms will be presented with a view to ensuring fair working conditions and adequate social protection"[54].

In line with Article 154 TFEU, the European Commission is carrying out a two-stage consultation of social partners. On 24 February 2021 the European Commission launches the first-stage consultation of European social partners on how to improve the working conditions for people working through digital labour platforms[55]. Then, on 15 June 2021 the European Commission launched the second-stage consultation of European social partners and invited them to

---

51 European Parliament, Committee on Employment and Social Affairs, Draft Report on fair working conditions, rights and social protection for platform workers – new forms of employment linked to digital development, 2019 (2019/2186(INI)). Available at: https://www.europarl.europa.eu/doceo/document/EMPL-PR-657498_EN.pdf. Accessed 28 April 2025.

52 European Commission, A Strong Social Europe for Just Transitions, 2020. Available at: https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_20. Accessed 28 April 2025.

53 *von der Leyen*, Political Guidelines for the Next European Commission 2019-2024. Available at: https://ec.europa.eu/info/sites/default/files/political-guidelines-next-commission_en_0.pdf, p. 10. Accessed 28 April 2025.

54 European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions; Commission Work Programme 2021 – A Union of vitality in a world of fragility, COM(2020) 690 final, p. 4.

55 European Commission, Protecting people working through platforms: Commission launches a first-stage consultation of the social partners, 2021. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_686. Accessed 28 April 2025.

respond to the questions in the consultation by 15 September 2021. All this was done after the Commission received replies from 14 EU-wide social partners in the first-stage consultation. Based on the replies received, the Commission concluded that there is a need for further EU action to ensure basic labour standards and rights to people working through platforms[56].

Digital labour platforms play a key role in the digital transition of the European economy and are a growing phenomenon. The size of the digital labour platform economy in the EU has grown almost fivefold from an estimated €3 billion in 2016 to about €14 billion in 2020. Digital labour platforms bring innovation, create jobs and enhance the EU's competitiveness. They provide additional income to people, including to those whose access to the labour markets may be more difficult. Yet, platform work may also result in precarious working conditions and inadequate access to social protection for many people working through platforms. As previously stated, the key challenge in platform work relates to employment status. It is a key determinant of the access of people working through platforms to existing labour rights and protection. Moreover, people working through platforms can be subject to automated decisions made by algorithms without a possibility to question the decision and seek redress. They also often have limited access to collective representation and bargaining. Finally, there are also challenges related to the cross-border nature of platform work and the possibility to trace in which country work is performed.

In light of these challenges, the aim of the second-stage consultation is to get the social partners' views on how to ensure that people working through platforms have decent working conditions, while supporting the sustainable growth of digital labour platforms in the EU. Social partners will be consulted on a possible content of the EU-level initiative, in areas such as:

- facilitating employment status classification and access to labour and social protection rights;

- improving information, consultation and redress, notably when it comes to the use of algorithmic management in platform work;

- providing clarity on applicable rules for all people working through platforms operating across borders;

56 European Commission, Protecting people working through platforms: Commission launches second-stage consultation of social partners, 2021. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2944. Accessed 28 April 2025.

- strengthening enforcement, collective representation and social dialogue.

The consultation also asks for social partners' views on possible instruments for EU action. The Commission is considering both legislative and non-legislative instruments.

The next step to this second-stage consultation is either negotiations between social partners with a view to concluding an agreement under Article 155 of the Treaty on the Functioning of the EU (TFEU) or the presentation of a proposal by the European Commission by the end of 2021.

A possible EU initiative would be designed in full respect of national competence, the diversity of labour market traditions in Member States, and the autonomy of social partners. Any initiative on platform work should respect national definitions of 'worker'. There is also no intention to create a 'third' employment status (neither self-employed, nor worker) at EU level, while respecting the choice made by some Member States to introduce it in their national legislation[57].

Furthermore, we must say that as a follow-up to the *previously mentioned The European Pillar of Social Rights*, the Council of the EU adopted a Directive on Transparent and predictable working conditions (Directive 2019)[58], which also covers all new forms of work and stated that the CJEU has established criteria for determining the status of a worker and in case those criteria are met, platform workers could fall within the scope of this Directive. The Directive 2019 updates and replaces the Written Statement Directive 91/533/EEC (Directive 1991)[59] which aim is to provide employees with improved protection, avoid uncertainty and insecurity about the terms of the employment relationship and achieve greater transparency on the labour market. With the Directive 1991 there is an obligation that every employee must be provided with a document containing information on the essential elements of his contract or employment relationship, which has now been updated with the Directive 2019. Furthermore, the Directive 1991 determines that the place of work must be specified, as must the initial basic pay and other remuneration together with the descriptions of the

57 European Commission, Protecting people working through platforms: Commission launches second-stage consultation of social partners. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2944. Accessed 28 April 2025.

58 Directive (EU) 2019/1152 of the European Parliament and of the Council of 20 June 2019 on transparent and predictable working conditions in the European Union, OJ L 186, 11 July 2019, pp. 105-121, ad (8).

59 Council Directive 91/533/EEC of 14 October 1991 on an employer's obligation to inform employees of the conditions applicable to the contract or employment relationship, OJ L 288, 18 October 1991, pp. 32-35.

work, working times, leave entitlements and the arrangements for either side to give notice. Latest but not least. the individual worker must also be notified of any changes in the working conditions specified in the written document.

To conclude, how important digital platforms are, shows that the EU has even revised its tax rules. More concretely, on 22 March 2021, the Council of the European Union adopted new rules revising the Directive on administrative cooperation in the field of taxation (Council Directive 2011/16/EU or DAC) to extend the European Union tax transparency rules reporting by digital platforms on their sellers (DAC7) (Directive 2021)[60].

2. Courts' Perspective

The amount of litigation around the world on the classification of platform work arrangements has been steadily increasing. We find a variety of approaches taken by national courts to determine the employment status of such workers. Courts reach different outcomes, not just from one country to the next, but also within the same legal system, even when it concerns the same platform. One of the reasons is arguably the extensive nature of certain multi-factor tests, where they are adopted, as a result of which the courts have to deal with many criteria, all of which are subject to interpretation. Moreover, considering the courts' overall broad discretion as to weighing the various factual circumstances and legal criteria against each other, courts can arguably reach different outcomes completely within the boundaries of the law[61].

In this part of the paper, we will give a short case-law overview. We will highlight the important national tribunals judgements from Italy, Spain, the Netherlands and UK together with the CJEU Judgements.

a) National Case-law

National courts have in many instances adapted the concept of worker as defined under national law, and in some countries, this has led to a more elaborated set of criteria to be considered when establishing the status of worker. Administra-

60 Council Directive (EU) 2021/514 amending Directive 2011/16/EU on administrative cooperation in the field of taxation, OJ L 104, 25 March 2021, pp. 1-26.

61 *De Stefano/Durri/Stylogiannis/Wouters*, Platform work and the employment relationship, pp. 21-22, 30-37. Available at: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@travail/documents/publication/wcms_777866.pdf. Accessed 28 April 2025.

tors and inspectorates have also challenged the legality of the employment status of certain people working through platforms and issued decisions on employment status as it concerns labour or social law. Still, most evidence suggests that substantial legal uncertainties on the employment status of people working through platforms remain within Member States and across the EU. While EU law applies a binary distinction between worker and other statuses such as self-employed, in some countries (e.g., Germany, France, Italy, Spain and Portugal) one or more additional categories or subcategories of these two statuses exist for the purposes of national law. In other countries, there is an ongoing debate on introducing such third status for people working through platforms[62].

aa) Italy

In the world of work, while the use of automated systems first gained prominence through its applications in the platform economy, algorithmic management tools are spreading to "traditional" workplaces as well.[63]

The implications of using algorithms to manage people working through platforms were the subject of an Italian Supreme Court ruling from January 2021. In that case the court ruled that an algorithm used by a food delivery platform (Foodora) to rank and offer shifts to riders was discriminatory. According to the Court, the algorithm's failure to take into account the reasons behind a cancellation amounts to discrimination and unjustly penalizes riders with legally legitimate reasons for not working (for instance due to illness or family emergencies). The particular algorithm examined by the Court was used to determine the "reliability" of a rider. According to the judgement, if a rider failed to cancel a shift pre-booked through the app at least 24 hours before its start, their "reliability index" would be negatively affected. Since riders deemed more reliable by the algorithm were the first ones to be offered shifts in busier time blocks, this effectively meant that riders who could not make their shifts – even if due to a serious emergency or illness – would have had fewer job opportunities in the fu-

62 European Commission, Protecting people working through platforms: Commission launches second-stage consultation of social partners, 2021, p. 8. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2944. Accessed 28 April 2025.

63 European Commission, Staff Working Document, Analytical Document Accompanying the document Consultation document Second phase consultation of social partners under Article 154 TFEU on a possible action addressing the challenges related to working conditions in platform work {C(2021) 4230 final}, p. 30.

ture[64]. It is also important to say that this judgement confirmed that the 2015 reform amended in 2019 and aimed to expand the scope of employment protection beyond the employment relationship to all workers providing work organised by another party, including via a platform, already applied to workers whose work is organised by a platform[65]. As a result, employment and labour protection would apply to these platform workers, unless a collective agreement provides otherwise[66].

bb) Spain

In Spain in September 2020, the Spanish Supreme Court in a landmark case ruled that food-delivery riders are employees, not self-employed workers. The decision was made in a case brought to court by a former Glovo worker. As the Court declared, first of all, the freedom to schedule work would not in any way preclude the existence of a contract of employment. Moreover, for Glovo couriers, the theoretical freedom to choose time slots was deemed to be limited. According to the Supreme Court, the platform uses a "scoring system" that considers the customer's ratings, the efficiency demonstrated when executing gigs, and the performance of services during peak hours. When couriers cannot work during peak hours, their scores drop, making it harder to access the time slots with the highest customer demand. Therefore, the theoretical freedom to schedule time slots is quite different from the actual freedom, in the Court's view. We may conclude that the Supreme Court defined that the relationship that exists between a rider and the Glovo business is of a professional nature[67].

64 Italian Supreme Court, Decision 24 January 2020, Case No. 1663/2020. Available at: http://www. bollettinoadapt.it/wp-content/uploads/2020/03/Cassazione-1663-2020-riders.pdf. Accessed 28 April 2025.

65 *De Stefano/Durri/Stylogiannis/Wouters*, Platform work and the employment relationship, pp. 21-22, 30-37. Available at: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@travail/documents/publication/wcms_777866.pdf. Accessed 28 April 2025.

66 *Aloisi/De Stefano*, Delivering employment rights to platform workers", il Mulino, 31 January 2020. Available at: https://www.rivistailmulino.it/news/newsitem/index/Item/News:NEWS_ITEM:5018. Accessed 28 April 2025.

67 Spanish Supreme Court, Decision 25 September 2020, Case No. ECLI:ES:TS:2020:2924.

cc) UK

In the UK at the beginning of 2017, the judicial saga about Uber drivers' legal (labour) status started. It ended in February 2021 with the final decision of the UK Supreme Court which confirmed the lower judicial instances and ruled in favour of the labour relationship of Uber drivers. The UK Supreme Court, about the flexibility of the relationship highlighted that:

> "it is well established and not disputed by Uber that the fact that an individual is entirely free to work or not, and owes no contractual obligation to the person for whom the work is performed when not working, does not preclude a finding that the individual is a worker, or indeed an employee, at the times when he or she is working […] The flexibility of working time can be relevant, but it is not necessarily decisive."

Finally, about the subordination element, the Court determined that:

> "The fact that drivers provide their own car means that they have more control than would most employees over the physical equipment used to perform their work. Nevertheless, Uber vets the types of car that may be used. Moreover, the technology which is integral to the service is wholly owned and controlled by Uber and is used as a means of exercising control over drivers […] The ratings are used by Uber purely as an internal tool for managing performance and as a basis for making termination decisions where customer feedback shows that drivers are not meeting the performance levels set by Uber. This is a classic form of subordination that is characteristic of employment relationships."[68].

dd) The Netherlands

In 2019, there were two rulings from the Amsterdam Court which determined that cyclists working for a delivery company (Deliveroo) are not self-employed and should be paid according to the pay and working conditions deal which covers the delivery sector and ordinary workers. It is a legal response to the Deliv-

68 UK Supreme Court, Decision 19 February 2021, Case No. [2021] UKSC 5, Uber BV and others v Aslam and others, § 91et seq. Available at: https://www.supremecourt.uk/cases/uksc-2019-0029. Accessed 28 April 2025.

eroo company which in 2018 decided to swap all its staff contracts to self-employed only. However, the tribunals ruled in two separate court cases that the job has not changed sufficiently to merit tearing up the formal contract and, in the second case, that the statutory delivery workers' pay deal should apply to all delivery crew. They were paid per delivery rather than an hourly rate[69].

In March 2021, another Dutch court ruled that the use of an algorithmically-assisted process by a ride-hailing platform to support decisions on account termination did not breach provisions in the GDPR (General Data Protection Regulation) Article 22, which provides the right to have a 'human in the loop', i.e. not to be subject to fully automated decisions. The decision was taken after Uber provided proof of its internal Risk Operations team assessing fraud risks initially signalled by automatic means. The proof was not disputed by the applicants. Hence, the court concluded that there was significant human intervention in the account deactivation assessment and decision procedure. In a different ruling from April 2021, a Dutch court ordered Uber to compensate and rehire drivers, who were judged to have been unlawfully dismissed by algorithmic means[70].

b) CJEU Case-Law

The CJEU jurisprudence remains limited with regard to the labour dimension of platform work, although the following decisions show the court reasoning in that regard. In December 2017, in the case C-434/15, called also "Uber case" the CJEU did not discuss the issue of employment status of the drivers, but ruled that services such as those provided by UberPop, in view of the high degree of control which the company exercises over the driver, the service delivered and its remuneration, the platform's business model must be classified as 'a service in the field of transport' within the meaning of EU law, given they are "inherently linked" to the underlying transport service and that UberPop exercised "deci-

69 Amsterdam Tribunal (2019). Decision 15 January 2019. Available at: https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBAMS:2019:210&showbutton=true. Accessed on 28 April 2025.

70 European Commission, Staff Working Document, Analytical Document Accompanying the document Consultation document Second phase consultation of social partners under Article 154 TFEU on a possible action addressing the challenges related to working conditions in platform work {C(2021) 4230 final}, pp. 33-34.

sive influence" over the conditions under which the transport services were provided[71].

In the second case, C-62/19 "Star Taxi App Case", by contrast, we find a platform such as Star Taxi App which is limited to licensed taxi drivers for whom this intermediary service is only one of several means of acquiring customers, which the taxi drivers are by no means obliged to use, and which does not organise the general functioning of the ride-hailing service by selecting the drivers, setting or collecting the fares or controlling vehicles or the behaviour of drivers, remains a company offering an information society service and is not classified as a ride hailing service[72]. To conclude, the CJEU found that Star Taxi App's passenger transport service must be classified as "information society services"[73].

These two rulings shed light on the importance, from a judicial perspective, of the control exerted by a digital labour platform over the provision of the service it nominally intermediates, for determining whether said digital labour platform should be considered as a provider of an underlying service and therefore be subject to a sector-specific regulations. Here we would like also to pint to the case C-692/19 because this case gives a clarification regarding how the 'worker' status is defined in EU jurisprudence[74].

V. Platform work and Perspectives of Labour Law

From previous theoretical discussion and chosen litigation cases, the best solution for the protection of the on-demand platform workers in our opinion is renewal and adaptation of employment relation (contract of employment) tests. It is obvious that classical tests and indicators for the identification of employment

71 CJEU, Judgment of 20 December 2017, *Asociación Profesional Élite Taxi v Uber Systems Spain SL*, C-434/15, EU:C:2017:981, paras. 34-48.

72 European Commission, Staff Working Document, Analytical Document Accompanying the document Consultation document Second phase consultation of social partners under Article 154 TFEU on a possible action addressing the challenges related to working conditions in platform work {C(2021) 4230 final}, p. 38.

73 CJEU, Judgment of 22 April 2020, B v Yodel Delivery Network Ltd, C-692/19, EU:C:2020:288.

74 CJEU, Judgment of 22 April 2020, B v Yodel Delivery Network Ltd, C-692/19, EU:C:2020:288; European Commission, Consultation Document, First phase consultation of social partners under Article 154 TFEU on possible action addressing the challenges related to working conditions in platform work, C(2021) 1127 final, p. 8.

relationship cannot any longer serve its function in the context of on-demand platform workers. This approach gives us a flexible judicial test that can easily be adapted to a new condition on the market and new forms of work. Also, what is more important, it is not legally binding making its application more promising. In the creation of these tests, we should take a broad purposive approach focusing on the individual need protection, but also on the market role of the platform (functional approach). An individual approach is needed in individual borderline cases (formally independent contractors, but in reality, match employment status). But we should stress that economic dependency (subordination) of on-demand platform workers is not a decisive factor in the identification of employment relation. Namely, the work of on demand platform worker for the platform could be marginal and ancillary to other sources of income. But in this context, the decisive factor is personal dependence (subordination) of on demand platform worker in the form of supervision and control of work performance be it directly by the platform or indirectly through the customers' evaluation and ratings.

Regarding the functional approach, we should take into account that the contract of employment serves a very important function in the labour market regulation. As we previously said, it is a getaway to labour law protection. So, in this approach we need to observe platform's market role in protection this function of contract of employment. But the question is: Who bears responsibility for the obligations implied by these protective rules? In other words, who is the employer? As we have seen from the previous discussion, we can't leave classification to the platforms themselves, because they see themselves as solely intermediary in the platform work between platform worker and customers. Primacy of facts prevails over *nomen iuris*. So, in defying the employer we should focus on the traditional function performed by employer and look how far this could be applicable to the platform. So, the platform could be the sole employer or multiplicity of employers sharing employers' functions which are as follows: inception and termination of employment relationship; receiving labour and its fruits; providing work and pay; managing the enterprise's internal market and managing the enterprise's external market[75].

From the previous discussion on elements of the new business model, it is obvious that the traditional concept of employer (functional approach) no longer serves the purpose of his/her identification. In the case of the platform work the

75 *Prassl/Risak*, Uber, Taskrabbit, and Co.: Platforms as Employers? Rethinking the Legal Analysis of Crowdwork. Comparative Labour & Policy Journal, 2016, p. 639. Available at: http://www.labourlawresearch.net/sites/default/files/papers/15FEB%20Prassl_Risak%20Crowdwork%20Employer%20post%20review%20copy.pdf. Accessed 28 April 2025.

criteria need to take into account: degree of the platform involvement in underlying service. These criteria are accepted also in EU law as evidence of subordination if the platform sets the final price, other terms and conditions in the worker-customer relation and has ownership of key assets used to provide services[76].

In conclusion, although the authors strongly support requirement of renewal and adaptation of employment relation (contract of employment) tests, we are of the opinion that it should become part of employment policy recommendations in order to avoid arbitrary judicial decisions. Furthermore, from the latest court decision, it has become obvious that on demand platform workers have been regarded with employment status. So, in order to avoid costly and long-lasting judicial processes, we propose that on demand platform workers should be assigned employment status in EU Labour law, as well as in national labour legal systems od EU member states.

If on demand platform workers should be assigned employment status, either through court decisions or legal intervention in the sphere of EU or national labour law of EU member states or through employment policy, which the authors strongly support, special protection in the sphere of labour law is guaranteed for them by several EU Directives, namely: the Directive on Part-time (Directive 1997)[77], Fixed-term work Directive (Directive 1999)[78], Directive on Temporary Agency Work (Directive 2008)[79] and the previously mentioned Directive 2019.

---

76 Communication from the Commission to the European Parliament, the Council, the EuropeaN Economic and Social Committee and the Committee of the Regions, A European agenda for the collaborative economy {SWD(2016) 184 final}, p. 365.

77 Council Directive 97/81/EC of 15 December 1997 concerning the Framework Agreement on part-time work concluded by UNICE, CEEP and the ETUC – Annex: Framework agreement on part-time work, OJ L 14, 20.1.1998, pp. 9-14

78 Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work concluded by ETUC, UNICE and CEEP, OJ L 175, 10.7.1999, pp. 43-48.

79 Directive 2008/104/EC of the European Parliament and of the Council of 19 November 2008 on temporary agency work, OJ L 327, 5.12.2008, pp. 9-14.

Some Reflections upon the Way the Digital World is Impacting Family Law

*Sandra Winkler**

Abstract

The new technologies have an expected influence on family dynamics: in the context of couples' relationships, in the relationship between parents and children, in the context of children's rights as well as in the patrimonial rights and in the right to maintenance. In an attempt to gain a greater awareness of the force of this impact, a brief mention will also be made of the person's life in the metaverse, considering what legal consequences might result from the intersection of real and virtual lives. Concretely, the new technology has its impact in really very different ways and the purpose of this paper to investigate if, from a legal point of view, this impact leads to questions about the validity of existing legal rules, as well as about the need for further legal protections in the family relationships. The question is whether the new technologies imply new rules or not. Furthermore, some reflections will be dedicated to the concrete impact that artificial intelligence has on the psychophysical and emotional development of children, emphasising the urgency of profiling a child-oriented approach to AI development in a sustainable manner and in line with the best interests of the child.

Keywords: family life, marriage, child, AI, metaverse, digital world

I. Family law and the digital world – preliminary remarks

The digital world has radically transformed the entire modern society and the family is definitely no one exception. This is resulting in a huge effort to reinterpret or rethink the existing rules governing legal relations. An effort that at first glance seems more evident (and useful) in other fields of law; whereas there

* Associate professor, University of Rijeka, Faculty of Law, Croatia.

is still a tendency to think of a relatively sharp division between analogical family life and people's digital existence. Therefore, it is aimed here at demonstrating that this division no longer has clear contours.

First of all, it must be said that it is no longer appropriate to speak trivially of 'a digital era'. There have been so many different phases within this era that looking at what we would call the digital revolution 1.0 is now completely outdated, since we are in the midst of the digital revolution 4.0, which involves all the challenges of using artificial intelligence (the era of generative AI)[1]. This is an era, today, in which what the human intellect attempts to write and study is unfortunately condemned to be most likely outdated or at least incomplete even before being published. This does not diminish the need to take this path and at least try to understand how this new digital, artificial and virtual world is impacting physical and legal *reality*. In concrete, the specific aim of this paper is to reflect how the digital world affects family law. By recalling the main family law institutes, an attempt will be made to observe how the new technologies have influenced family lives and the family dynamics of which that life is composed.

It seems to be almost superfluous to point out the rapidity with which the digital world expands in the post-pandemic reality. Since the beginning of the emergency caused by Covid-19, a sudden acceleration in the use of digital tools has led to an almost unimaginable intensification of virtual reality, which is more and more replacing the physical one.

As far as we are concerned here, since technology is transforming everything, including concepts such as love and family, no area of family law can be considered exempt from being overwhelmed by this digital wave.

Reference could be made to couple's life, to parent-child relations, to the children's rights, but also to the sphere of property relations or the right to maintenance. The primary purpose of this paper is precisely to investigate the consequences of digital impact on the different family law spheres in order to make an attempt to answer the most important question, namely whether from a legal point of view the existing rules continue to be adequate and how they should be interpreted in the light of the digital world affecting relations in the family. In other words: does the ongoing digital revolution imply the creation of new rules?

Given that the family law institutes are being put to the test in the digital age, even before identifying the consequences to which these changes lead, it is

1 Among the many publications on this topic, see *Devillé/Sergeyseels/Middag*, Basic concepts of AI for legal scholars, in Artificial Intelligence and the Law, De Bruyne/Vanleehove (eds.), Intersentia, Cambridge, Antwerp, Chicago, 2nd ed., 2023, pp. 1-22. *Alpa*, L'intelligenza artificiale. Il contesto giuridico, Mucchi editore, Modena, 2021.

necessary to recognise on an abstract level how this interaction between technology and family law is taking place and what the pros and cons are, if such a clear-cut distinction between positive and negative effects can be made at all.

II. Possible digital repercussions on the couple's life – some legal reflections

Different phases of couple's life are (or at least could be) digitally influenced[2]. Just to mention a few examples, the digital world offers tools to enter into a romantic relationship, which can remain platonic and virtual or can move from the virtual to the real person's life. Thus, virtual dating platforms enable encounters that could result in an emotional involvement of the subjects, which involvement, however, could also be the result of false expectations based on a significant error regarding the characteristics of the subject using the services offered by the dating site. Also, it could be that service users are not in a free status and that in the absence of perceived real encounters they indulge in relationships and promises in virtual life that they do not intend to keep in the *real* one. All of this could jeopardise family relationships in the analogical, physical, *real* world. The point is: who are these subjects? Who are the users of these services? Which are the consequences of these intimate relationships existing online? What kind of virtual content we are speaking about? On this very last regard, we need to highlight that these encounters could happen in the digital environment even out of the dating platform. In particular, it is not rare that users meet – even randomly - in online games[3]. Precisely, it has to be understood that it is no longer purely theoretical to consider affective (or pseudo-affective) lives in the metaverse. As far away as this may seem, the time has come to understand how the metaverse and avatars impact family relationships and how they may or may not produce

2 In the pluralistic spirit that governs the various family formations today, reference is made here to different couple relationships that are more or less widely recognised in law, thus referring as much to couples formed by persons of different sexes as to same-sex couples; as much to marriages or registered partnerships as to de facto relationships. Generally speaking, about families see: Family Law and Family Realities, *Rogerson/Antokolskaia/Miles/Parkinskon/Vonk* (eds.), Eleven International Publishing, The Netherlands, 2019.

3 *Freeman/Bardzell/Bardzell/Herring*, Simulating Marriage: Gender Roles and Emerging Intimacy in an Online Game, Gender and Sexual Identity, CSCW 2015, March 14-18, 2015, Vancouver, BC, Canada, pp. 1191-1200.

real legal consequences[4]. One must indeed become familiar with terms such as metaverse and avatar to understand how this impacts human (family) life. Due to the difficulty in finding an agreed definition of "metaverse", it is useful to rely on the definition offered by the European Parliament Research Service, which says: "an immersive and constant virtual 3D world where people interact by means of an avatar to carry out a wide range of activities. Such activities can range from leisure and gaming to professional and commercial interaction [...]"[5]. In essence: a 3D virtual world where humans enter and interact through their avatars[6]. Thus, it would seem interesting to wonder whether it is conceivable that among the "activities" carried out in this virtual space there are those that express content related to family life. Investigating the topic, it turns out that various combinations of interaction between the two worlds (real and virtual) are not so rare. We can imagine several examples, specifying from the outset that we will leave aside the hypotheses of the so-called post-human relations, which foresee the combination of a human partner and a non-human "partner" (such as a robot, a chatbot or a hologram)[7].

A first example, therefore, could be that of the virtual celebration of a wedding between the avatars of two humans who in real life are a real couple[8]. Hence, some basic questions arise as to whether such an event has the fundamental elements leading to the creation of legal effects: in essence, the discourse concerning marriage in the metaverse poses the legal question of its existence or non-existence, rather than its validity. On the one hand, the spatial and temporal

4 *Di Majo*, L'art. 2 della Costituzione e il „Metaverso", Media Laws, Rivista di diritto dei media, 2023, 1, pp. 35-65. The author explains how in the Metaverse man transcends itself, going into the zone of transhumanism.

5 Available at https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2022)733557.

6 Numerous factors characterise the Metaverse. Among the most important besides virtuality: 3D, real-time rendering and persistence. See *Ball*, The Metaverse: What It Is, Where to Find it, and Who Will Build It. Available at: https://www.matthewball.co/all/themetaverse.

7 See more in Il diritto di famiglia nell'era digitale. Le regole di protezione dei minori e dei coniugi, *Gatt* (ed.), Pacini giuridica, 2021. Also an interesting article available at https://napoli.corriere.it/notizie/economia/23_ottobre_23/lucilla-gatt-sposati-con-un-robot-entro-il-2050-potrebbe-diventare-realta-32d802f1-0c2d-4e02-85a0-54c028375xlk.shtml, *Gatt*: «Sposati con un robot? Entro il 2050 potrebbe diventare realtà».

8 *Zanellato*, Questo matrimonio s'ha da fare (nel Metaverso). Nuovi luoghi stesse persone, in Journal of Ethics and Legal Technologies, 2023, vol 5, 2, pp. 62-80. Also, see a recently published article reporting this news: "Getting Married in the Meta_verse". Available at: https://www.nytimes.com/2021/12/08/fashion/metaverse-virtual-wedding.html.

profiles must be examined, while on the other hand the subjective profile aimed at identifying to whom the will is to be attributed[9]. It can be concluded that the avatar is easily traceable to the human subject that runs it[10]; hence also easily referable to the expression of the will (in our case the will to marry). However, the question arises as to whether AI-driven avatars cannot exist independently of the will of the human: at this point it would become considerably more difficult to link the action to the human.

A second example, on the other hand, stays on the virtual world and is represented by the activity carried out in a game (the example of the 'second life' game often recurs) where avatars of humans meet and engage in a 'pseudo' love story in the purely virtual world. Here the matter becomes interesting since there is no interaction between the real world and the metaverse as in the first case. Instead, here there are two parallel lives that do not meet. Or rather, if they do cross paths, the question that can be asked is whether this is an example of virtual infidelity and how it might affect the family relationship in analogue reality[11].

Whether it is the less sophisticated two-dimensional version of dating sites or more articulated three-dimensional digital realities, what remains to be observed is that in the psychological sciences the different nature of personal affective relationships born from a 'live' contact is studied in depth with respect to those arising at a very early stage through the mediated use of technology[12]. In other terms, it should be noted how the projection one has of the individual with whom one engages in a relationship through digital communication becomes so powerful that the real person of whom one has constructed such a projection

9 Again see *Zanellato*, Questo matrimonio s'ha da fare (nel Metaverso). Nuovi luoghi stesse persone, in Journal of Ethics and Legal Technologies, 2023, vol 5, 2, p. 65.

10 The avatar understood as the virtual alter ego of the human and always referable to him/her. *Di Majo*, L'art. 2 della Costituzione e il "Metaverso", Media Laws, Rivista di diritto dei media, 2023, 1, pp. 35-65. *Zanellato*, Questo matrimonio s'ha da fare (nel Metaverso). Nuovi luoghi stesse persone, in Journal of Ethics and Legal Technologies, 2023, vol 5, 2, p. 69.

11 On this regard, see more in *Jain/Sen*, Adultery in the Age of Technology: Complexities and Methodological Challenges in Studying Internet Infidelity, in Internet Infidelity. An Interdisciplinary Insight in a Global Context, Jain/Sen (eds.), Springer Nature, Singapore, 2018, pp. 31-44.

12 About virtual marriage see *Falah*, Is virtual marriage acceptable? A psychological study investigating the role of ambiguity tolerance and intimacy illusion in online dating among adolescents and early adults, Journal of Psychological and Educational Research, 24, 2, pp. 117-143.

cannot stand comparison[13]. The consequent mixing of these two planes (digital and analogue) can lead to consequences also at the legal level as regards the protection of both the persons involved and the other family members. From the first glance, one can easily conclude that this is frustrating in the perspective of realizing a family life project, or worse, it can lead to the failure of an existing family union where there is a situation of parallel existence of a family life and a "pseudo" family life. From the outside, we all believe that we have no difficulty in discerning between the real and the virtual. The point is precisely this: is the capacity for discernment really so clear when emotions come into play? We know perfectly well that the difficulty in legally regulating family relationships lies precisely in the fact of understanding the intimate and affective nature of such legal relationships. How much the family relations could be compromised by an illusory plan constitutes the central legal issue to investigate in the future in order to understand the possible legal implications.

Moving on, attention can then be shifted to the role that digital world plays during the couple's life duration. Glossing over the frequent and obvious situations of an instrumental use of digital technology to bridge the physical distance in cases where a family is not united, here it is rather to emphasise its possible negative impact. On this regard, it has to be considered the worrying trend of increasing number of divorces traced back to the digital world. The reference goes beyond the so-called *cyber infidelity,* somehow already mentioned above[14]: it also concerns the *social media jealousy*, i.e. the excessive use of social media, which contributes greatly to the breakdown of a relationship[15].

Moving to the phases that lead to the termination of the relationship, it must be said that digital tools have carved out a niche here too: cases in which there is the possibility of mediation in online mode are not uncommon. In fact, there is a clear perception that mediation between spouses/registered partners/cohabitants conducted in virtual mode yields greater results than mediation in person. Mediating on such challenging issues as those that arise in familial

---

13 On this regard see *Eichenberg/Huss/Küsel*, From Online Dating to Online Divorce: An Overview of Couple and Family Relationships Shaped Through Digital Media, Contemp. Fam. Ther., Springer, 2017,39, pp. 249 et seq.

14 See more in *Eichenberg/Huss/Küsel*, From Online Dating to Online Divorce: An Overview of Couple and Family Relationships Shaped Through Digital Media, Contemp. Fam. Ther., Springer, 2017, 39, pp. 254 et seq.

15 See *Barrett-Maitland/Lynch*, Social Media, Ethics and Privacy Paradox, in Security and Privacy From a Legal, Ethical and Technical Perspective, Kalloniatis/Travieso-Gonzalez (eds.), IntechOpen, London, 2020, pp. 49-61. In addition, about infidelity online see *Morace Pinelli*, L'infedeltà virtuale, https://www.rivistafamilia.it/2019/05/27/linfedelta-virtuale.

crises in online mode in fact allows one to keep the focus on the essential aspects, avoiding the prominence of the emotional aspects of the affair – often conflictual[16]. The belief that online mediation has come to stay is often found in the literature[17]. The author's opinion embraces this idea, although in family relationships one should proceed very cautiously in introducing procedures based on the use of new technologies that would replace the personal confrontation of the parties. Indeed, this is all the more evident when one looks at recent attempts to transfer mediation to the virtual world, imagining that avatars could be entrusted in the near future with the task of mediating with the intention of positively resolving the dispute[18].

The need for brevity does not allow us to dwell on online divorce. Still, there is a strong belief that the virtual mode of resolution of a family relationship as important as marriage entails the risk of bringing about a distorted view of reality as it emerges in the virtual context. Once again, the concern is about a false understanding of the reality of family life. In fact, this question has been posed from the outset: is it possible (and probable) that virtual and physical reality diverge, or rather that the perception of the same family life in this specific case diverges, leading to different consequences?

Once again it must be said that the will of the subject, moved by feelings and emotions, is at the heart of these reflections, asking ourselves if and how such will that produces legal effects is distorted or manipulated by digital tools.

Although divorce remains for now a remedy exercised in the analogical reality, there are certain aspects of the decision-making process connected to divorce involving the use of algorithms[19]. Precisely, in the field of the right to maintenance in different legal systems there is a constant advancement of algorithms, which play an increasingly central role in the quantification of mainte-

16 Again *Eichenberg/Huss/Küsel*, From Online Dating to Online Divorce: An Overview of Couple and Family Relationships Shaped Through Digital Media, Contemp. Fam. Ther., Springer, 2017, 39, p. 255.

17 See on this regard Digital Family Justice, From Alternative Dispute Resolution to Online Dispute Resolution?, *Maclean/Dijksterhuis* (eds.), Hart, Oxford, London, New York, New Delhi, Sydney, 2019.

18 See *Colvin/Benjamin*, Exploring the use of AI avatars by marriage and family practitioners as a therapeutic intervention, Family Relations, 2025, pp. 1-13.

19 *Alpa*, L'intelligenza artificiale. Il contesto giuridico, Mucchi editore, Modena, 2021, pp. 143 et seq. Also see *Joamets*, Digital Marriage and Divorce: Legality Versus Digital Solutions, in The Future of Law and eTechnologies, Kerikmäe/Rull (eds.), Springer International Publishing Switzerland, 2016, pp. 177-193.

nance claims[20]. The question is whether and how the predictive justice could (or should) replace the judge's role in determining maintenance with all the consequences that may arise from the inability to deduce and evaluate the peculiarities of each single case[21].

III. Children's rights protection in the digital world

The particular field of children's rights, when related to the digital world, must necessarily be considered with additional attention and sensitivity. Many legal issues arise from the combination of children and digital technology: starting from the protection of minors online, as well as from the dangers and risks posed by cyber-bullying and online violence up to the analysis of the complex protection of their rights online, meaning i.e. dignity and privacy just to mention some of them. This is what immediately comes to mind especially when connecting minors with the world of social networks. However, the contact that minors have with the digital world is not only that which concerns social networks. Today's children have not had a life experience without digital; therefore, for them this is the natural habitat in which they are growing up[22]. A digital habitat that however rarely takes into account the peculiarities of the users' protection necessities in childhood. Therefore, although minors are much more comfortable in the virtual dimension than adults, they still need to be helped in a reasoned, conscious and safe use of digital contents[23]. Fortunately, in recent times attention to these issues, especially on an international level, is growing. In fact, the guidelines (Guidelines to respect, protect and fulfil the rights of the child in the digital environment) promoted by the Council of Europe, which in recent dec-

20 For a detailed discussion of the topic of replacing the judge with the algorithm in family economics disputes see Gli assegni di mantenimento tra disciplina legale e intelligenza artificiale, *Mureden/Rovatti* (eds.), Giappichelli, Torino, 2020.

21 Interesting observations on this point can be found in *Donati*, Intelligenza artificiale e giustizia, in Rivista AIC, 1/2020, pp. 416 et seq. https://www.rivistaaic.it/images/rivista/pdf/1_2020_Donati.pdf.

22 In regulating children's rights online, there are two approaches: the risk-based approach that is based on protection and the rights-based approach that is based on the child's participation in the dynamics of the digital world. In order to understand the interplay of two the possible approaches, see *Akhtar/Nyamutata*, International Child Law, Routledge, London and New York, 2020, p. 271.

23 See more in *Senigaglia*, Il dovere di educare i figli nell'era digitale, Persona e Mercato, 2021, 3, pp. 511 et seq.

ades has shown great sensitivity to the promotion and protection of children's rights, have recently been issued[24]. Also, on the global level it is important to mention the recent General comment No. 25 (2021) on children's rights in relation to the digital environment[25].

Some steps are being taken, but this is still not enough: the digital world is not yet sufficiently adequate to the needs of protecting children. Hence, family has a central role in order to help the children in interacting with this world[26].

Taking a step backwards, it has already been observed that numerous rights are guaranteed to children and, above all, that they are their rights precisely because they are children. A general reference to the UN Convention on the Rights of the Child (1989) makes it easy to realise the importance and breadth of the rights and fundamental freedoms guaranteed to children[27]. Without attempting to suggest an exhaustive list, one thinks of: the child's right to life and health; the child's right to live with his or her parents; the right to be informed and to freely express one's opinion; the right to education; the right to know one's origins; the right to psycho-physical and emotional development, the right to self-

24 See https://www.coe.int/en/web/children/the-digital-environment. On this regard see also: European Convention on the Exercise of Children's Rights (1996) and Convention on Contact concerning Children (2003).

25 In fact, one of the fundamental readings to start from in analysing this issue is represented by the General comment No. 25 (2021) on children's rights in relation to the digital environment. Precisely the purpose of the commentary is to explain how states should implement the Convention on the Rights of the Child with regard to the digital environment paying special attention to the protection of children's rights. Such a document can be found in many different European legal systems, allow me to refer to the equivalent Ombudsman operating in Croatia: http://dijete.hr/. In the literature ex plurimis about childhood in digital age see: *Akhtar/Nyamutata*, International Child Law, Routledge, London and New York, 2020, pp. 233-274.

26 For a detailed analysis of the relationship between adults and children in post-modern societies, see Adults and Children in Postmodern Societies, A comparative Law and Multidisciplinary Handbook, *Sosson/Willems/Motte* (eds.), Intersentia, Cambridge, Antwerp, Chicago, 2019. Also see less recently *Lievens*, Protecting Children in the Digital Era, The Use of Alternative Regulatory Instruments, Martinus Nijhoff, Leiden-Boston, 2010.

27 See art.17 of the Convention on the rights of the child (CRC) which provides that "States Parties recognize the important function performed by the mass media and shall ensure that the child has access to information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health. To this end, States Parties shall […] e) Encourage the development of appropriate guidelines for the protection of the child from information and material injurious to his or her well-being, bearing in mind the provisions of articles 13 and 18".

determination, the right to play and leisure, the right to access to the digital environment and the right to privacy and data protection. Contextualising them in the digital world that embraces children in all expressions of their everyday life, we come to the conclusion that every child must be able to exercise these rights both online and offline. Several questions arise from this assumption. The first one relates to the digital world *per se* and has a broader scope than just the protection of the rights of minors: is the right of access to the digital contents and being connected to be understood as a fundamental right of the individual[28]? On this regard, does the impossibility of access to internet cause a form of social exclusion? In particular, reference should be made to the phenomenon of the digital divide, which can lead to a form of social isolation and is in fact a new form of poverty[29]. It is rightly considered that digital inclusion should be a fundamental right, otherwise the families' different economic capacities would lead to a gap in the use of digital services, which risks creating discrimination between minors and isolation from online relationships, which in fact generates a digital divide[30].

On this regard, in pandemic's times there was much talk about the digital divide in particular in the context of education: distance learning needs highlighted a problem that would have emerged anyway, but probably less glaringly[31]. It would be nice to imagine that all children have the same possibilities and that the emergency had 'only' forced a shift from the old offline normal to the new online normal[32]. Unfortunately, access to and use of digital technologies that should serve as a suitable tool for adapting to new forms of exercising fun-

28 See more about digital fundamentals rights in EU in *Manganelli/Nicita*, Regulating Digital Markets, Springer, Switzerland, 2022, 73-104. Also see *Rodotà*, Il diritto di avere diritti, Laterza, Bari, 2012, pp. 384 et seq.

29 See more in *Akhtar/Nyamutata*, International Child Law, Routledge, London/New York, 2020, p. 238. Also see UNICEF Report from 2017, The State of the World's Children 2017: Children in a Digital World, available at: https://www.unicef.org/kyrgyzstan/reports/state-worlds-children-2017.

30 See again the General comment No. 25 (2021) on children's rights in relation to the digital environment.

31 A recent report published by UNICEF shows that as many as two-thirds of the world's school-age children did not have access to the Internet in pandemic time. See https://www.unicef.org/press-releases/two-thirds-worlds-school-age-children-have-no-internet-access-home-new-unicef-itu In literature see *Hlača/Winkler*, L'impatto delle tecnologie sul diritto all'istruzione in tempi di pandemia, in Diritto privato e nuove tecnologie. Riflessioni incrociate tra esperienze giuridiche a confronto, Troiano (ed.), Edizioni scientifiche Italiane E.S.I., Napoli, 2022.

32 Official data reveal another reality: https://data.unicef.org/resources/remote-learning-reachability-factsheet/.

damental rights, such as in the example given here the fundamental right to education, appears to be a privilege that cannot be enjoyed by all people, or rather children[33]. This would essentially lead to possible discriminatory consequences and, as a result, to a potential violation of art. 14 of the ECHR. Reflecting on this digital divide, it should be emphasized that it is not limited to the sole impossibility of connecting to the network. This concept goes deeper and refers also to the consequent impossibility of acquiring information and notions necessary to be able to become part of this digital world of information and to have achieved sufficient digital literacy[34].

The digital divide creates profound differences in the degree of information acquired depending on whether or not a subject has the possibility of access to the internet and even more generally has the digital tools necessary to achieve this goal. This appears to be distant from the best interests of the child, which are the basis of any action and interaction involving minors[35]. Indeed, this gap leads to various consequences, many of which can negatively affect his or her psycho-physical and emotional development[36]. Child's right to be informed could be compromised as well. In fact, different levels of digital skills from child to child inevitably denote different levels of cognitive faculties development. Furthermore, it should be very seriously worrying that this divide hinders the subject (minor) in the conscious and responsible use of the digital contents and tools.

Another question is to what extent a vulnerable subject (a child) does distinguish physical reality from virtual one[37]? If the right to access to internet and be part of the digital world would be defined a fundamental right of the person, the network becomes in itself a tool that the subject also uses for the expression of his or her own personality. Therefore, personality rights such as honour, reputation, privacy and identity acquire a new dimension, but do not become "new"

---

33 See the recent data published on the UN website and demonstrating this problem: https://news.un.org/en/story/2020/12/1078872.

34 In general about digital literacy see *Manganelli/Nicita*, Regulating Digital Markets, Springer, Switzerland, 2022, pp. 86-87.

35 Actually, what does it mean at all "best interests of the child" when it comes to digital environment? See much more in *Akhtar/Nyamutata*, International Child Law, Routledge, London and New York, 2020, pp. 271 et seq.

36 General comment No. 25 (2021) on children's rights in relation to the digital environment. Quoting: "The risks and opportunities associated with children's engagement in the digital environment change depending on their age and stage of development".

37 On the concept of children's vulnerability in general, see the extensive study offered in *Herring/Vulnerability*, Childhood and the Law, Springer, Cham, Switzerland, 2018.

rights[38]. Precisely, in the sensitive time of growth, the psycho-physical and emotional development of the child, which goes through the manifestation of the right to self-determination (increasingly as the minor matures) finds expression as a fundamental right guaranteed to every child also in the exercise of various personality rights[39]. Thus, is there a difference if these rights are exercised in the real world rather than in the digital one? Furthermore, does the child have enough cognitive abilities in order to interact in the digital world? The risks of serious manipulation of the person are real. Precisely, such manipulation, often imperceptible, can compromise the ability of the subject, even more so if he or she is a minor, to determine his or her own identity[40]. Given the difficulty for children to distinguish between fiction and reality, this becomes even more complex, just as the clear identification of the violated right becomes less evident given the difficulty of identification which are the personality rights that must be protected in a digital world where by definition it seems that there is no *private life* at all. In this universe there are many black holes that create particular concern if associated with the inability of the minor to manage his/her image in the digital world[41]: whether the inability is due to the minor's age or maturity and as a result to the impossibility of self-determination, or at least to the reduced capacity to do so; or whether it is due to the difficulty of relating to the network for the reasons due to the digital divide mentioned above, which involve limited knowledge of the digital tools used. Often there is a lack of awareness that the information published can remain in the public domain and accessible online without time limits. This can lead to serious consequences in the psychophysical and emotional development of the child who can suffer a violation of his/her right to personal reputation, in particular to net-reputation. This can obviously lead to a violation of the right to privacy, a topic which is not dis-

38 See *Andreola*, Minori e incapaci in Internet, cit., pp. 144 et seq.

39 See *Scia*, Diritti dei minori e responsabilità dei genitori nell'era digitale, Edizioni Scientifiche Italiane, Napoli, 2020, pp. 85 et seq.

40 *Rodotà*, Il diritto di avere diritti, Laterza, Bari, 2012, p. 318 "[…] il mutamento tecnologico delle modalità di trattamento delle informazioni personali ha progressivamente alterato il rapporto tra l'identità liberamente costruita dal soggetto e l'intervento dei terzi, attribuendo all'attività di questi ultimi un peso crescente" (translated citation: "the technological change in the way personal information is processed has progressively altered the relationship between the identity freely constructed by the subject and the intervention of third parties, attributing increasing weight to the latter's activities").

41 Again *Rodotà*, Il diritto di avere diritti, Laterza, Bari, 2012, p. 327. Quoting: "[…] diventa sempre meno proponibile una definizione dell'identità come «io sono quel che dico di essere» sostituita da un «tu sei quello che Google dice che sei»" (Translated citation: '[...] a definition of identity as 'I am what I say I am' is becoming less and less plausible, replaced by 'you are what Google says you are".

cussed in detail in this context, although it has been widely studied and discussed in legal literature in recent years on the occasion of the detailed analysis that has been carried out following the issuing of Regulation (EU) 2016/679 (general regulation on data protection)[42].

In light of what has been observed so far, it can be concluded that digital identity represents a complex issue especially when it comes to minors, who should be able to exercise their rights equally onsite and online[43].

IV. Children's Rights and AI

It is impossible to sketch an overview of the possible legal issues arising from the encounter of children and the digital world without proposing some brief reflections on artificial intelligence (AI) when related to the world of childhood. We are living in a world where the AI systems are being used on a large measure in more and more areas of our society[44]. In recent time this are leading to ask ourselves with increasing frequency whether the law is aware of how this affects society and what will happen in the near future.

A potential (uncontrolled) development of new digital technologies powered by AI would represent a reason for serious concern. It is now widely known, even to the profane, that algorithms govern and direct our lives, our choices, our tastes, our interests and our perception of reality, often without our being conscious of it. This happens all the time, and it is no longer news to wonder whether the AI represent a challenge for our human rights, since our humanity would be compromised and distorted by the intervention of this form of *intelligence*, which can hardly be qualified. Obviously, the aim of these thoughts is not to argue against new technologies. On the contrary, progress and change are permanent conditions of humanity. However, they must be followed, observed and regulated by legal norms whose fundamental task is to give rules to

42 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 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), OJ L 119, 4.5.2016, 1-88.

43 See interesting thoughts on the right of access to the Internet as an expression of a "new humanity" in *Rodotà*. Il mondo nella rete. Quali diritti, quali vincoli, Editori Laterza, La Repubblica, 2014.

44 For an accurate overview about this development and the challangening legal and ethical aspects see Algorithmic Governance and Governance of Algorithms. Legal and Ethical Challanges, *Ebers/Cantero Gamito* (eds.), Springer, 2021.

the society, which is subject to them. Indeed, the new technologies definitely have a great intrinsic value in that they allow the development of a more high-performance society, but the risks that such progress brings with it are many and must be controlled, especially in order to avoid dysfunctions to the disadvantage of the categories of subjects most at risk[45]. Among the most vulnerable are certainly our children. Due to the fact that the majority of the existing digital technologies have not been designed having children in mind, it is truly important to increase the awareness about the development of generative AI which is aware of the childhood peculiarities. In particular, investigating the impact of AI on the world of children actually discloses little. Or rather little has been done. There is not yet a complete understanding of how AI can affect children, although there is no doubt that it does. Although the author does not have the necessary scientific expertise available to those primarily associated with neuroscience, it is quite clear that the interaction of two developing intelligences (the human one of the children and the one generated by digital systems) entails many ethical, moral and legal challenges. The question of how AI systems using predictive analysis interact with children is very important. Indeed, it has to be highlighted that such AI systems are designed largely without regard to the world of children. It means without considering the growth and development of the child's cognitive faculties. It also fails to consider the fact that the world of children and their rights must always be calibrated in accordance with their age and maturity, as is often emphasized by several legal acts on a supranational level[46]. Acting in the best interests of the child, we need to ask ourselves how children in the process of forming their human intelligence through the development of their cognitive faculties and their emotional intelligence interact with AI. What role does artificial intelligence have on the formation of human intelligence in a life that is not formed in its fullness. For sure, the AI's impact on children is more powerful than on an adult person. Thus, from the point of view of children's rights it is necessary to understand how to protect the children's right to psycho-physical and emotional development in line with their best interest without constraints from digital reality. On the other hand, as already pointed out, the children of this generation were born with these technologies and it is unimaginable that they can grow up outside of this world. This would undermine their right to access to the digital environment and to participate equally in this world.

45 In general see *Clarizia*, Mercato, persona e intelligenza artificiale: quale futuro?, juscivile, 2020, 3, pp. 687-723.

46 Such as in the art. 24 of the Charter of Fundamental Rights of the European Union, OJ C 202, 7.6.2016, pp. 389-405.

A lot of digital content aimed at children serves not only for play and social life, but also for educational purposes. These tools help children in their learning and problem-solving abilities, but all these data used carry the danger of distorting cognitive abilities, leading to digital profiling, entailing risks for their safety and privacy. In fact, minors are definitely less aware of the risks they run and, above all, they have often not yet developed the capacity for discernment. They are thus inclined to disseminate their personal and sensitive data with little care. Moreover, a further cognitive asymmetry emerges in the most disadvantaged communities, which are disadvantaged in the digital world as well.

Thus, it is important to highlight in several steps the idea how this interaction should be. First of all, it must be respectful of the best interests of the child and the right to inclusion of children must be guaranteed. Of course, the anti-discrimination rules must be respected, as well as the privacy and safety of minors. Again, the children must be informed and educated about the impact AI has on them. Consequently, children should be aware of their right to express their views. Finally, through the children's education about the role that AI plays in their lives, the purpose of a sustainable AI development should be in creating an enabling a child-friendly digital environment.

Children are not small adults: they have their own rights and needs that are intrinsic to the age of life they are living.

Fortunately, awareness of this problem is slowly being raised. To conclude in an optimistic and concrete tone, a nice and recent example (from 2020, and later revised in 2021) is the Policy guidance on Artificial Intelligence for children issued within the framework of UNICEF's activities[47].

The specific function of this policy is to give guidelines to regulate an AI development that is sustainable for children. In particular, the requirements identified in order to create a child-centred AI are nine and should be briefly mentioned here. Firstly, it must never miss the support to children's development and well-being. Secondly, it is important to ensure children's inclusion in these processes. The third requirement is to prioritise fairness and non-discrimination for children. The fourth one is to protect children's data and privacy[48]. Moving forward, another requirement is to ensure safety for children. The sixth one, in order to inform the child about the AI's impact on him/her, is to provide trans-

47 Policy guidance on AI for children. 2.0, November 2021 UNICEF available at: https://www.unicef.org/innocenti/reports/policy-guidance-ai-children.

48 The UNICEF Policy, in explaining every single requirement, when it comes to this requirement states that "it is not fair that dana collected from/about a child may follow them in adulthood".

parency, explainability and accountability for children[49]; in the author's opinion, this is linked to the additional requirement to prepare children for present and future developments in AI. The following requirement is aimed at empower governments and business with knowledge of AI and children's rights. Finally, the last requirement imposes a collective responsibility to create a child-friendly AI. Often in dealing with children's rights this collective responsibility of protection recurs; so, it is fair that it should also happen here, adapting to the virtual world a legal rule well known in the analogue world.

A certain persistent sensitivity to the position of the child in the digital world can also be found very recently in two important legal sources that will be studied at length in the coming years. The reference is to the Digital Service Act and the AI Act[50].

VI. A rethink of existing rules?

To answer the question posed at the beginning, in the opinion of the author the legal protection of family relationships must be guaranteed in compliance with existing rules which should be given an interpretation that respects the "digitalisation" of the protected interests.

A different answer would lead to the unceasing reorganization of the existing rules or to the formulation of new one at the risk of compromising legal certainty[51].

In few other sectors such as family law, a constant value is represented by the never-ending change of society and the world in which it exists. Still, this does not justify continuous reformulation of the rules. As far as family law is concerned, in dealing with such a fast change as the one that is currently hap-

49 Translated in the UNICEF Policy in a child-friendly language: „I need to know how AI impacts me. You need to be accountable for that".

50 Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act), OJ L 277, 27.10.2022, 1–102. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), OJ L, 2024/1689, 12.7.2024.

51 See very interesting reflections about "moral panic" in *Akhtar/Nyamutata*, International Child Law, Routledge, London/New York, 2020, p. 262.

pening in the digital era there would be the risk that the discrepancy between virtual/real and the regulation of personal rights exercised in the two *realities* would become such as to lead to parallel legal rules. The tendency to introduce new rules risk diminishing the interpretative function of the lawyer, asking for the help of an algorithm or in the future other forms of AI to solve a multiplicity of different problems that arise in the complicated relationship between person and technology[52]. It is important to guarantee the continuity of the existent legal solutions which need to adapt to eventual new phenomena. The opposite tendency to re-label every new manifestation of reality, especially if it is the result of technological interferences, risks to diminish the interpretative role of the lawyer, calling instead for a *deus ex machina* (actually just a *machina*/machine) to solve new manifestations of old problems.

Although it seems totally anachronistic to conclude by noting that technology, however advanced it may be, must remain a tool in the service of the mankind, this is precisely what is meant in closing[53]. After all, any attempt to provide a legal framework to regulate these sophisticated digital tools is nothing more than an attempt to regulate a world, the virtual world, which, on the strength of its a-territoriality, would like to evolve without rules. It is necessary to pursue this intention.

52 On the relationship between men and machines see again *Rodotà*, Il diritto di avere diritti, Laterza, Bari, 2012, pp. 312 et seq.

53 On this regard see *Clarizia*, Mercato, persona e intelligenza artificiale: quale futuro?, juscivile, 2020, 3, p. 723.

Large Online Platforms as a Challenge for Competition Law Doctrine and a Suitable Polygon for Complexity-Minded Antitrus

Václav Šmejkal[*]

Abstract

The chapter is devoted to the question whether the traditional concept of competition law based on the assumptions of neoclassical economics corresponds to the realities of the digital economy of large online platforms. It takes a critical view of the requirement of rivalry in relevant markets as the ideal of functioning competition. Enforcing such a state of affairs would very unlikely lead to more fundamental innovations and greater satisfaction for clients and consumers of online platforms. A possible way out can therefore be found in the teaching of complexity economics and the antitrust built on it. Its foundations are presented and critically analysed in the chapter in terms of whether such a complexity-minded antitrust will still exhibit the qualities of standard legal regulation. The likely future lies in negotiated solutions, accepted commitments, and the application of new competition tools, rather than traditional competition law enforcement or in emerging but relatively rigid ex-ante regulation of online platforms.

Keywords: online platforms, competition law, complexity economics, complexity-minded antitrust, rivalry, uncertainty

* Associate Professor, European Law, Charles University, Faculty of Law, Prague, Czechia, and Senior researcher at Skoda Auto University Research Center, Mladá Boleslav, Czechia. The author would like to thank Pavel Neset, from Department of Economics and Law of Škoda Auto University, for his valuable suggestions on the topic.

I. Introduction

Competition law is known for its periodic questioning of its foundations, starting with the question of how to define, analyse and assess competition. Its defining features, assumptions, or benefits for society, through which the conduct of undertakings can be judged, their anti-competitive manifestations proved, and possible remedies designed, are the focus of endless debate.[1] This axiological self-questioning of antitrust has been given a new impetus with the digitalisation of the economy. The reasons for that can be sought in several places. However, the important one for the following text is to be that the traditional competition protection target values of the last decades, i.e. higher efficiency producing consumer welfare, are supplied by the hegemons of the digital world and their online service ecosystems without the classic existence of rivalry of multiple direct competitors in the same relevant market. Large online platforms seem to be efficient and appreciated by users even without fair competition in contestable markets.[2]

The following analysis takes this paradox as its starting point. It briefly explains it and focuses on the possibility of its solution offered by the paradigmatic shift from models taken from neoclassical economics to the economics of complexity and the complexity-minded antitrust derived from it. It seeks to analyse, from a competition law perspective, the key concept of uncertainty, which should take the place of rivalry as the central criterion of functioning competi-

---

* Associate Professor of European Law, Charles University, Faculty of Law, Prague and Senior researcher at Skoda Auto University Research Center, Mladá Boleslav, Czechia. The author would like to thank *Pavel Neset*, from Department of Economics and Law of Škoda Auto University, for his valuable suggestions on the topic.

1 *Stylianou/Iacovides*, The goals of EU competition law: a comprehensive empirical investigation, Legal Studies (2022), 42, pp. 620-648; *Lianos*, Some Reflections on the Question of the Goals of EU Competition Law, CLES Working Paper Series 3/2013 CLES UCL January 2013; *Ezrachi*, EU Competition Law Goals and the Digital Economy, Report commissioned by BEUC – BEUC Discussion Paper, Brussel, January 2018; *Gerber*, The Goals and Uses of Competition Law, Competition Law and Antitrust, Clarendon Law Series Oxford, 22/10/2020; *Bejček*, Antitrust's response to the conflict of goals in the disarray of some current trends, in Šmejkal (ed.) EU Antitrust: Hot Topics & Next Step, Proceedings of the international conference held in Prague on January 24-25, 2022. Prague: Charles University, 2022, pp. 248-371; *Bejček*, Sustainability of "traditional antitrust" under the challenge of „sustainability" and digitalisation, Acta Universitatis Carolinae Iuridica, Vol. LXIX, N. 2/2023, pp. 9-31.

2 „With networks effects and multi-sided markets, size is potentially beneficial to both buyers and sellers that use the platform "stresses" the World Bank Report by *Hallward-Driemeier/Nayyar/Fengler/Aridi/Indermit*, Europe 4.0: Addressing the Digital Dilemma. Washington: The World Bank Group, 2020, p. 150.

tion and its protection. It then turns to the question of how an antitrust that both starts from and works towards the existence of uncertainty would perform in practice.

II. Online platforms and economic competition

The literature on the impact of large online platforms on competition is certainly not in short supply and is widely available online to anyone interested in the subject, predominantly thanks to these platforms.[3] The following lines are therefore devoted only to those aspects of competition of online platforms that facilitate the understanding of the difficulties they pose for traditional competition protection and help explaining the resulting interest in possible ways of adapting antitrust to their challenges.

Competition law has years of experience with markets dominated by so-called natural monopolies, which may have some similarities to the world of online platforms. These have always been primarily network industries, ranging from railways to energy networks to other kinds of essential facilities and public utilities. The economic or technological parameters of these markets have not al-

3 On the specifics of digital markets from a competition perspective, see e.g.: *Van Gorp/Batura*, Challenges for Competition Policy in a Digitalised Economy, Policy Department A: Economic and Scientific Policy European Parliament, Brussels, 2015; OECD, Maintaining competitive conditions in the era of digitalisation, OECD report to G-20 Finance Ministers and Central Bank Governors, July 2018; *Crémer/De Montjoye/Schweitzer*, Competition Policy for the digital era. Final report, Luxembourg: Publications Office of the European Union, 2019; *Lianos*, Digitalisation and Competition Law: New Challenges, RDC, Vol. 7, No 1. May 2019, pp. 5-50; *Doherty/Verghese*, Competition Policy in a Globalized, Digitalized Economy, White Paper. World Economic Forum, Geneva, 2019; *Ducci*, Gatekeepers and Platform Regulation – Is the EU Moving in the Right Direction? Paris: Sciences Po, March 2021; *Cini/Czulno*, Digital Single Market and the EU Competition Regime: An Explanation of Policy Change, Journal of European Integration, Vol. 44, No. 1, 2022, pp. 41-57; *Deutscher*, Reshaping Digital Competition: The New Platform Regulations and the Future of Modern Antitrust, The Antitrust Bulletin, Vol. 67. No. 2/2022, pp. 302-340; *Bejček*, Sustainability. Of "Traditional Antitrust" Under the Challenge of "Sustainability" and Digitalisation, Acta Universitatis Carolinae – Iuridica, No. 2/2023, pp. 9-31; *Funta/Buttler*, The Digital Economy and Legal Challenges, Intereulaweast, Vol. X, no. 1, 2023, pp. 145-160; *Petr*, EU Regulation of On-Line Platforms: between Competition Law and Digital Markets, in Šišková (ed) Legal Issues of Digitalisation, Robotisation and Cyber Security in the Light of EU Law. Alphen: Wolters Kluwer International BV, 2024, pp. 129-144; Digital Platforms, Competition Law, and Regulation Comparative Perspectives, Ed. by *Tyagi/Sanders/Cauffman*, Oxford: Hart Publishing, 2024.

lowed for direct competition within an oligopolistic market structure in the way that has characterised most of traditional manufacturing and services since the victory of the Industrial Revolution. Many of these 'no-competition' markets were long subject to state control in Europe, and antitrust only began to operate in them with their liberalisation and partial deregulation at the very end of the 20th century.[4] In some sectors (such as telecommunications or energy), antitrust has taken on the role of a secondary watchdog for anticompetitive excesses that a specialised sectoral authority has failed to deter through ex-ante regulation. At the same time, antitrust began to police competition where the legislature had allowed it to take place by separating the unique transmission and transportation infrastructure from the free delivery of products and services for which that infrastructure was intended. Thus, in several now classic cases, competition decisions have mandated non-discriminatory infrastructure access or interoperability to allow rivalry to exist precisely in the supply of goods and services over an otherwise still unique network.[5]

With this approach, which could be summarised in the triad *open – divide – ex-ante regulate*, competition protection (not only in the EU but also in the US) has started to proceed against the big online platforms, which in the last decade or more have been symbolised mainly by the GAMAM quintet (Google, Apple, Meta, Amazon, Microsoft). Although it cannot be said that antitrust has performed unsuccessfully against them, several difficulties have indicated that classical competition law will have significant problems in the world of virtual networks that penetrate all corners of professional and personal lives with an expanding range of connections and services.[6] The most obvious of these is the length of the proceedings, caused by the difficulty of analysis, legal evaluation and proof in an unruly virtual environment, far removed from the steel, chemical, automobile or consumer goods (and similar) industries on which antitrust

4 European Commission, Market Functioning in Network Industries – Electronic Communications, Energy and Transport, Occasional Papers 129, February 2013, Directorate-General for Economic and Financial Affairs, European Union 2013 <https://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp129_en.pdf>.

5 See e.g. the European Court of Justice judgments Oscar Bronner GmbH & Co. KG, Case C-7/97, EU:C:1998:569; Deutsche Telekom AG v. European Commission, Case C-152/19 P, EU:C:2021:238; Slovak Telekom a.s. v. European Commission, Case C-165/19 P, EU:C:2021:239 or Bulgarian Energy Holding EAD, Case T-136/19, EU:T:2023:669.

6 For summary of risks and difficulties of competition law enforcement in digital markets see UNCTAD, Enforcing competition law in digital markets and ecosystems: Policy challenges and options. Note by the UNCTAD secretariat TD/B/C.I/CLP/74, 24 April 2024 <https://unctad.org/system/files/official-document/ciclpd74_en.pdf>, or *Ibáñez Colomo*, The New EU Competition Law, Oxford: Hart Publishing, 2024, pp. 232-270.

has spent years honing its recipes. If proceedings last more than a decade, this is at odds with the dynamics of the evolution of online platforms, and the final verdicts then often address technologies and operating models that are past their zenith.[7]

An equally striking complication is the enforced corrective remedies, or the difficulty of setting them effectively. Remedies are sometimes not specified at all, but only their principled outcome is required.[8] At other times, they interfere not only with a particular company's behaviour, but directly with the content of its product or operating business model[9], and then they have a negative impact on a standard that the user has become accustomed to and finds functional and beneficial. It is important to note that these companies are usually not just network administrators like traditional infrastructure companies, they are also creators and enablers of entirely new values and possibilities, especially if their core service is not a simple online marketplace but, for example, a sophisticated operating system or a search engine. Moreover, the already tried measures (there is still only talk of a possible forced split) do not seem to have fundamentally diminished GAMAM's reign and have not made them neutral but still technologically progressive managers of online essential facilities, who are brimming with friendliness towards new and independent app producers competing for users' favour on their networks or operating systems.

---

7 Classical example is the "Google Search (Shopping)" case, inspected by the European Commission from 2007, decided in June 2017 (AT.39740), then reviewed and confirmed by the EU General Court, Case T-612/17, EU:T:2021:763 in November 2021, and finally closed by the EU Court of Justice, Case C-48/22 P, EU:C:2024:726 in September 2024.

8 In the decision AT.39740 "Google Search (Shopping)" from June 2017, the Commission imposed an "any remedy" that would remove the self-preferencing of Google's own comparison-shopping engine, without specifying its form, content, technical design etc. See paras 697-705 of the decision.

9 This situation had already arisen in the Microsoft I, Case T-201/04, EU:T:2007:289, where the sale of the Windows operating system was ordered even without the integrated Media Player software, and more recently in the Google Android case (AT.40099 and T-604/18, EU:T:2022:541), where the infringement consisted in the setting of conditions for the use of the Android operating system by end-device manufacturers and alternative developers, which was directly related to Google's business model in that area. There is also a pending case (IP/24/3446) in which the Commission accused Microsoft of abuse by tying its communication and collaboration product Teams to its popular productivity applications included in its suites for businesses Office 365 and Microsoft 365. Thus, in the name of free competition, dominant undertakings apparently cannot model their products in the most productive way, even if this corresponds to the preferences of their consumers.

In this context, it is important to emphasize, that the economy of large digital platforms is an example of an industry with increasing returns, thanks to its inherent characteristics that lie at the heart of its efficiency and business success and is not simply comparable to the business of rail or energy.[10] It offers, at zero or acceptably low prices, technologically advanced intangible products. Their dissemination and consumption are not, in majority of cases, subject to the physical constraints of the brick-and-mortar economy and their markets have no visible limits to growth given the potential to digitise our professional and personal lives. Digital services spread through networks exhibiting direct and indirect network effects, with the benefits for creators, commercial users and end consumers being greater the more of them share the same network. It is possible to serve additional network participants at little cost and gain additional valuable data from them by offering downstream services that can be instantly switched back and forth between on the same platform without leaving it. This is a positive feedback loop that encourages further investment in promising ideas and innovations, because the larger and more established the platform, the lower the risks and the better the balance between the potential benefits.[11]

Thus, around key platforms such as GAMAM, eco-systems (a broader term than vertical integration or a centrally controlled value chain, rather a community of collaborating firms and/or complementary and thus mutually valuable services[12]) naturally emerge, managed by a single hegemon whose network has brought together a critical mass of users. The leadership of key firms is long-lasting, not only because of network effects, but also because of the ability to acquire, process and productively exploit previously unprecedented and unat-

10 *Arthur*, Increasing Returns and the New World of Business. Harvard Business Review, The Magazine (July–August 1996) <https://hbr.org/1996/07/increasing-returns-and-the-new-world-of-business>; *Wang/Wright*, Increasing returns to scale within limits: A model of ICT and its effect on the income distribution and occupation choice, Journal of Economic Theory, Vol. 189, September 2020 <https://www.sciencedirect.com/science/article/abs/pii/S0022053120300983>; *Hu*, The Impact of Increasing Returns on Knowledge and Big Data: From Adam Smith and Allyn Young to the Age of Machine Learning and Digital Platforms, Prometheus, Vol. 36, no. 1, 2020, pp. 10-29 <https://www.jstor.org/stable/10.13169/prometheus.36.1.0010>.

11 *Galloway*, The Four. The Hidden DNA of Amazon, Apple, Facebook and Google, London: Transworld Publishers, 2017.

12 *Lianos*, Reorienting Competition Law, Journal of Antitrust Enforcement, Vol. 10, Issue 1, March 2022, pp. 1-31; *Stylianou/Carballa-Smichowski*, 'Market' definition in ecosystems, Journal of Antitrust Enforcement, 2024; <https://doi.org/10.1093/jaenfo/jnae046>.

tainable amounts of information.[13] Depriving these hegemons of their privileged position by public intervention enforcing the opening of their eco-systems to free competition is certainly conceivable, but very likely at the cost of losing the efficiency gains that humanity has so far gained from the dynamic expansion of these quasi-monopoly platforms' networks.[14]

III. Complexity in economics and antitrust

This antitrust paradox of today's online platform economy is addressed by the authors inspired by complexity economics[15], which rejects the adherence to the competition model taken from neoclassical economics. Indeed, neoclassical economics, which represents the dominant mainstream strand of contemporary economic theory, is based on the assumption of rationally behaving agents who,

13 *Bessen*, Why Disruptive Innovation Has Declined Since 2000, *PROMARKET*, 15/11/2022 <https://www.promarket.org/2022/11/15/why-disruptive-innovation-has-declined-since-2000/>.

14 Apart from texts already mentioned in note 1 see for more details on network effects and their importance for online businesses in for e.g. *Ayal*, Monopolization via Voluntary Network Effects, Antitrust Law Journal, Vol. 76 N. 3/2010, pp. 799-822; *Khan*, Amazon's Antitrust Paradox, Yale Law Journal, Vol. 126, 2016; OECD, Network Effects and Efficiencies in Multisided Markets, Note by *Shelanski/Knox/Dhilla*. DAF/COMP/WD(2017)40/FINAL, 15 November 2017; *Moore/Tambini*, Digital Dominance. Google, Amazon, Facebook, and Apple. New York: Oxford University Press, 2018; *Mauboussin/Callahan*, Increasing Returns Identifying Forms of Increasing Returns and What Drives Them. Morgan Stanley – Consilient Observer, January 30, 2024.

15 For leading ideas of complexity economics see: *Arthur*, Complexity Economics: Why does Economics Need this New Approach? Complexity Economics, Santa Fe Inst Press, 2021 <https://sites.santafe.edu/~wbarthur/Papers/SFI%202019%20CE%20talk.pdf>; *Arthur*, Foundations of complexity economics. Nature Reviews – PhySiCS, Vol. 3, February 2021, pp. 136-145; *Arthur*, Some Background to Complexity Economics, Network Law Review, Summer 2023 (see also this author's website <https://sites.santafe.edu/~wbarthur/complexityeconomics.htm>), and the authors applying *Arthur*'s teaching to antitrust: *Petit/Schrepel*, Complexity-minded antitrust, Journal of Evolutionary Economics, No. 33, February 2023, pp. 541-570; *Schrepel*, Complexity Science for Antitrust Lawyers, Network Law Review. 14/09/2023 <https://www.networklawreview.org/complexity-science-antitrust/>; *Schrepel/Being*, An Arthurian: Complexity Economics, Law, and Science. DCI Working Paper, No. 2/2023, 12/09/2023 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4568754>; *Schrepel*, Toward a Working Theory of Ecosystems in Antitrust Law: The Role of Complexity Science, Network Law Review, 7/03/2024 <https://www.networklawreview.org/schrepel-ecosystems-ai/>.

mediated through the price mechanism, lead markets to predictable equilibrium states. Part of its default model involves oligopolistic competition in any normally functioning relevant market.

From the perspective of complexity economics, these are in many ways problematic assumptions that may not lead to adequate solutions and may cause misunderstanding of the functioning of current multilevel economic systems based on knowledge economy and innovation. Therefore, complexity economics, contrary to the axioms of neoclassical economics, advocates a holistic approach that wants to analyse the behaviour of entire complex systems not through their actors but as complex wholes. It does not assume the attainment of an equilibrium optimum in them but takes non-equilibrium dynamics as the initial state. In its understanding, actors are only boundedly rational, they are adapting and learning over time, reacting to long-term tendencies as well as to completely random events. Sometimes they may react disproportionately or like a herd, or conversely with unexpected path dependence and passivity. Where neoclassical economics sought certainty of prediction, complexity economics works with prevailing uncertainty about future developments of the system as a whole. In the field of antitrust, it does not even want to get rid of it but rather considers uncertainty as a defining element of a system that is dynamic due to the prevailing uncertainty and is thus able to produce technological change and bring benefits to society.

"The concept of ecosystems can only be understood through complexity science", argues *T. Schrepel* in his March 2024 contribution to the Network Law Review on the use of complexity science in antitrust.[16] And *W. Brian Arthur*, the renowned coryphaeus of complexity economics, explains that "the themes we are exploring, are innovation, disruption, deciding under fundamental uncertainty".[17] *N. Petit* and *T. Schrepel*, in their seminal article on the antitrust of complexity, published in 2023[18], directly offered a new paradigm: "Complexity ↔ Uncertainty ↔ Competition". These three statements perfectly capture the initial postulates of the emerging complexity-minded antitrust: (i) models derived from neoclassical economics need to be replaced by complexity science models, especially for the case of online eco-systems; (ii) fundamental uncertainty is the

16 *Schrepel*, Toward a Working Theory of Ecosystems in Antitrust Law: The Role of Complexity Science, Network Law Review, 7/03/2024 <https://www.networklaw review.org/schrepel-ecosystems-ai/>.

17 *Arthur*, A general Q & A about Complexity Economics, March 2021 <https://sites. santafe.edu/~wbarthur/Papers/CE%20Q&A.pdf>.

18 *Petit/Schrepel*, Complexity-minded antitrust, Journal of Evolutionary Economics, No. 33, February 2023, pp. 552.

default concept, because it gives rise to situations that lead companies to innovate and to technological disruption; (iii) uncertainty is also the target, the desired state-of-affairs in which complexity-minded antitrust should keep hegemons and their eco-systems.

Thus, complexity-minded antitrust, accepting these new approaches and rejecting the assumptions of neoclassical economics, should not primarily seek to open all relevant markets to direct competitive rivalry, but should do its best to keep the eco-systems of the digital economy and their hegemons in uncertainty. The biggest concern of the anti-trust should therefore not be monopolies, as these are typical of online markets, but the hegemons of the eco-systems are stabilising and freezing the markets by their actions, or destabilising and dynamizing them.

IV. Uncertainty as a central point for thinking about markets and competition

If uncertainty is an essential element of complexity economics, a more precise exploration of this concept is a necessary precursor to all further considerations. It is clearly an element whose presence in the market environment is intended to have a fundamental impact on the decision-making of both economic agents and public authorities. Evidence that the decision-making of both leads to the desired responses and outcomes should be reflected in emergence of new business strategies, in the more frequent introduction of ground-breaking innovations, in short, in the constant risk-taking of the unknown by businesses. The existence and maintenance of uncertainty is therefore an important building block in the analysis of market situations and in the search for directions for possible public ex-post intervention or ex-ante regulation.

The uncertainty caused by the unavailability and variability of information about the challenges that market actors have to face is not new to economic theory. The fact that markets, and economic behaviour as such, are not entirely rational and predictable was dealt with by the great names of economics in the first half of the 20th century, such as *F. H. Knight*[19], *F. A. Hayek*[20] and *J.*

19 *Knight*, Risk, Uncertainty, and Profit. Boston and New York: Houghton, Mifflin Company. 1921.

20 *Hayek*, The Use of Knowledge in Society, The American Economic Review, Vol. 35, No. 4, September 1945, pp. 519-530.

Schumpeter.[21] Thanks to them, the entrepreneur's ability to face irreducible uncertainty has been understood for many decades as the basis for dynamic development based on innovation, but also as the potential basis for a temporary monopoly position of those successful in the race for technological breakthroughs. It can therefore be argued that firms may develop uncertainty mainly through their willingness to take risks in the field of disruptive innovation, but they may also seek to reduce it through 'stabilising' cartel agreements or monopolizing practices. Public authorities can also reinforce uncertainty by supporting research and development, technological start-ups and, of course, by anti-trust measures aimed at openness and contestability of markets. In parallel, however, it can also limit it by protecting the position of existing firms, whether for the sake of improving the balance of trade, preserving jobs, or even inadvertently by inappropriate business regulation dampening the appetite of potential entrepreneurs and investors. Some of its measures, such as patent protection, can work in either direction, depending on its parameters.

Thus, uncertainty is not a new or undescribed phenomenon. This is true for economics as well as for traditional competition law, which, for example, identifies actions that reduce uncertainty between competitors as an essential feature of their concerted practice[22] or of so-called coordinated effects of concentrations.[23] Until now, however, the prevailing view has been that rivalry between independently deciding and acting firms is the main source of uncertainty and that competition without rivalry is unthinkable.[24] Rivalry between direct competitors offering substitutable products to customers on the same relevant market, a concept derived from neoclassical economics, is, according to the authors

---

21 *Schumpeter*, Capitalism, Socialism and Democracy, (originally Harper & Brothers 1942) Taylor & Francis e-Library, 2003.

22 See e.g. the European Court of Justice judgment John Deere Ltd., Case C-7/95 P, EU:C:1998:256, para 90: "[…] the information exchange system reduces or removes the degree of uncertainty as to the operation of the market and that the system is therefore liable to have an adverse influence on competition between manufacturers ". Quite similarly in the same Court judgment T-Mobile Netherlands BV and Others, Case C-8/08 EU:C:2009:343, para 35.

23 See European Commission, Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03), paras 39-43.

24 The need to act independently, i.e. not to substitute cooperation for uncertainty between rivals, is often emphasised to undertakings in EU competition law, e.g. in the European Commission's Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements (2023/C 259/01) this importance of independent behaviour is mentioned 71 times.

of complexity economics, "a powerful adjuvant of uncertainty".[25] Complexity science, however, supplies an understanding of uncertainty that is richer than its contemporary association with rivalry.[26] *T. Schrepel* sees a fundamental driver of uncertainty in positive feedback loops that prevail in situations of increasing returns (typical of the current state of digital high tech industries including large online platforms) that generate not equilibrium but instability, and instability is a key source of uncertainty.[27]

Uncertainty is in any case a different concept from the traditional competitive risk to which every enterprise should be exposed in the market according to the ideal of neoclassical economics. Traditional competitive risks are known to firms, in the model case expressed by the prisoners' dilemma game scheme[28], while uncertainty, on the contrary, occurs when the probabilities of future states are not known. In addition to rivalry, there are external shocks, internal imbalances in the economy, and disruptive innovations. One has to add to them, in the spirit of the popular teaching of *N. N. Taleb*, all the so-called black swans[29], i.e. unknown-unknowns, which are more common in industries prone to extreme ups and downs, which are precisely those in which it is about being the first to attract the decisive attention of customers, investors, business partners, management and research talents.

Describing the environment of uncertainty can thus only be done through its causes and manifestations, hardly by some ordered and hierarchical structure that can be imagined and painted. *N. Petit* and *N. Schrepel* help themselves here by imagining the mental model of the *physicist* (trained in neoclassical economics), and the *park ranger* (whose thinking corresponds to complexity economics): "The difference in mental model is that physicists seek to achieve static and predictable outcomes (moving a monopoly towards competition), while park rangers seek to maintain dynamic and unpredictable processes (moving a monopoly towards competition or towards a new monopoly)."[30] Just as it is possible to imagine multiple types or levels of interactions that affect the inter-species balance in the park, it is possible to at least partially dispel the current vagueness

25 *Petit/Schrepel*, op. cit. ref 18, p. 552.

26 Ibid, p. 549.

27 *Schrepel*, Complexity Science for Antitrust Lawyers. Network Law Review, 14/09/2023 https://www.networklawreview.org/complexity-science-antitrust/.

28 *Wiley Jr.*, Reciprocal Altruism as a Felony: Antitrust and the Prisoner's Dilemma, 86 Michigan Law Review Vol. 86, N. 1906/1988 https://repository.law.umich.edu/mlr/vol86/iss8/3.

29 *Taleb*, Black Swan, Penguin 2008.

30 *Petit/Schrepel*, op. cit. ref 18. p. 558.

surrounding the concepts of instability and uncertainty by defining the levels of interactions that ensure the movement of large players in a highly dynamic, constantly innovating digital economy:[31]

- The top tier represents the level of entire eco-systems, whose centres of gravity we understand as the technological leaders of the contemporary world, competing with each other to see whose model is the best, who has the best image as a cutting-edge, yet secure and consumer-friendly online service provider. It is therefore a competition in the broadest sense. Its point is however not just about general attractiveness, as this competition has a direct impact on the levels listed below under numbers 2 to 5. It is however clearly not exhaustive of competition on other levels and may be a source of more general uncertainty as to whether this or that digital leader is better positioned than other digital giants in the eyes of relevant stakeholders. Competition law here faces the question of how far to count this type of uncertainties as recognisable competitive pressures.

- A level of public regulation and support that can be competed for and is certainly not a fringe issue in the digital economy. Although competition law more likely does not directly regulate these efforts (because if regulated, they will fall under the rules of lobbying, state aid, technical standardisation, public procurement, etc.), the question nevertheless arises as to under what conditions the cooperation of digital giants to win more favourable regulation, or a particular aid scheme should be considered anti-competitive by reducing their uncertainty. Collaboration on an open industry standard will not normally be problematic, but can the same be said of, for example, protectionist efforts to reject a universal standard and introduce a region-specific standard? Even what traditional competition law does not label as cartel or abuse can be pushed through by firms to reduce uncertainty.

- The next level is the competition for critical inputs, which for virtual production of digital players are mainly investments (investors' favour) and talents (the best managerial and technical brains or entire engineering teams). Given the goal of gaining an edge in technological areas, which is based on the trust of willing investors and the payment of the best development teams and their managers, this is certainly a type of competition that should be maintained and therefore defended against both cartel behav-

31 Ibi, p. 543.

iour and possible abuse of market power, especially through the creation of long-term exclusivity, or by prohibiting former partners forever from collaborating with competitors.

- The just mentioned level 3 is followed by the one where companies can compete in the traditional sense of the word for quality suppliers of technology solutions and new online applications, imposing exclusive cooperation on them, or gaining control over them through pre-emptive takeovers to absorb their nascent success before it is absorbed by a competitor. These are thus adjacent markets 'threatened' by efforts to vertically integrate, to gain supplier-customer exclusivity, to gain exclusive but possibly also joint control of a potentially successful technology.

- Another level of interaction is represented by the relevant markets of classic horizontal competition, where attention and data, and certainly money, are competed for from the same buyers and consumers of each other's alternative online services. Here, there is already experience of the application of classical competition law prohibitions; the issues arise, however, as suggested above, because of its slowness and the need to seek remedies for particular specific conduct, not the shaking of a market as a whole.

- A final, somewhat specific level of uncertainty may be some collegial rivalry between entities within an eco-system, their brands and implementation teams. This is a feature inherent in all large conglomerates, both firms and authorities, and is therefore undoubtedly present within forked eco-systems of online platforms. This internal tug-of-war can also provide the dynamics of innovation, even if such movements within an eco-system, if subject to central control, will not be called competition. Existing competition law does not operate inside groups controlled by a strong parent company (so-called single economic units), but it may, for example, enforce certain behavioural obligations, such as maintaining outwardly separate brands, when allowing further takeovers and mergers. The question is whether such limited action is sufficient to stimulate innovation breeding uncertainty.

The picture of possible forms of uncertainty becomes complex and complicated compared to traditional law and economics textbooks, but still somewhat clearer. With allowable simplification, the following shorthand will help: the digital

giants forming GAFAM are very likely not directly competing in the relevant markets in which we understand them as leaders (level 5 above), but this does not mean that they do not understand themselves as threats to each other in levels 1-4 and that there is no rivalry within and between their eco-systems between applications, technology solutions, research teams and projects.[32]

As *T. Schrepel* points out, the lack of competition on one of the levels may be a problem for more than that level, but it may not always be a problem for all levels, i.e. for the whole industry, for the digital economy as a whole.[33] A change at one of the levels may steer investors and customers in a different direction than before, turning their attention to a different technological solution. The resulting impression is nevertheless that economic uncertainty is very difficult, if not impossible, to reason and exhaust, let alone incorporate into clearly formulated corporate strategies. According to the quoted author, businesses can only 'cognize' it and try to react to it.[34] The challenge for antitrust is to prohibit businesses from responding to uncertainty in ways that seek to eliminate most unknowns for themselves and their eco-systems, not only at level 5 above (where, given the characteristics of the operation of large online platforms, it is rather absent), but also substantially at the other levels described.

V. Uncertainty and competition law based on it

Uncertainty as a source of innovation dynamics must therefore be sought in more sources and impulses than just the usual uncertainties of the business environment and especially not only in the competitive pressure resulting from existing or potential rivalry, i.e. from direct competition on the relevant market or from the openness of this market to new competition. Therefore, even in the environment of online platforms, it is possible to accept – in principle, not in every single case (see below) – most of the traditional competition law prohibitions on agreements and concerted practices between undertakings that replace competi-

32 European Commission, Protecting competition in a changing world Evidence on the evolution of competition in the EU during the past 25 years. Luxembourg: Publications Office of the European Union, 2024. The authors stress (p. 3) that what happens in so-called relevant markets, as understood by antitrust, is at least in part a function of dynamic competition – based on innovation, product variety, product quality, efficiency, entry and exit – which often takes place at a broader industry level.

33 *Schrepel*, op. cit. ref 16.

34 *Schrepel*, op. cit. ref 27.

tive uncertainty with alignment or cooperation between competitors, as well as those manifestations of abuse of dominance that close (usually upstream or downstream) markets to competition. In the vast majority of cases, these competition law measures do not simply entail prohibiting a particular conduct, but they re-establish uncertainty where undertakings have sought to replace it by cooperation and stabilisation. It should be added briefly that traditional competition law also distinguishes between effects of undertakings' actions and exempts from its prohibition prima facie anticompetitive conduct by undertakings which has predominantly positive effects on efficiency, i.e. in particular innovation and improvement for the benefit of buyers.[35]

The question arises, however, whether traditional antitrust can adequately capture the opaque dynamics of the digital economy and correctly distinguish between specific actions of specific companies that have a positive or negative impact on the dynamics of innovation, or on escalating the efforts to overtake everyone else and redefine existing markets. The prohibition on the exchange of sensitive information between companies undoubtedly keeps them in competition with each other, but is this the kind of uncertainty that will give rise to technological progress in an environment of algorithms and artificial intelligence? Self-preferencing of a large online platform's own products seems like the proverbial form of abuse of its unrivalled position, but will a blanket ban on this practice have a galvanising or retarding effect on the emergence of the really big and costly innovations? Splitting the eco-system under the control of the hegemon, for example by forcing the separation of the app store from the operating system or the search engine from its associated online services, would probably help competition in the traditional sense, but would it also benefit the innovation dynamic? The incorporation of a start-up developing a promising new technology into a large eco-system by its pre-emptive takeover looks like a classic monopolization practice, but is such a move a killer or, on the contrary, a promoter of future technological disruption? *Ibáñez Colomo* rightly emphasises in relation to such issues that remedial actions in the digital environment "may alter the balance between static and dynamic competition, and not necessarily towards the optimum. There is a risk that the former is promoted at the expense of the latter."[36]

The search for answers to these and similar questions takes us outside the realm of law, because to answer them we would need to explore and understand how not incremental improvements, but real breakthrough innovations are tak-

35 *Shyam Khemani*, Application of Competition Law: Exemptions and Exceptions, UNCTAD/DITC/CLP/Misc.25, Newy York and Geneva 2002.

36 *Ibañez Colomo*, op. cit. ref 6, p. 245.

ing place in the online platform sector. Whether it is just the concentrated involvement of sufficient money and talent, or also a certain mode of managing relevant data, developing interaction that is both rivalry and cooperation, perhaps even a certain enjoyment of exclusivity similar to that enjoyed by holders of unique patents, etc. Let us not forget that businesses operate on at least the six levels of interaction described above, from which impulses for or against uncertainty and innovation can arise. Is it always certain that the attention of analysts and downstream regulators should preferably be focused on the level of the so-called relevant markets and the markets immediately downstream of them? Moreover, economists would add that this picture (already escaping an easy formulation of general rules) will be further complicated by the distinction between increasing and decreasing returns to scale with which the firms concerned operate. The same business practice, e.g. working with competitors or seeking some exclusivity of the data obtained, may lead to different consequences for destabilising innovation and uncertainty when the business is betting on further growth in returns as opposed to when it realises that the return on further investment to expand production would be uncertain and focuses on stabilising and defending the position gained.

It follows inevitably that "regulation must be adapted to the nature of the market."[37] In practice, however, this means, as *N. Petit* and *T. Schrepel* admit, that one and the same practice will be assessed as defective in a situation of increasing returns and benign in a situation of decreasing ones (e.g. a price fixing agreement) and for another it will be exactly the opposite (e.g. a pre-emptive merger).[38] Thus, the answers to the questions posed in the preceding paragraphs may be situationally contingent, because they will be based on a complex analysis of many levels and, at each level, many variables, and on a play-by-play of possible scenarios for the evolution of the system depending on the likely changes in this or that variable at this or that level.[39] Sometimes a prohibition will result, sometimes not. On top of this, with the ramification of current ecosystems of large online platforms, there may be situations in which some services, applications or business models hit their growth ceiling (which may be those that require focused user attention which is not inexhaustible), while others will offer unforeseen growth opportunities as the Internet of Things penetrates other areas of economic and personal life (see, for example, the transformation of cars from primarily engineering products into communication points of overlapping networks, equipped with a powertrain and wheels as one of its

37 *Schrepel*, op. cit. ref 27.

38 *Petit/Schrepel*, op. cit. ref 18, p. 557.

39 Ibid, p. 556.

many functions). One and the same eco-system of the platform, by a very much identical behaviours, can thus develop uncertainty in some markets or market segments and dampen it in others.

VI. Complexity-minded antitrust from the perspective of the expected functions of law

If we translate the above considerations into the field of practical law, which should regulate corporate behaviour by ex-post sanctions but also (and above all) by the ex-ante preventive effect of its rules, we are faced with the question of what complexity-minded antitrust rules could look like. With some simplification, the analysis so far suggests that the operation of the newly conceived antitrust should, using the maximum possible amount of data and including the maximum possible number of variables, carry out an exhaustive innovation-based analysis in each individual situation and decide on the basis of this analysis. Only in this way will its action be sufficiently adapted to the nature of the market and most likely to produce the expected result. However, will such antitrust still be law and bring society the benefits it has traditionally expected from the application of the rules called law, i.e. expediency, justice, legal certainty[40] (to borrow a definition of the purposes of law from the classic *G. Radbruch*[41]), still generally accepted today at least in continental Europe?

If the economics of complexity and the complexity-minded antitrust derived from it correspond better than the traditional competition protection based on neoclassical economics models to the reality of the digital economy, then there should be no problem with fulfilling the expediency criterion. In this respect, complexity antitrust should fulfil what is expected of an efficient and general welfare-enhancing antitrust, namely that it will keep markets dynamic, open to change and attractive to investors and consumers. The assumption highlighted above is that economists, together with engineers, will discover for the benefit of policymakers and lawyers how dynamic technological innovation is born in the digital world and what all can influence its success, knowing that we can answer the question of what other sources of uncertainty and countermeasures negating these sources to include in the competition case analysis.

---

40 *Alexy*, Gustav Radbruch's Concept of Law. Lecture at UPJS Kosice https://www.upjs.sk/app/uploads/sites/11/2022/10/Gustav-Radbruchs-Concept-of-Law.pdf.

41 *Radbruch*, O napětí mezi účely práva (On the tension between the purposes of law). Praha: Wolters Kluwer ČR, 2012.

Given the above, we can guess that all attempts by hegemons to secure stable control of conquered territory through exclusive or quasi-exclusive tying of suppliers, clients and former employees, by enforcing their own technological standards, will be suitable candidates for such testing, as well as their imposing restrictive or dissuasive conditions on access to markets they control, denying their technological cooperation or data where necessary for new entry, preemptive takeovers of any newcomers that might threaten the hegemon in the future. The synonym for preventing such efforts at exclusivity will generally be those complexity-minded antitrust interventions that seek to preserve the openness, contestability of markets. Always with the caveat that it will only be a "list of suspects" that a particular analysis may exclude from that list because it turns out that in a given constellation their impact on uncertainty is not negative.

Let us stress once more, that the essence of such a test will not be whether the suspicious practice impede competition in the relevant market, but whether it petrifies conditions in a sector as a whole to such an extent that it would lack enough destabilizing elements leading to technological innovation. In fact, it will be a new, qualitatively different concept of the so-called *effect-based approach*, well known to competition law, i.e. decision-making on the basis of the findings of the effects of the practice under review, rather than on the basis of its formal features.[42] We can speak of raising this approach from the level of neoclassical economics to the level of the economics of complexity. The effect of a particular firm's behaviour on the innovative dynamics of the system as a whole outweighs its effect on the price the client has to pay or on the chances of as efficient competitors to stay in the market. Conceptually, there is no insoluble problem here, but in practice one can expect the same difficulties that antitrust already has in applying the prohibition of abuse of dominance to online platforms: lengthy proceedings due to complicated analysis, legal qualification and proof, and difficult design of effective remedies.

But then we encounter two other criteria universally placed on good law, namely justice (seen as ensuring fairness) and legal certainty (seen as the predictability of the consequences of actions, whether as expected protection or sanction). The prism of these two criteria makes a holistic approach according to the aforementioned park ranger mental model problematic at first sight, because its primary goal – maintaining uncertainty – seems not matching with just rewards and equal chances which come to mind when thinking about justice. One can escape from the problem to some extent by stating that in complexity-minded antitrust, what will be fair is what will ensure the uncertainty-generating

42 See for details e.g. in *Bourgeois*/*Waelbroeck* (eds), Ten years of effects-based approach in EU competition law: State of play and perspectives. Brussels: Bruylant, 2012.

dynamics of innovation, because its benefits to society will allow the redistribution of resources to compensatory measures for start-ups, which will give them access to R&D results, data, media advertising, etc., and thus compensate for their a priori unequal position vis-à-vis the hegemons who have created and manage their eco-systems. Consumers, thanks to the benefits of innovation for society as a whole, will be remembered through education and information campaigns, as well as the development of smart assistance to strengthen their digital autonomy. These are a series of measures that will be provided by regulations and authorities other than those of the competition authorities, but together they will correct the inherent unfairness of the dynamic competition for a breakthrough innovation that will dominate the market and make its creator a new monopoly.

In a sense it would be a confirmation of the Chicago School ideal that in the DNA of proper antitrust is encoded its attachment to material prosperity, not to the distributive justice that other types of regulation and branches of law are supposed to strive for.[43] At the same time, it will have to be hoped that the uncertainty that breeds dynamism will indeed be effective in preventing the excessive concentration of economic power in the hands of a few winners, which complexity-minded antitrust (or public power in a democratic rule of law as such) would no longer be able to regulate - in favour of fair and just societies.

Similarly, the criterion of legal certainty (predictability) looks difficult to fulfil. With respect to this criterion, competition law, which seeks to intervene in a thoroughly reasoned and proportionate manner to reduce the risks of over- and under-enforcement, has not excelled in the past decades either.[44] And now that uncertainty is about to rule the system, how to formulate rules in advance that are clear to their addressees, that guide their behaviour, and that do not make their commands and prohibitions conditional on a constellation of conditions that are difficult to understand in advance? Taking advantage of the traditionally weakened place of this criterion in regulation seeking market-specific ad hoc intervention, it can perhaps be argued that in complexity-minded antitrust, legal certainty will consist in the fact that competition protection will inevitably have to be far more participatory, pre-negotiated with its participants, than its current legal bans enforcing variant.[45] The demands on up-to-date know-how, data, computing power will very likely exceed the capacity of the civil service and its

43 *Bork*, The Antitrust Paradox: A Policy at War with Itself. Bork Publishing, 2021.

44 See the analysis produced by *Broulík*, Predictability: a mistreated virtue of competition law, Journal of Antitrust Enforcement, 2023, jnad043.

45 *Bethell/Baird/Waksman*, Ensuring innovation through participative antitrust, Journal of Antitrust Enforcement, Volume 8, Issue 1, March 2020, pp. 30-55.

authoritative decision-making. Appropriate, innovation-enhancing solutions, as well as appropriate remedies, will have to be discussed with businesses and stakeholders within the sector so that its innovation dynamics are maintained or enhanced.

The solution will then lie primarily in negotiated and agreed behavioural commitments for businesses. Antitrust already has some experience with this too: competition advocacy, sector inquiries, agreed commitments with dominant firms and merging competitors, not forgetting the current trend of creating new competition tools. These new tools are intended to combine the findings of numerous and in-depth sectoral competition inquiries with the ability of the competition authority to impose market-shaping commitments.[46] Such tools adapt quite well to the needs of complexity-minded antitrust. While the outcome will not be deducible in advance from uniform rules, it will be neither surprising nor liquidating for firms and, more importantly, it will correspond to a comprehensive assessment of the situation with a view to ensuring the dynamism of innovation.

VII. Conclusions

Accepting the solutions just described the practice of complexity-minded antitrust will not be an application of the law as we have been used to. A legal rule is always a generalization, and therefore a useful simplification, of a complex reality in the interest of regulating it in a way that is efficient, just and predictable. That is why law uses more or less successful legal definitions of complex concepts and, where necessary, legal presumptions and fictions better or worse suited to reality, in order to normalize, assess and, if necessary, judge complex phenomena. The fiction of a rational economic actor controlling its profit-oriented behaviour, the fiction of each undertaking deciding independently on the parameters of its own economic behaviour, or that the key competition takes place in a relevant market defined by its product and geographic dimension are examples of tools that have been well suited to traditional competition law for a

46 See for instance *Franck/Peitz*, Germany's New Competition Tool: Sector Inquiry With Remedies, Collaborative Research Center Transregio 224, Discussion Paper No. 598, September 2024 <https://www.crctr224.de/research/discussion-papers/archive/dp598> or *Kupčík*, New competition tool and call-in power for mergers in Czechia? Schoenherr Newsletter 23/01/2024 <https://www.schoenherr.eu/content/new-competition-tool-and-call-in-power-for-mergers-in-czechia>.

long time, but should now, in the interests of accepting complexity, be bracketed at best.

Complexity-minded antitrust would be very expedient because of this. However, we could not view it through the same prism of justice and legal certainty as other existing legal regulation, which has not yet replaced simplistic definitions, assumptions and fictions with complexity, including, among others, chance, irrationality, a wide range of impulses and motivations, and situational conditions of the market and industry. Such antitrust would thus very likely be more politics than law, at least in the sense that a negotiated solution to a potential competition problem would take precedence over administrative decisions and subsequent litigation in their review. Administrative sanctions and their judicial review would only come into play in cases where an undertaking ignores invitations to negotiate with the competition authority or fails to comply with the results of the negotiations and the commitments imposed.

Overall, complexity-minded antitrust would be much more about the creative search for innovation-promoting ad hoc solutions in situations where the pace of innovation is suspected to be insufficient, rather than prohibitions and punishments for proven violations of predetermined rules. Policy and market guidance will take a stronger position in such antitrust than issuing precedential judgments at the end of complex sanction proceedings. The retreat from fame would probably also await enacted ex-ante regulation in the form of fixed lists of always prohibited and always required actions, as for instance the EU Digital Markets Act does for platforms in the position of internet gatekeepers. Such an unequivocal victory of complexity-minded antitrust over the traditional protection of economic competition is surely hard to predict, but its gradual enrichment with concepts derived from the teachings of complexity seems desirable and probable.

Digitalisation and Modernization of the Judiciary

*Bosiljka Britvić Vetma** and *Ivan Malenica***

Abstract

When we look at the technological development of society, the question arises in what sense the judiciary can respond to such development. Digitalisation has become a prerequisite for any development since it is tied to the positive aspects of certain processes. The process of digitalisation of the judiciary is already advanced and is ready for some new challenges. That challenge is certainly the galloping use of artificial intelligence in more and more processes that take place in everyday life. Of course, digitalisation is a prerequisite for how artificial intelligence could be used. The improvement of existing and the development of new digital services in the judiciary is happening on a daily basis and is opening the door to the entry of artificial intelligence into the judiciary. Artificial intelligence can play an important and important role in the judiciary, primarily through the optimization of redundant processes that can be accelerated by the use of artificial intelligence systems and the rapid availability of data contained in the databases of judicial and other state bodies. The Ministry of Justice, Public Administration and Digital Transformation is certainly in the process of raising the level of readiness for the challenges of digital transformation and digital business.

Keywords: justice, digitalisation, artificial intelligence

I. Introduction

Considernig that we live in a time and society when there is an accelerated process of digitization and advocacy of the use of artificial intelligence[1], numerous

* Full professor, Faculty of Law, University of Split, Croatia.

** Committee on the Constitution, Standing Orders and Political System, Chairperson.

legal and ethical questions inevitably arise that need to be answered beforehand, as it has been determined in which direction we should go and what we finally want to achieve.

In the last few years, the term digitization has often been used as a kind of mantra, since digitization is associated exclusively with the positive changes it should bring when it is used. This is also the case with the judiciary, where digitalisation is rapidly being included in almost all processes that take place within the judicial system. With the emergence of artificial intelligence as a digital tool, the judiciary as an activity based mainly on human intellectual work is facing great challenges.

When it comes to digitalisation as an important tool in achieving efficiency in the judiciary, the Ministry of Justice, Public Administration and Digital Transformation follows European and global trends and continuously invests in digitalisation with the aim of achieving an effective judicial system. Of course, in the end, this should certainly contribute to the development of the economy and the strengthening of the rule of law. The role of digitalisation in the judiciary is manifested through the achievement of goals that are important for any judicial system, and which can be achieved with digital tools, and the most important are certainly the reduction of the number of unresolved cases and the shortening of court proceedings. These are anomalies in the judicial system that almost every country has, to a greater or lesser extent, that is, to an extent that reflects more or less negatively on the rule of law, human rights and economic activities. It is crucial to find an answer to the question of how to achieve transparent and efficient management of the justice system. There is no unambiguous answer to this question, but depending on a number of elements, measures and activities are considered with which this can be achieved. The answer also depends on a number of social, sociological and technological factors that influence the measures and activities that can be taken to achieve this goal. When looking at the technological factor, digitalisation as a measure or activity that can achieve the aforementioned goal also depends on a number of circumstances. The circumstances are, for example, the level of technological development of a society and state, the existence of IT infrastructure and the readiness of stakeholders in the judicial system to accept changes. When we talk about the digitalisation of the justice system, we must not neglect the issue of data security, document authenticity, digital inequality, dependence on technology and the gradual reduction of direct physical contact.[2] Also, the development of digital

1 Artificial Intelligence (AI) Artificial Intelligence, abbreviated AI) is the ability of a device to mimic human activities.

2 *Turkalj* (2024). Digitalisation of administrative court proceedings as a means of ensuring the right to a fair trial. Proceedings of the Faculty of Law in Split, 61 (3), p. 405.

technology in the judiciary completely depends on the level of development of an individual's information literacy, which is currently not at an adequate level, neither among citizens nor among judicial officials.[3]

However, digital transformation is actually a process that is happening at an accelerated pace, and it is inevitable that it will affect the judicial system to the extent that every country is ready to accept such a transformation.

Therefore, the digitalisation of the judiciary is actually an ambitious initiative, the success of which depends on the continuous commitment of the state, but also of all stakeholders in the judicial system, because the results depend on the synergy of all stakeholders in the system. The success of digitalisation is often associated with the success of the activities through which it is carried out, and here is primarily the key IT infrastructure as the first prerequisite that must be achieved so that the digitization process can go smoothly. When we look at the benefits of digital transformation, the digitalisation of justice can certainly lead to an increase in the efficiency of the system itself, a reduction in costs, the optimization of resources within the system and the reduction, for example, of geographical barriers. Therefore, the key to the success of digital transformation lies not only in the development of a system that will meet the needs of judges, officials and parties, but also in continuously monitoring whether there are obstacles that prevent the use of digital functions and services. It should be emphasized that the digitalisation of the judiciary is a topic that has been present in numerous international and national documents for the last thirty years[4].[5]

Also, the European Commission of the Council of Europe for the Efficiency of Justice (CEPEJ) has determined in its latest report that the digitalisation of the judiciary is necessary, since IT systems have shown during the COVID-19 pandemic that they can be useful for maintaining and speeding up court processes.[6][7] Also, CEPEJ points out that the digital transformation of the judiciary in

---

3 *Bodul/Grbić/Bartulović* (2021). The Right to a Fair Trial and E-Justice: A Systemic Error or a Step Forward in the Protection of Rights?, Harmonius: Journal of Legal and Social Studies in South East Europe 2021, p. 31.

4 See more 2019-2023 Action Plan European e-Justice, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XG0313(02) accessed on 2.11.2024.

5 See more National Plan for the Development of the Judicial System for the Period 2022-2027, https://mpudt.gov.hr/UserDocsImages/dokumenti/Strategije,%20planovi%20izvje%C5%A1%C4%87a/Nacionalni%20plan%20razvoja%20pravosudnog%20sustava%20za%20razdoblje%202022_2027.pdf retrieved on 2.11.2024.

6 See more on https://rm.coe.int/cepej-evaluation-report-2024-general-analyses/1680b1e91d. Accessed 28 April 2025.

7 See more and *Maganić* (2020). The Impact of the COVID-19 Epidemic on Court Proceedings, Informator 6622, p. 1-3. and *Uzelac* (2021). COVID-19 as a catalyst for the

the last thirty years has enabled remote hearings, the use of electronic evidence, the digitization of court files, the simplification of search and analysis of the work of the judicial system, etc.[8]

When we talk about the digitalisation of the judiciary as a general term, it is primarily reflected through the digital transformation of the services of the judicial system. When we look at the judicial system, it is a complex system consisting of the Ministry of Justice, which is part of the executive power, and the courts and prosecutor's offices, which are part of the judiciary. Criminal authorities and probation offices are also part of the judicial system. Digitalisation as a process is carried out through the judicial information system. It is a system that includes a whole range of business processes that take place in the judiciary, these are basic legal processes (criminal proceedings, civil proceedings, administrative proceedings, procedures for the execution of criminal sanctions, execution of prison sentences, etc.) and business processes that take place in order to support the basic legal processes of the judiciary (accounting and finance, personnel management, etc.) that are computerized.

There are continuous reflections on how to improve the work of the judicial system, primarily through the processes of optimization, automation and digitalisation of judicial services and processes, increasing the availability of interoperable digital services to citizens and the economy. As regards basic legal processes in the judiciary, digitalisation is already taking place in the areas of court file management, document exchange and communication in court proceedings. Since citizens use the judicial system, special efforts should be made to improve and simplify communication with citizens, which certainly contributes to strengthening the legal security of citizens.

In addition to achieving key objectives such as increasing efficiency, strengthening the rule of law, the digitalisation of the justice system also has a positive impact on reducing costs. The judicial system seeks continuity and consistency of activities that bring about positive change. The Republic of Croatia wants to take advantage of numerous innovations and technology that lead to changes in traditional ways of conducting court proceedings, introducing tools to improve efficiency and convenience for all parties involved in court proceedings.

One of the positive changes that arises through the digital transformation of the judiciary is certainly the increase in the transparency of the work of the judi-

---

digitalisation of justice? Enforcement of the law during the COVID-19 pandemic. Zagreb: Croatian Academy of Sciences and Arts (HAZU), pp. 372-377.

8 Available at: https://rm.coe.int/cepej-evaluation-report-2024-general-analyses/1680b1e91d, p.145. Accessed 28 April 2025.

ciary. It is manifested through insight into the status of case resolution, exchange of information with other information systems within the judicial system and the possibility of electronic communication with the court.

II. The current state of digitalisation of the judicial system in the Republic of Croatia

When we talk about the digitalisation of the judicial system in the Republic of Croatia, this process began in 2001 with the launch of an IT system for monitoring and managing courts and court proceedings. These are the ICMS (Integrated Court Case Management System), today known as eFile, and CTS (Case Tracking System), i.e. the system for monitoring cases in the State Attorney's Office. The introduction of the eSpis system in the work of the courts represented the "backbone" of the judicial IT system, which was the first step, but also the basis on which a number of new functionalities will be upgraded in the future.

Regardless of the resistance of judges and prosecutors to the introduction of new technology in the process of managing and conducting court proceedings, this change has led to a complete change in the criteria of the efficiency of the judicial system. In the past twenty years that followed, advanced IT systems were introduced into the Croatian judiciary, which resulted in positive revolutionary changes for all stakeholders in the judicial system. However, the experience of the past twenty years also shows that the digital transformation of the judiciary is a gradual and slow process that requires, among other things, getting internal and external stakeholders to accept changes. Today, the Croatian judiciary continues to further expand and develop new digital systems in which the emphasis is on the interoperability of all stakeholders in the judicial system and beyond.

When it comes to the eSpis system as the backbone of Croatian digital justice, it was first introduced as a pilot project at the Municipal Court in Pula in 2007 and since then it has been gradually introduced to all courts in the Republic of Croatia. It is a system that allows you to manage and work on a court case. Today, all courts use the eSpis system, which has also undergone numerous changes since 2006 in terms of new functionalities that have developed over the years and led to the fact that our judicial system is based on eSpis.

One of the fundamental goals of the introduction of the eSpis system in courts was not only faster, better and more modern justice, i.e. speeding up the

work of courts, but also enabling the exchange of data with other information systems, i.e. the exchange of data between courts and other state institutions, as well as the exchange of data between courts and courts and state attorney's offices, i.e. attorneys.[9]

The introduction of the eSpis system has enabled precise and exact monitoring of the work of all courts, since statistical and analytical data are stored in one place, in the Ministry of Justice, Public Administration and Digital Transformation. This allows the Ministry to monitor data on the efficiency of the work of the courts and plan organizational and legislative changes. Also, the eSpis system, through its analytical and reporting part, enables court presidents to monitor the work of the court through management reports and make better use of human resources. The data collected through this system allows, among other things, to measure the duration of individual stages of court proceedings and the influx of new cases and their resolution.[10]

The users of the eSpis system are judges, court clerks, courts and the Ministry of Justice, Public Administration and Digital Transformation. There are approximately 8,000,000 court cases in the system, while about 50,000 new cases are created per month, and changes occur daily to about 73,000 cases.[11]

In addition to monitoring the work of courts through the reporting system, eSpis also contributes to maximum transparency of court work, since automatic and random assignment of cases has been introduced through the eSpis system through the application of an appropriate algorithm instead of the previous manual assignment. This represents a strong anti-corruption tool that contributes to maximum transparency of the judicial system.

However, further modernization of the Croatian judiciary is based, among other things, on the further development of the eSpis system through the improvement of existing functionalities, the development of new functionalities, the strengthening of a reliable and stable IT infrastructure and the connection with other IT systems. In this sense, the Ministry of Justice, Public Administration and Digital Transformation is currently implementing the project "Improving the Court Case Management System (eSpis) C2.5. R1-I1", which is financed

9 *Ljubanović/Britvić Vetma* (2020). The eSpis system in the function of efficient operation of administrative and judicial bodies. Proceedings of the Faculty of Law of the University of Rijeka, 41 (1), p. 317.

10 The two most important indicators are Clearance rate (The relationship between new cases and completed cases within a certain period) and Disposition time (This indicator provides further insight into how the judicial system manages the influx of its cases).

11 According to statistics from the Ministry of Justice of the Republic of Croatia, access https://mpudt.gov.hr/izvjesca-19834/statisticki-pregled-o-radu-sudova/26209?lang=hu. Accessed 28 April 2025.

from the National Resilience and Repair Plan, through which a technological reengineering of the system will be made as a reaction to the questionable stability and availability of the system so far. Dependence on external resources will also be reduced, since the eSpis system was more dependent on external resources. Through this project, the system should be upgraded with new functionalities and migrated to a stable and reliable infrastructure in the Shared Service Center[12] that will enable safe, faster and reliable operation, as well as simpler upgrades and extensions of the system conditioned by a larger number of users and future legal changes. Through this project, it is also planned to use the service of a virtual assistant that would make it easier for users to use e-Services in the judiciary (e-Communications, e-Cases, e-Enforcement, e-Notice board, Insolvency Register, Certificate that no criminal proceedings are being conducted, i.e. all web applications related to eFile).

As an integral part of the eSpis system, the eKomunikacija service has existed since 2017, which allows various users to communicate with courts in electronic form. In 2023, courts sent or received over 4.9 million documents via electronic communication.[13] The eCommunication service enables users to communicate with the courts safer, faster and easier.[14] This service enables the sending of submissions and attachments to the court, the receipt of court documents, the inspection of the case file, the review of hearings and various notifications on the status of cases and parties.

On the other hand, the courts deliver documents electronically to a secure electronic mailbox. Also, the parties are enabled to pay court fees through the eCommunication system. Certainly, this type of communication is the first step in creating a complete electronic file in courts.

Special attention was also paid to the security of electronic communication as an important element that affects the trust of the users of this system. When regulating the sending and receiving of electronic items, the security and credible identification of the sender and recipient of documents shall be taken into account. For this, the National Identification and Authentication System (NIAS)

12 The Shared Service Center (CDU) or "state cloud" is a part of the state information infrastructure that centralizes and consolidates the data of public law bodies and enables their connection and digitization through the use of common and reliable ICT infrastructure and digital services.

13 https://mpudt.gov.hr/vijesti/e-komunikacija-dostupna-na-portalu-e-gradjani/27980?big=0. Accessed 28 April 2025.

14 Currently, e-Communication is not possible with the Municipal Misdemeanor Court in Zagreb and Split, and the High Misdemeanor Court.

is used, through which users prove their identity as a prerequisite for using the system.[15]

III. New Projects for the Digitalisation of the Judicial System in the Republic of Croatia

Also, in order to increase the transparency of the judiciary, the project "Development of tools for public publication and search of court decisions C2.5. R1-I3", which is carried out with the aim of ensuring the availability of court judgments to the professional and general public. Since the publication of court decisions is currently quite limited in the Republic of Croatia, and as such it is possible only through a special information system of the Supreme Court of the Republic of Croatia, SupraNova, where only the most important court decisions are published to a limited extent and relatively slowly. This new system will enable automatic and semi-automatic anonymization of court decisions using artificial intelligence so that court decisions can be published on a publicly accessible portal. This activity of the Ministry is certainly a reaction to the negative perception related to court decisions, the manner of their adoption and their content. One of the biggest weaknesses of the Croatian judiciary is precisely the lack of public publication of court judgments.[16] The basis for the implementation of this activity is the Courts Act[17] , i.e. its amendment from 2024, which prescribes the obligation to publicly publish all court decisions that complete the procedure on a special website, with prior anonymization and compliance with the rules on personal data protection.[18] On a single portal for the publication of court decisions, it will be possible to search using the metadata of all decisions according to different criteria and retrieve in different data. Through this system, case law will be made more accessible to legal experts and the general public, of course, while respecting the rules on personal data protection. The publication of all court decisions will certainly contribute to greater transparency of the judicial

15 *Turkalj* (2024). Digitalisation of administrative court proceedings as a means of ensuring the right to a fair trial. Proceedings of the Faculty of Law in Split, 61 (3), p. 392.

16 *Đurđević/Ivičević Karas* (2023). The Use of Artificial Intelligence in Croatian Criminal Procedure: Current Situation and Perspectives. Croatian Yearbook for Criminal Sciences and Practice, 30 (2), p. 237.

17 Courts Act, OG 28/13, 33/15, 82/15, 82/16, 67/18, 126/19, 130/20, 21/22, 60/22, 16/23, 155/23 and 36/24.

18 Article 5 para. 6 of the Courts Act.

system in order to achieve its purpose, which is to ensure public oversight over the functioning of judicial institutions in a country. This is possible if the public has access to information on the functioning of the justice system.[19]

Through this system, citizens and business entities will have a direct insight into the work of the courts, which will enable them to better understand the law. In addition to transparency, the public announcement of all court decisions will certainly have an impact on the harmonization of judicial practice.

Also an important project that the Ministry of Justice, Public Administration and Digital Transformation is currently implementing, especially in the field of land registry management, is the project "Improvement of the information system of land registry and cadastre C2.5. R1-I2", which aims to increase the scope and quality of land registry and cadastre data in the Land Registry Database[20] from 3.86% by a further 60%, and to increase the efficiency of work in land registry procedures by implementing a software module (virtual assistant) based on artificial intelligence, and to provide citizens and business entities with user support and encouragement for the regulation of land registry and cadastral status.

Namely, it is currently in the function of the "One-Stop-Shop" (OSS) as part of the Joint Information System of the Land Registry and Cadastre, which is a single service point for access to the data of the Land Registry and Cadastre. Through this project, the OSS system will be upgraded and will enable citizens and other key users to get the necessary information in a simpler way, e.g. about the number of an individual cadastral parcel or the number of a land parcel insert only based on the address of the parcel or spatial location on a graphical browser. In this sense, the OSS portal, in the full sense, becomes a "one-stop-shop" in terms of information and services in real estate transactions.

One of the current projects is the introduction of audio recording of hearings in criminal and civil proceedings. Audio recording shall be used to record all facts, allegations and testimonies presented during the hearing. The aim is to speed up the proceedings in such a way that the court is relieved of the burden of entering statements made at the hearing on the record, and at the same time to enable the recording of what was said at the hearing as accurately as possible, which contributes to the credibility of the evidentiary procedure. The recording of the hearing should make it possible to reflect its actual course and record all

19 See more on https://www.iusinfo.hr/aktualno/u-sredistu/uz-novelu-zakona-o-sudovima-iz-2024-o-obvezi-javne-objave-svih-sudskih-odluka-59686, Accessed 28 April 2025..

20 The Land Registry Database is a unique database for maintaining and maintaining cadastre and land registry data. Through this system, citizens can access data on the ownership structure of the property, its location in the space and many other functionalities.

events in the courtroom, which is often not the case with the minutes. It also increases transparency and faster access to information[21].[22]

In parallel with the sound recording project, it is planned that the digital recording of the audio recording will be sent to the Transcript Center after the hearing, where, with the use of artificial intelligence, a transcript would be obtained that would serve as an auxiliary tool for the work of judges and other officials in courts.

Also, the modernization of the Croatian judiciary is manifested through the possibility of holding hearings remotely. Namely, during the extraordinary circumstances caused by the COVID-19 pandemic, the need arose for the Judicial Constitution to continue its unhindered work as much as possible due to these extraordinary circumstances so that the parties would not be deprived of exercising their rights before the court. Regardless of the fact that it was originally designed to ensure the administration of justice in extraordinary circumstances, the benefits of remote hearings are numerous. Currently, all courts in Croatia are equipped with the necessary equipment to hold hearings remotely. Holding hearings remotely allows the courts to have more flexibility. It may be more convenient for witnesses or experts to give evidence without having to travel. Sensitive or intimidated witnesses will be exposed to less stress than in a courtroom full of people. Organizing remote hearings reduces the costs of all parties involved.

Also in the plan is a project related to the predictability of court decisions. Through the use of artificial intelligence, the goal is to strengthen the consistency of case law and make court decisions more objective by reducing the risk of bias and error. This requires the analysis of a large volume of court decisions through AI in order to make predictions for the outcome of certain types of cases. The application would benefit both citizens and judges. The issues of legal certainty and predictability of court decisions and the role of courts in the harmonisation of case law are of utmost importance, as they represent the basis of the rule of law. Citizens have a justified expectation that all members of society are treated in the same way (everyone is equal before the law). The tool would

21 On the use of sound recording in criminal justice, see *Burić* (2022). The Ninth Amendment to the Criminal Procedure Code – Modern Judiciary Ready for Future Challenges? Croatian Yearbook for Criminal Sciences and Practice, 29 (2), pp. 311-342., and *Valković/Gospočić* (2022). Videotechnology de lege lata and de lege ferenda in the light of respecting the right of the defendant to a fair trial, in: Newspapers in Criminal Legislation – 2022, Supreme Court of the Republic of Croatia and Judicial Academy, Opatija, 9–10 May 2022, pp. 127-138.

22 See more at *Maganić* (2020). Application of Electronic Technology in Civil Procedure // Novelties in Civil Procedure Law. Zagreb: Croatian Academy of Sciences and Arts (HAZU), pp. 79-109.

also serve to bring citizens closer to the justice system and to better understand the prospects of their case.

The goal is also to fully digitise files in courts. A pilot project is planned at four commercial courts, where they would work in a fully digital, paperless workflow, which would reduce the length of proceedings, as well as the backlog at commercial courts in Croatia

IV. Artificial intelligence in the judiciary

When it comes to artificial intelligence and law, discussions about the connection between these two concepts first appeared forty years ago outside of Croatia, when back in 1979 the first international conference on the application of artificial intelligence in law was held in Swansea, England. Ten years later, another similar conference was held in Vancouver, Canada, and in the years that followed, this topic became the subject of almost daily discussions and reflections.[23] Thinking in artificial intelligence in the judiciary is mainly related to increasing the efficiency and quality of the judiciary itself, through the inclusion of artificial intelligence in important segments of the judicial system.

As a great contribution to the development of this topic in Europe, the role of the Committee for the Efficiency of Justice of the Council of Europe (CSM) should also be emphasized. The Council of Europe European Commission for the Efficiency of Justice (CEPEJ), which at its session held in December 2018 adopted the European Charter on the Use of Artificial Intelligence in Justice. European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment[24] document defining the ethical principles used for the use of artificial intelligence in judicial systems.

Through this charter, the Committee has defined five basic principles related to the use of artificial intelligence in the judiciary, which refer to a wide range of stakeholders, primarily to users of systems with artificial intelligence within the judicial system, creators of such systems, and the legislative or execu-

23 *Berdica/Herceg Pakšić* (2022). Artificial Intelligence and Selected Aspects of Criminal Law. On some challenges for contemporary legal culture. Philosophical Research, 42 (1), p. 92.

24 https://www.europarl.europa.eu/cmsdata/196205/COUNCIL%20OF%20EUROPE%20-%20European%20Ethical%20Charter%20on%20the%20use%20of%20AI%20in%20judicial%20systems.pdf. Accessed on 28 April 2025.

tive power that is responsible for creating the legal framework and supervising the use of artificial intelligence tools.[25]

The basic principles of the Charter are: the principle of respect for fundamental rights, the principle of non-discrimination, the principle of quality and safety, the principle of transparency, impartiality and fairness, and the principle of "under the control of the user".

What should be emphasized is the fact that the use of artificial intelligence is increasingly present in everyday life and the functioning of society, and the real question is to what extent it will be present in the judiciary in the future. A legitimate question arises whether artificial intelligence can replace the person of the judge, or whether the human factor is more necessary and important when deciding in court proceedings. The dilemma is clear, and that is whether artificial intelligence can replace a judge or be an auxiliary tool in his work. The presence of artificial intelligence in the judiciary is achieved in three categories. The first category refers to those who create and apply the law (legislator, judges, state attorneys, officials, police), the second category refers to legal practitioners (primarily lawyers), while the third category includes those to whom the law applies (citizens, businessmen, organizations that were created on the basis of a legal norm and who use the law to achieve a goal).[26]

Currently, in Croatia, artificial intelligence is used in the judiciary to a limited extent, in the speech-to-text system used by judges and prosecutors.[27] Many legal systems, slowly and gradually and cautiously, are adopting legal tools based on the use of artificial intelligence.[28]

The Ministry of Justice, Public Administration and Digital Transformation is preparing the use of artificial intelligence in the processes of anonymization and pseudo-anonymization of court decisions and the establishment of an open database of anonymized court decisions. Given the database of all court decisions established in this way, it is also planned to establish digital assistance to judges in order to have easily accessible and searchable previous case law in cases with the same or similar facts when resolving specific cases. Also, the

---

25 See *Bilić Paulić*, European Charter on the Use of Artificial Intelligence in the Judiciary, IUS-INFO, 19.9.2019, available at: https://www.iusinfo.hr/aktualno/u-sredistu/39207 (28.04.2025).

26 *Surden*, Artificial Intelligence and Law: An Overview, 35 Ga. St. U. L. Rev. (2019). p. 1328.

27 It is a speech-to-text project that was part of a larger project "Improvement and Modernization of the Judicial System in the Republic of Croatia", which began in 2018.

28 *Đurđević/Ivičević Karas* (2023). The Use of Artificial Intelligence in Croatian Criminal Procedure: Current Situation and Perspectives. Croatian Yearbook for Criminal Sciences and Practice, 30 (2), p. 229.

availability of all court decisions would allow citizens to see case law in similar cases and assess the success of a potential dispute. This will certainly lead to the parties assessing whether it makes sense to engage in court proceedings if, according to the previous case law, the chances are not good. All these efforts of the Ministry of Justice, Administration and Digital Transformation are aimed at harnessing the contributions of AI tools to the efficiency of justice.

These projects will be implemented taking into account the guidelines set out in the aforementioned CEPEJ European Charter on the Use of Artificial Intelligence in the Judiciary.

It remains to be seen in which part of the judiciary artificial intelligence will be present in the future. What is quite certain, since it is already used in this segment, artificial intelligence will be present primarily as an auxiliary and advisory tool for judges and prosecutors in their daily work. What has been intensively discussed in the last few years is the more significant use of artificial intelligence in making specific court decisions.

Namely, courts do not only decide on cases through the formal application of legal norms, but also take into account legal principles and fairness through the inclusion of the human subjective factor in decision-making and thus through taking responsibility for the decisions they make.[29]

V. Conclusion

Digitalisation is a process that is increasingly present in various areas of life, both in the everyday life of an individual and in the work of administrative and judicial bodies. What the digitalisation process brings to the judiciary is a powerful tool through which the efficiency of the system can be influenced. The data available through the eSpis system can determine the anomalies that exist in the conduct of judges, prosecutors, attorneys, notaries and other stakeholders of the judicial system and enable the line ministry to react in a timely manner. The COVID-19 pandemic has further intensified the process of digitalisation that has been present in the judiciary since the 1970s. In order for the digitization process to be as successful as possible, the engagement of all stakeholders in the system is required. Also, there is a need for the general public to be more informed about digital services and tools that facilitate access to justice.

29 *Tamošiūnienė/Terebeiza/Dorzhinkevič* (2024). The Possibility of Applying Artificial Intelligence in the Delivery of Justice by Courts. A Journal of Vytautas Magnus University, 17(1). p. 211.

It should also be emphasized that the digitalisation process must necessarily be accompanied by investment in cyber security, given that in the future almost the entire system will be based on digital tools and systems. In such a digital environment, the entire system can become vulnerable to cyberattacks. For this reason, in parallel with investing in digitalisation, cybersecurity should also be invested. When it comes to the increasing use of artificial intelligence, it is certain that it will be even more present in the judiciary in the future. There is certainly the question of whether the use of artificial intelligence in the judiciary will go in the direction of making automated decisions based on artificial intelligence tools. Since the achievement of justice is one of the fundamental roles of the court or judge in a specific case, the question arises whether a system such as artificial intelligence can correctly apply the legal principles or values that are protected. Further digitalisation of the judiciary, and especially the use of artificial intelligence in the judiciary, will certainly be discussed in the time ahead.

The aim of this volume is to address specific theoretical and practical issues regarding different aspects of digital transformation in society. Algorithmic decision-making and artificial intelligence are among the key drivers and enablers of digital transformation. They bring about a world of opportunities, but also impose numerous novel ethical and legal issues. Unprecedented interconnectedness and access in the cyberspace, where everything is readily available, give rise to many issues concerning the transfer and impact of new technologies from the digital world on social relations in the 'real' world. There is a dichotomy between accelerated development of the digital world and limited capacities of existing institutions, communities and individuals to absorb these seemingly unlimited possibilities. New, digital legal landscapes are emerging.

Logos Verlag Berlin

ISBN 978-3-8325-5962-5