THE LEGAL ISSUE OF DETERRENCE OF ALGORITHMIC CONTROL OF DIGITAL PLATFORMS: THE EXPERIENCE OF CHINA, THE EUROPEAN UNION, RUSSIA AND INDIA

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The authorities in a number of states are concerned about the need for public disclosure of the recommendation algorithms that are used in online services. The introduction of regulations aimed at software developers is frequently proposed as a potential solution to this problem of algorithm transparency. These requirements, which must be fulfilled by the developers of software products, can be administrative regulations or standards regulations. However, despite these efforts, in the absence of direct legislative regulation, users continue to encounter the possibility that a social network feed or a search service result may present content that is unequal or unclear. This is due to the fact that the logic behind these recommendations is not clear and is concealed by IT giants. The following are among the main provisions of legislative initiatives: the liability of digital platforms to publish the mechanisms of recommendation services, the responsibility to inform the user about the processing of personal data and the possibility for the user to refuse such processing. States have recognized the problem and are approaching it from different positions. Each region chooses what to prioritize in terms of the law. We see that for China and Europe, all areas of platforms are important, whereas for Russia, news platforms and video hosting are of interest and for India, social media is the most important platform category. However, in all of the countries, the requirements for the disclosure of the

recommendation engine to a certain extent are expanding. The amount of information that is publicly available as well as the order in which it is disclosed are both variable. This study demonstrates the commonalities and differences in the approaches taken by various countries.

Keywords: artificial intelligence; digital platform; recommendation system; big data; personal data.

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Introduction

Digital platforms are becoming increasingly important for a wider range of businesses, and are essentially an element of the architecture of the digital economy proper. Moreover, a digital platform is often the only way to launch a business as a whole. For example, in the case of streaming services, video hosting and cloud services, it is impossible to develop an effective analogue that functions without constant access to the Internet. Many services, such as ordering a taxi, food delivery, communications, telecommunications among others, have recently transformed to such an extent that they have become a platform or part of an ecosystem. The term platforms is used by scholars and researchers to mean "sites and services that host

public expression, store it on and serve it up from the cloud, organize access to it through search and recommendation."[1]

According to R. Alt, the domains of business intelligence (BI), big data (BD) and social media analytics (SMA) stand out from the standpoint of sustainable corporate information models because they gather the appropriate amount of information to enhance the effectiveness of business operations.[2] As a result, they are utilized by decision makers as a basis for automated systems, which also include adaptive skills, or more specifically, functionality for machine learning.

The term "online platforms" describes a broad category of digital businesses that provide a central hub that serves as a meeting place for two or more different groups of users over the Internet. Examples include search engines, online marketplaces, the collaborative or sharing economy and social networks.[3] According to some scholars, it is necessary to highlight two important aspects: (a) digital platforms as online intermediaries come between and facilitate the connection of others and (b) the content they transmit is produced by others. Unlike previous technologies, the multi-tiered modular architecture of digital platforms fuels generativity, defined as the ability of a platform to promote unprompted innovation through continuous recombination of different modules.[4] According to researchers, "leading digital platform companies have used generativity combined with efficient management to achieve positive network effects, value creation, and scalability."[5] Next-generation digital platforms are starting to develop as a result of artificial intelligence (AI) technology. These technologies provide endless opportunities for human-machine interaction in order to handle the process on digital platforms.

Big data technology is important for the application of artificial intelligence on platforms of all kinds. Artificial intelligence is the general term for the capacity of a computer to do cognitive functions that we connect with the human mind, such as perception, reasoning, learning, interacting with the environment, solving problems, making decisions and even demonstrating creative abilities (AI).[6] And all of this is made possible by attracting big data.

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1 Tarleton Gillespie, *Governance of and by Platforms*, in SAGE Handbook of Social Media 254 (2017); Howard Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. Pa. L. Rev. 1663 (2012).

2 Rainer Alt, *Electronic Markets on Digital Platforms and AI*, 31(2) Electron. Mark. 233 (2021).

3 House of Lords, Select Committee on European Union, *Online Platforms and the Digital Single Market*, 10th Report of Session 2015–16 (Feb. 2, 2023), available at https://publications.parliament.uk/pa/ld201516/ldselect/ldeucom/129/129.pdf.

4 Arun Rai et al., *Next Generation Digital Platforms: Toward Human-AI Hybrids*, 43(1) MISQ iii-ix (2019).

5 Panos Constantinides et al., *Introduction – Platforms and Infrastructures in the Digital Age*, 29(2) Info. Systems Res. 381 (2018); Peijian Song et al., *The Ecosystem of Software Platform: A Study of Asymmetric Cross-Side Network Effects and Platform Governance*, 42(1) MISQ 121 (2018).

6 Указ Президента Российской Федерации от 10 октября 2019 г. № 490 «О развитии искусственного интеллекта в Российской Федерации» (вместе с «Национальной стратегией развития искус-

Data for artificial intelligence operations are collected from separate digital platforms or from intermediate data platforms containing partially pre-processed data.[7]

In order to (at least partially) automate the data preprocessing operation itself and to detect whether or not the data have changed, AI algorithms have been utilized in predictive models (so-called concept drift or data drift[8]). Additionally, the function of platform providers, often known as gatekeepers, affects data access. These providers may elect to transfer or sell data to third parties in specific circumstances, but they may also decide to keep the data for their own use. There are a number of large-scale tech platforms with business structures that raise questions about how they use their power. In one review, the founder of several Internet companies assessed that this quasi-oligopolistic market structure could be detrimental to innovation and user freedom.[9] The recent investigation by the European Commission into Facebook, which is accused of manipulating advertising data from its online marketplace and online dating platform illegally to obtain a competitive advantage for its own services, is one instance where this is apparent.[10]

The European Commission opened an investigation into Facebook in 2019 pertaining to the company's suspected misuse of user data to impede competition.[11] More recently, the Commission launched a new antitrust probe in 2021 into Facebook's use of information gathered from advertisers.[12] The Commission is debating whether Facebook enjoys an unfair competitive advantage in the market for online classified ads where it competes with businesses from which it obtains data.[13]

In addition to the aspect of competition associated with the use of platform users' data for the purposes of artificial intelligence systems, the most important

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ственного интеллекта на период до 2030 года») // СПС «КонсультантПлюс» [Presidential Decree No. 490 of 10 October 2019. On the Development of Artificial Intelligence in the Russian Federation (with the "National Strategy for the Development of Artificial Intelligence for the period until 2030"), SPS "ConsultantPlus"] (Feb. 2, 2023), available at https://www.consultant.ru.

7 Boris Otto et al., *Information and Data Quality in Networked Business*, 21(2) Electron. Mark. 79 (2011).

8 João Gama et al., *A Survey on Concept Drift Adaptation*, 46(4) ACM Computing Surveys 1 (2014).

9 Andreas Göldi, *A Blind Spot for the Dark Side: The Monopolies We Didn't See Coming*, 30(1) Electron. Mark. 55 (2020).

10 Sam Schechner, *Facebook's Marketplace Faces Antitrust Probes in EU, UK*, Wall Street Journal, 4 June 2021 (Feb. 2, 2023), available at https://www.wsj.com/articles/eu-and-u-k-open-antitrust-probes-into-facebook-11622800304.

11 Elyssa Diamond, *Distrust & Antitrust: Using Facebook to Understand Competition Law's Role in Regulating Data and Data Privacy Concerns Around the World*, 45(5) Fordham Int'l L.J. 873 (2022).

12 Press Release, Eur. Comm'n, *Antitrust: Commission Opens Investigation into Possible Anticompetitive Conduct of Facebook*, 4 June 2021 (Feb. 2, 2023), available at https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2848.

13 Diamond 2022.

issue is user safety. This is because with algorithms the systems gain the ability to limit the user's information field, thereby immersing the user in an information bubble that is as complimentary as possible to his beliefs. In information societies, algorithmic selection has emerged as a significant source of both social order and shared social reality. Automated algorithmic selection applications influence people's daily realities, worldviews, and behavior.[14] Many people have long known that the main task of algorithms is to keep users in front of the screen and make them view their feed for as long as possible. For all that, it is the negative emotional content that engages audiences the most, such as false information, conspiracy theories, extremist and offensive statements and other destructive content,[15] which the online platforms do not effectively combat.

Thus, as C. Scardovi notes,

> The new problem of critical issue to address is to make sure the "great disruption" [which] will bring about a greater value for the multitudes will be around the ownership, management and utilization of data – avoiding the insurgence of a few "big brothers" that could build a quasi-monopolistic positioning in the market – hence stifling competition value-sharing for customers.[16]

1. Digital Platform Business Models: Recommendations and Manipulations

The range of digital platform monetization models is incredibly extensive.[17] The most common models include the following:

• Advertising is the main platform monetization model, which is often used along with other models, and in the case of the largest digital players (such as Yandex, Google, Amazon), is the primary source of income for the platform operator. The ability of platforms to leverage the attention of their users allows them, to this day, to generate enormous revenues from advertising services alone.

• Commission in which the platform frequently acts as an intermediary between the seller and the buyer, and takes a certain fee for its services.

• The Freemium business model implies that the platform provides a service for free, but to use the additional functionalities, users have to purchase a full version or

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[14] Natascha Just & Michael Latzer, *Governance by Algorithms: Reality Construction by Algorithmic Selection on the Internet*, 39(2) Media, Culture & Soc'y 238 (2017).

[15] Lee Rainie et al., *The Future of Free Speech, Trolls, Anonymity and Fake News Online*, Pew Research Center, Washington, DC (2017).

[16] Claudio Scardovi, *Digital for the Greater Good,* in Digital Transformation in Financial Services 187 (2017).

[17] Tobias Mini & Thomas Widjaja, *Tensions in Digital Platform Business Models: A Literature Review*, ICIS (2019).

pay a subscription among other options. For example, watching videos on YouTube without the accompanying advertising is possible only with a YouTube Premium subscription; the ability to listen to music in the social network VKontakte with the screen turned off requires a subscription to VK Boom.

• An Extended Access model assumes that all platform users are granted access to it on equal terms, but for a certain fee, the user can be guaranteed additional advantages in its use compared to other users, such as highlighting and raising ads on Avito and Cian and accessing closed sales on Yandex.Market, Ozone and Farfetch.

There are also other ways of platform entrepreneurship. It is important to note, however, that a digital platform is not limited to using only one model.

The early years of this connected world were idealized as a free and open civic forum: a place where diverse opinions, thoughts and conversations might come together in a positive way.[18] Not only were the technical properties of the platforms assessed, but also the benefits that users can derive from their use (the result of user interaction).[19] Several studies suggest that user interaction results in a transaction or innovation.[20] By the term "transaction," it is understood to mean the actual actions of platform users aimed at the purchase of goods, works and services, as well as the exchange of information; by the term "innovation," we mean the actual actions of platform users aimed at the creation or development of a new product, technical solution or technological process. The following are some examples of the term "transaction": money transfers, purchase of goods through advertisements, booking hotel rooms, online distribution of movies and so on. Examples of innovations include: developing a smartphone application, a software algorithm design or a software library.

Recommender Systems serve as individualized decision aids that can assist users in making choices pertaining to concerns of personal preference.[21] Data access as the main problem of the digital platform is most evident in the operation of recommendation systems. Software tools and procedures called recommender systems (RSs) propose products that are most likely to be of interest to a particular user.[22] The recommendations are made in relation to numerous decision-making

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18 Rainie et al. 2017.

19 Carla Bonina et al., *Digital Platforms for Development: Foundations and Research Agenda*, 31(6) Info. Systems J. 869 (2021).

20 Natalia Simchenko et al., *Digital Platforms of Networking in Industry*, 753(6) IOP Conference Series: Materials Science and Engineering (Article 062005) (2020).

21 Rashmi Sinha & Kirsten Swearingen, *The Role of Transparency in Recommender Systems*, in CHI' 02 Extended Abstracts on Human Factors in Computing Systems 830 (2002).

22 Tariq Mahmood & Francesco Ricci, *Improving Recommender Systems with Adaptive Conversational Strategies*, in Proceedings of the 20th ACM Conference on Hypertext and Hypermedia 73 (2009).

processes, such as what to buy, what music to listen to[23] or what news to read online.[24] The goal of the recommendation system is to predict the user's behavior with regard to the subject of his or her information search and to provide recommendations for subjects the user has not yet come into contact with.[25]

In computer science, in its most general form, recommendation systems are presented as a sub-technology of artificial intelligence. It is a class of solutions that provides process performance without human input, assistance in choosing decisions, and prediction of objects that will be of interest to the user.[26]

In the process, recommendation systems collect data about users using a combination of explicit and implicit preference elicitation methods,[27] analyzing user responses to questionnaires and answers to questions relating to their degree of satisfaction; analysis of direct individual preferences; as well as data on user browsing of certain content online; individual online browsing behavior and user activity tracking patterns.

D. Shin hypothesizes that

> the heuristic effect occurs when users' subjective feelings about transparency and accuracy act as a mental shortcut: users considered transparent and accurate systems to be convenient and useful. The mediating role of trust suggests that establishing algorithmic trust between users and NRS [news recommender system] can enhance algorithm performance.[28]

As a result of a wider perspective on combating illegal content online and the concerns to request proactive (automated) measures from online intermediaries, scholars have taken an interest in the impact of disinformation initiatives on freedom of expression, media pluralism and the exercise of democracy. Many of these initiatives are based on automated decision-making systems using artificial intelligence to cope with the scale of content being shared.[29] The impact of recommended services on

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23 Kirsten Swearingen & Rashmi Sinha, *Beyond Algorithms: An HCI Perspective on Recommender Systems*, 13(5–6) ACM SIGIR, Workshop on Recommender Systems 1 (2001).

24 Francesco Ricci et al., *Introduction to Recommender Systems*, in Recommender Systems Handbook 1 (2011).

25 Marco de Gemmis et al., *Semantics-Aware Content-Based Recommender Systems*, in Francesco Ricci et al. (eds.) Recommender Systems Handbook 119 (2015).

26 *See* the 2019 Roadmap for the Development of "end-to-end" Digital Technology "Neurotechnology and Artificial Intelligence" (Feb. 2, 2023), available at https://digital.gov.ru/.

27 Gediminas Adomavicius & Alexander Tuzhilin, *Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions*, 17(6) IEEE Transactions on Knowledge and Data Engineering 734 (2005).

28 Donghee Shin, *How Do Users Interact with Algorithm Recommender Systems? The Interaction of Users, Algorithms, and Performance*, Comput. Hum. Behav. 109 (Article 106344) (2020).

29 Chris Marsden et al., *Platform Values and Democratic Elections: How Can the Law Regulate Digital Disinformation?*, 36 Computer L. & Security Rev. (Article 105373) (2020).

user awareness and pricing for different consumer groups has also increased in importance.

Moving away from data-centric assessment criteria and towards user-centered assessment criteria is also a significant subject in recommender systems, particularly in user-centric systems.[30]

When using apps with recommender systems, the users are constantly exposed to different stimuli (such as visual, auditory and so on) that cause them to feel different emotions. According to the bounded rationality model,[31] these feelings influence the user's decision regarding which content to select, at least in part. All of this has caused digital platforms to be viewed as algorithmic agents.[32] The application that makes up the recommender system must therefore be able to recognize and effectively adopt emotive data.

There have been numerous instances in which suggestions have worked in an undesirable way. For example, in the summer of 2021, researchers discovered that YouTube's recommendation engine recommended problematic videos that violated the online platform's own rules: unwanted content, selected by artificial intelligence, accounted for 71 percent of the total number of videos viewed by the experiment's participants.[33] According to experts the survey indicates that there is an "inherent contradiction" between YouTube's algorithms, some of which recommend undesirable videos while others attempt to remove them. At the same time, the platform refuses to disclose information about how its recommendation engine works.

In 2021, a Facebook[34] insider, Frances Haugen, described in detail how the social network's recommendation service is organized. In September, *The Wall Street Journal*[35] described how Facebook algorithms incite aggression and hate among users; how the social network is used for criminal purposes; how it spreads false information about the pandemic coronavirus and vaccination and how Instagram, Facebook's media partner, damages the self-esteem and psyche of teenagers by causing suicidal

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30 Marko Tkalcic et al., *Affective Recommender Systems: The Role of Emotions in Recommender Systems*, in Proceedings of The RecSys 2011 Workshop on Human Decision Making in Recommender Systems 9 (2011).

31 Daniel Kahneman, *A Perspective on Judgment and Choice: Mapping Bounded Rationality*, 58(9) The American Psychologist 697 (2003).

32 Balazs Bodo et al., *Tackling the Algorithmic Control Crisis – The Technical, Legal, and Ethical Challenges of Research into Algorithmic Agents*, 19 Yale J.L. & Tech. 133 (2017); Evangelos Kranakis & Danny Krizanc, *An Algorithmic Theory of Mobile Agents*, Conference paper, International Symposium on Trustworthy Global Computing 86 (2006).

33 *YouTube's Search Algorithm Directs Viewers to False and Sexualized Videos, Study Finds*, Wall Street Journal, 7 July 2021 (Feb. 2, 2023), available at https://www.wsj.com/articles/youtubes-search-algorithm-directs-viewers-to-false-and-sexualized-videos-study-finds-11625644803.

34 Meta Corporation, which owns the social network, is recognized as extremist and banned in the Russian Federation.

35 *The Facebook Files*, A Wall Street Journal Investigation, 1 October 2021 (Feb. 2, 2023), available at https://www.wsj.com/articles/the-facebook-files-11631713039.

thoughts. Algorithm formation is allegedly designed so that people spend as much time as possible in empty discussions, insulting each other in the comments, because Facebook makes money on this. Facebook loses money and views when such content is blocked. From all of this one may conclude that the "Like and Share" functions, the platform's main tools, accelerate the spread of hate speech. This conclusion is in fact stated in the study titled "Collateral Damage." After all, basic product mechanics such as viral activity, recommendations and optimizing for engagement are a significant part of why these types of speech flourish on the platform.[36]

Policymakers and lawmakers worldwide are concerned about the issue of containing through regulation the control that informational digital platforms have over algorithms.[37] One clear idea today is to require that the algorithm recommendations be disclosed to the public. This is necessary so that the user understands how the service works, what data about it may be used and for what purposes. We are talking about making the recommendation service as transparent as possible, so that users will have confidence in the algorithmic recommendations, but they will also have the option to disable the suggestions.

Various studies have been conducted to explore the issue of transparency in the algorithms used to determine recommendation system selection. For example, the role of transparency in music recommendation systems has tentatively shown that users like recommendations that they perceive to be transparent and feel more confident about using.[38]

According to the findings of researchers L. Zhou and colleagues,

> (1) product transparency, vendor transparency, and transaction transparency significantly affect perceived information transparency; (2) perceived information transparency significantly increases consumers' online purchase intention; and (3) perceived risk partially mediates the effect of perceived information transparency on purchase intent.[39]

At the same time, the Regional Public Center for Internet Technologies (ROCIT) conducted a study of users' perceptions of recommendation engines. According to the survey, 77.5% of respondents believe that recommendation algorithms are a form of advertising. In this case, more than 48% of respondents believe that such

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[36] *The Facebook Files*, *supra* note 35.

[37] Godofredo Ramizo, *Platform Playbook: A Typology of Consumer Strategies against Algorithmic Control in Digital Platforms*, Info., Comm. & Soc'y 1 (2021); Alex J. Wood et al., *Good Gig, Bad Gig: Autonomy and Algorithmic Control in the Global Gig Economy*, 33(1) Work, Emp. & Soc'y 56 (2019).

[38] Sinha & Swearingen 2002.

[39] Liying Zhou et al., *Perceived Information Transparency in B2C e-commerce: An Empirical Investigation*, 55(7) Info. & Mgmt. 912 (2018).

technology does not impact their decisions of purchasing items or services, and 53.2% declare that the suggestions cannot force them to buy a product or service (the opposing opinion is held by 33% of respondents). More than half of those surveyed (53.1%) believe that algorithms do not influence their choice of movies or television shows. At the same time, the vast majority of respondents (74%) would like to be able to disable recommendation engines. Approximately 11% of users do not agree with such a statement, and another 15% find it difficult to answer this question.

Surveys also reveal that many advertisements are contentious because they evoke wildly disparate responses from people in various socially important groups. The controversial advertisements target segments of society that are most resentful of the status quo. In addition, experts support proposals for more targeted political and commercial advertising as well as greater content transparency. For instance, Facebook's advertising application programming interface (API) enables such targeting by making available the enormous quantity of user-specific data that Facebook collects and provides to advertisers.[40]

The next step towards transparency should be the option for users to disable the recommendation engine with one click, prohibit processing of personal data, discontinue using the service and so on; thereby protecting their fundamental rights and freedom of choice. Regulation of the mechanisms and algorithms of the output of recommendation systems, including measures to protect children from certain types of content, the use of targeted advertising and attempts to manipulate users, is already underway in different states.

2. Legal Opportunities for Improving the Transparency of Recommendation Systems to Users' Protection

The problem of ensuring the transparency of recommendation algorithms has two possible solutions. The first would be the direction of self-organization of information technology (IT) companies to provide users with the most comfortable service.

Companies develop "privacy notices" for their websites that explain what the project is about, what research questions the platform operators are investigating, what kinds of data are collected, how data is used, whether data is shared with other players and how that data is protected. Moreover, providing clear information shows users that the company values them and wants their direct participation. Ideally, openness and clarity about what the platform does with the data provided will gain the trust of users and make them active participants in the research rather than mere subjects of research.

The second is to create strict regulation of this area. From a legal point of view, the use of recommendation systems comes up against the legal framework that governs

[40] Filipe N. Ribeiro et al., *On Microtargeting Socially Divisive Ads: A Case Study of Russia-linked Ad Campaigns on Facebook*, in Proceedings of the Conference on Fairness, Accountability, and Transparency 140 (2019).

the personal data of a citizen. The issue of data flow is now of critical importance in all jurisdictions. China, one of the leaders of the digital economy, introduced a "digital dictatorship" on 1 September 2022 and declared the personal data of its citizens a national treasure.[41] In the European Union, the Digital Services Act[42] (DSA) has been drafted. In Russia, the concept of publicly available data has been introduced, establishing a common approach to the digital profile of individuals, and there is an ongoing discussion about the general obligation to disclose the algorithm of recommendation systems for certain types of platforms.[43]

2.1. China's Experience: Managing Recommendation Algorithms

Since 1 March 2022, there has been a rather radical regulation in place in China that states "either declare or leave the market." According to the Regulation on the Management of Algorithmic Recommendations of Information Services on the Internet (hereinafter, the Regulation), the emphasis is precisely on algorithmic recommendations. The "application of algorithmic recommendation technologies"[44] refers to actions in which such types of algorithmic technologies as (a) generation and synthesis (data); (b) personalized suggestions; (c) sorting; (d) search and filtering (data) and (c) prediction and decision selection are used when providing information to users (Art. 2, para. 2 of the Regulation). These rules are addressed to algorithmic recommendation service providers. The recommendation algorithms must be created taking into account ethical guidelines (social, business and professional ethics) and following the principles of impartiality, fairness, openness and transparency; scientific rationality; honesty and integrity (Art. 4 of the Regulation).

The Regulation takes precedence over rules contained in other acts, including laws and administrative regulations (Art. 2 of the Regulation). At the same time, some of the regulations are partially based on other acts, such as the People's Republic of China Cyber Security Law,[45] the People's Republic of China Data Security Law,[46] the

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41 互联网信息服务算法推荐管理规定, available at http://www.cac.gov.cn/2022-01/04/c_1642894606364259.htm.

42 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 (Feb. 2, 2023), available at https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM%3A2020%3A825%3AFIN.

43 В России могут частично отменить рекомендательные алгоритмы интернет-сервисов // Ведомости. 19 мая 2022 г. [*In Russia, Recommender Algorithms for Internet Services May Be Partially Canceled*, Vedomosti, 19 May 2022] (Feb. 2, 2023), available at https://www.vedomosti.ru/technology/articles/2022/05/18/922642-otmenit-rekomendatelnie-algoritmi?ysclid=l45fakv5tn238038620.

44 算法推荐技术 – Algorithmic Recommendation Technology.

45 中华人民共和国网络安全法 (Feb. 2, 2023), available at http://www.npc.gov.cn/zgrdw/npc/xinwen/2016-11/07/content_2001605.htm.

46 中华人民共和国数据安全法(Feb. 2, 2023), available at http://www.npc.gov.cn/npc/c30834/202106/7c9af12f51334a73b56d7938f99a788a.shtml.

People's Republic of China Personal Information Protection Law (PIPL),[47] which came into force on 1 November 2021 and the Internet Information Services Regulatory Measures.[48]

Furthermore, the Regulation contains several sections regulating different areas of the creation and application of recommendation systems. In terms of technical requirements for information services, Article 10 of the Regulation states that algorithmic recommendation service providers must manage user models and user tags (including allowing the user to select or remove tags related to their personal characteristics at their discretion – Art. 17), improve rules for geo location and recommendations of so-called "points of interest" (PoI) for user visits, and must not record illegal and undesirable information. Moreover, within the meaning of Article 12 of the Regulation, it is the duty of the algorithmic recommendation service provider to "optimize" the transparency and interpretability of rules, such as searching, sorting, selection, presentation and display of content, in order to protect users from the adverse effects of undesirable content.

The phrase "optimize (优化) the transparency and interpretability of the rules" for recommender algorithms refers to the two responsibilities of the recommender service provider – to optimize the interpretability of the algorithms and to optimize the transparency of the algorithms. The provider of algorithmic advice services must clearly inform users about the provision of algorithmic recommendation services and properly publish the basis, purpose and basic working mechanism of the algorithmic recommendation service (Art. 16 of the Regulation). Article 17 of the Regulation specifically emphasizes that the recommendation systems cannot base their offers on the user's personal profile, which allows stating the establishment of a non-discriminatory mechanism of user access to various kinds of information services and products. Additionally, users must be provided with convenient options for disconnecting the services of algorithmic recommendations. If the user decides to disable the service of algorithmic recommendation services, the provider of such services must immediately terminate the provision of the mentioned services. Users of a number of popular mobile apps in China, such as Toutiao (今日头条), Douyin (抖音, Tik-tok), Kuaishou (快手), Ele.me (饿了么), Taobao (淘宝) and Meituan Waimai (美团外卖), are now able to turn off personalized recommendations. Special rules are also in place for making recommendations for minors and the elderly.

According to the Regulation, China requires registration of algorithms for recommendation systems. This registration is intended to ensure that the authorized cybersecurity and information authorities (state, province, autonomous region or

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[47] Personal Information Protection Law of the People's Republic of China [中华人民共和国个人信息保护法] (Feb. 2, 2023), available at https://www.pkulaw.com/en_law/d653ed619d0961c0bdfb.html.

[48] 联互网信息服务管理办法(Feb. 2, 2023), available at http://www.gov.cn/gongbao/content/2000/content_60531.htm.

central city) are notified of the risks of the algorithms used in practice in accordance with Article 25 of the Regulation. Full disclosure of technological solutions, the source code of algorithms, which is a hotly discussed subject in other countries, is not a subject for registration in China.

2.2. The European Union: Deterring Manipulation (Manipulating Users' Choices)

In the European Union, the introduction of the General Data Prevention Regulation (GDPR) and the Digital Services Act (DSA) Regulation was an important step in the development of legislation in the direction of transparency. Transparency is a central principle in the GDPR, as it promotes the strengthening of lawful and fair processing of personal data, accountability, and rights of individuals whose personal data are "collected, used, consulted or otherwise processed" (Recital 39, GDPR). The principle of transparency of data processing requires that the information provided to the data subject is "concise, easily accessible and easy to understand" (Recital 58, GDPR) and also that the data subject be informed "of the existence of the processing operation and its purposes" (Recital 60, GDPR). It may be argued that algorithmic transparency has a limited applicability since Article 22 only applies to "decisions based solely on automated processing." This could mean that a sort of a "right of explanation" for the data subject, together with the safeguards outlined in Article 22(3), may not be applied whenever there is even a minimal human intervention.[49]

It is worth noting the contrast between the transparency increasingly expected from Internet giants or governments, on the one hand, and the relative opaqueness promoted by regulations such as the General Data Protection Regulation (GDPR), regarding personal privacy. This different treatment is intended, at least in part, to correct the current asymmetry of information between these players and to restore citizen confidence.[50]

Under the new DSA rules, access to platforms' algorithms is now possible. The DSA specifies a number of strategies, including improved governance, increased openness and outcome monitoring. Online platforms that provide intermediary services, such as social media and marketplaces, will need to take precautions to keep their users from accessing illegal goods, services and content. Users will be better informed about the suggestions made for their content. The algorithms of extremely big internet platforms will be made available to the European Commission as well as all the member states. There are additional bans on targeting ads towards minors as well as targeting based on sensitive data.

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[49] Sandra Wachter et al., *Why a Right to Explanation of Automated Decision-making Does Not Exist in the General Data Protection Regulation*, 7(2) Int'l Data Privacy L. 76 (2017).

[50] Serge Abiteboul, *The Quality, Fairness, Transparency and Accountability of Algorithmic Decisions*, 13 Digital Issues, Confidence (March 2021) (Feb. 2, 2023), available at https://www.annales.org/edit/enjeux-numeriques/DG/2021/DG-2021-13/EnjNum21a_12Abiteboul.pdf.

In addition to the transparency of data and systems, there needs to be disclosure regarding the degree to which the AI system influences organizational decision-making and the factors that led to the decision to use it.[51]

The DSA also stipulates the following aspects of algorithmic transparency:

Fundamental rights to be protected online: stronger safeguards to ensure notices are processed in a "non-arbitrary and non-discriminatory manner" and with respect for fundamental rights, including freedom of expression and data protection;

More responsible online marketplaces: these marketplaces have to ensure that consumers can purchase safe products or services online by strengthening checks to prove that the information provided by traders is reliable (also known as the "Know Your Business Customer" principle) and making efforts to prevent illegal content from appearing on their platforms, including through random checks;

New transparency obligations for platforms: users will be better informed about how content is recommended to them (recommender systems) and will also be able to choose at least one option not based on profiling;

Manipulating users' choices through "dark patterns" will be prohibited: online platforms and marketplaces should not nudge people into using their services, for example by giving more prominence to a particular choice or urging the recipient to change their choice via interfering pop-ups. Moreover, cancelling a subscription to a service should be as easy as subscribing to it.

In contrast to the present debate in the European Parliament, the U.K. government has declared that it will pursue specific approaches to AI regulation and advisory algorithms. European officials intend to categorize AI technologies into different risk categories. The riskier the technology the stronger the rules will be, even going as far as a ban. On the other hand, the British want to switch from a generic to an individual approach, allowing businesses to show the regulator that a certain solution is secure.[52] The idea proposed in the United Kingdom is intriguing since it has some similarities to the Chinese law, which requires programmers to justify the logic behind their algorithms to Communist Party officials. The trend is clear: all digital powers hold firms directly accountable for the threats that their technologies pose to society because they are aware of the dangers of the AI sector's unchecked growth.

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[51] European Parliament, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Building Trust in Human Centric Artificial Intelligence (COM(2019)168).

[52] *Establishing a pro-innovation approach to regulating AI*, Policy paper (2022) (Feb. 2, 2023), available at https://www.gov.uk/government/publications/establishing-a-pro-innovation-approach-to-regulating-ai/establishing-a-pro-innovation-approach-to-regulating-ai-policy-statement.

2.3. The Indian Experience: Message Verification and Social Media Ethics

New regulations under the Information Technology Act, 2000[53] (IT Act) for monitoring social media and digital media platforms have been notified by the Ministry of Electronics and Information Technology, Government of India, following years of deliberations and arguments. The new regulations, known as the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (Intermediary Guidelines) among other things, have the dual goals of (a) increasing social media platforms' accountability to prevent abuse and misuse, and (b) empowering social media users by establishing a three-tiered grievance resolution mechanism. The Information Technology Intermediary Guidelines have been replaced by the Intermediary Guidelines, which were created in accordance with section 87(2) of the IT Act (Intermediary Guidelines).

The rules that were set via notification in India on 25 February 2021 and that went into effect on 26 May 2021 consist of three parts: the first part covers definitions in the rules; the second part covers intermediaries' due diligence and the third part covers the Code of Ethics and Procedure and Safeguards in relation to digital/online media.[54] These Rules strike the perfect balance between a permissive approach and a soft self-regulatory structure. In addition, protection from inappropriate user-generated content is offered by the new information technology rules 2021s guidelines and restrictions.

According to researchers, these regulations aim to regulate social media and digital news platforms and hold users and tech giants more accountable in the modern day. Under this legislation, important social media intermediaries are also subject to regulation.[55]

Furthermore, under this act, widely used social media intermediaries that primarily offer messaging services are required to make it possible to identify the original source of information when it is needed only for the prevention, detection, investigation, prosecution or punishment of an offense related to India's sovereignty and integrity; the security of the State; friendly relations with other countries; public order or the incitement of an offense. The intermediary is not compelled to reveal to the first originator the contents of any communication or any other information.[56]

In addition to setting up automated systems for content filtration and notifying users if their accounts have been blocked with reasons for doing so, social media

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[53] Government notifies Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021 (Feb. 2, 2023), available at https://pib.gov.in/PressReleseDetailm.aspx?PRID=1700749.

[54] *Id.*

[55] Amit Kumar & Amaresh Jha, *Information Technology Rules, 2021 of India in Dock! A Critical Evaluation of the Guidelines for Intermediaries and Digital Media Ethics Code*, 20(48) Global Media J. 1 (2022).

[56] Matthew Barnidge & Michael A. Xenos, *Social Media News Deserts: Digital Inequalities and Incidental News Exposure on Social Media Platforms*, New Media & Soc'y (2021).

networks, particularly Twitter, must change their user interfaces to clearly identify verified users from others. Platforms such as Facebook will also need to develop a new user interface for India that will allow users to verify users using valid know-your-customer (KYC) procedures and display a verification tag for those who want this.[57]

In India, there is an emphasis on user verification to control fake news and hate speech. There is also a focus on content filtration. Moreover, attention is also paid to the problem of blocking user accounts. The following is stated in the Rules regarding giving users a chance to be heard: In cases where significant social media intermediaries remove or disable access to any information of their own volition, a prior notification of the same shall be communicated to the user who shared that information with a notice explaining the grounds and reasons for such action. Users must be provided an adequate and reasonable opportunity to dispute the action taken by the intermediary.

Furthermore, it should be emphasized that in India, the Code of Ethics is not about the use of artificial intelligence technology but about the ethics of media content. However, in general, the Indian legislator focuses on the protection of users and the cyber sovereignty of the state while not directly addressing the commercial activities of digital platforms.

2.4. The Russian Experience: Ethics, Standards and Openness

In Russia, "soft law" instruments are actually the leading regulators of the application of algorithmic engines on online platforms. It is well known that publishing software design recommendations by administrative authorities is one possible way to limit developers' freedom of action without having restrictions in the law itself. Researchers back this viewpoint by stating that administrative authorities may collaborate with developers to ascertain the qualities they believe a piece of software ought to have, after which the program could be developed to satisfy those qualities and be permit-proof.[58]

In 2020, the Federal Agency for Technical Regulation and Metrology developed a promising standardization program in the priority area "Artificial Intelligence" for the period 2021–2024 and providing for the development of 217 standards in this area.[59] In accordance with this Program, in 2020, GOST R 59276-2020 "Artificial Intelligence Systems. Ways to build trust. General Provisions" which defines the concept of trust in artificial intelligence systems was released. This act provides for the classification of factors affecting the quality and ability of artificial intelligence systems to inspire

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[57] Kumar & Jha 2022.

[58] Joshua Alexander Kroll, *Accountable Algorithms*, Diss., Princeton University (2015).

[59] Перспективная программа стандартизации по приоритетному направлению «Искусственный интеллект» на период 2021–2024 годы [A Promising Standardization Program in the Priority Area "Artificial Intelligence" for the Period 2021–2024] (Feb. 2, 2023), available at https://www.economy.gov.ru/material/file/28a4b183b4aee34051e85ddb3da87625/20201222.pdf.

trust at the various stages of their life cycle and the classification of the main ways to ensure confidence in artificial intelligence systems. Additionally, the act formalizes the relationship between the quality and ability of artificial intelligence systems to inspire trust. At the same time, this standard cannot be used for systems of "strong" or "general" artificial intelligence. The Big Data Code of Ethics outlines the risks of using recommendation systems, including the impact on a person's decision, as well as ensuring transparency and objectivity in data selection. The Code was signed on 12 December 2019 by Gazprom-Media Holding, Yandex, Megafon, Tinkoff Bank, Sberbank, Gazprombank, oneFactor, Qiwi Group, Mail.ru Group, VTB Group, Vimpelcom, Rostelecom, MTS and the Analytical Center under the Russian government. The Russian Association of Electronic Communication (RAEC) and the Big Data Association published the Big Data Code of Ethics White Paper in 2021. Furthermore, in the same year, leading Russian technology companies adopted a Code of Ethics for Artificial Intelligence,[60] which allowed for voluntary self-regulation and the implementation of a 'soft power' tool to achieve consensus between AI and humans. The Code of Ethics for Artificial Intelligence has a dedicated section for: Transparency (for example, transparency of data collection, data sets and information processing).

There is a link between ethics and ensuring that the algorithm is transparent so that consumers understand the reasoning behind why a particular suggestion was made.[61] On the one hand, standards and codes of ethics do not solve the issue of holding unconscionable platforms responsible. But on the other hand, beyond the scope of laws, even very strict ones, there remains an area that is still subject to ethical standards. In China, for example, the rule is that outside of direct regulations, platforms and recommendation system operators must follow self-regulation, industry standards, improve service specifications and provide services in accordance with the law and under public scrutiny. Thus, the bet is placed on self-regulation within the ethical and legal framework, as well as the requirements of Chinese society.

The same can be said of the European regulatory experience. Globally, in its acts and policies, the EU proposes to return to non-complex disclosure obligations. The European model is unable to balance information asymmetries and unequal bargaining power, from which small and medium-sized enterprises and users suffer. In practice, the EU model consists either of pure self-regulatory delegation (codes of conduct) or unenforceable co-regulatory schemes (with a set of technical standards for the platforms).[62]

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60 AI Alliance Russia (Feb. 2, 2023), available at https://a-ai.ru/en/.

61 Bodo et al. 2017; Yulia S. Kharitonova et al., *Artificial Intelligence's Algorithmic Bias: Ethical and Legal Issues*, 53 Perm U. Herald Jurid. Sci. 488 (2021).

62 Fabiana Di Porto & Marialuisa Zuppetta, *Co-regulating Algorithmic Disclosure for Digital Platforms*, 40(2) Pol'y & Soc'y 272 (2021).

At the same time, the above cases of algorithmic control biases by digital platforms require a legal regulation of algorithm disclosure rules.

In Russia, the issue of openness of the recommendation algorithm has not yet been legally resolved. A draft law has been developed that should eliminate the problem of the unaccountability of the work of recommendation algorithms, which are based on a non-transparent data collection scheme and create risks of promoting a profitable agenda for service owners or third parties and hiding "inconvenient" content.[63] The draft law does not provide for a prohibition on the recommendations but is aimed at protecting users from attempts at manipulation.

In order to achieve this aim, the operators of the services will be required to disclose the terms of the recommendation systems engine and inform the users of the data they collect. In addition, users will be allowed to complain about the performance of recommendation algorithms. These proposed regulations in Russia relate to social networks and video hosting, as the two most popular segments with consumers. All platforms that use recommendation services will be required to make them transparent. Moreover, the draft law should prevent the manipulation of public opinion on the Internet and allow users to reject recommendations. According to the author of the draft law, the deputy chairman of the Committee on Information Policy of the State Duma of the Federal Assembly of the Russian Federation Anton Gorelkin, the most controversial point was the one that should oblige services to provide the technical possibility to refuse to use recommendation technologies in whole or in part, at the discretion of the company.[64]

3. Transparency Requirements for Artificial Intelligence in Algorithmic Recommendation Systems: Legal Challenges

We need to go back to the practice of digital platforms in order to see the general patterns revealed by the systems today. The recommendation algorithms of different systems work on similar principles. And this can be indirectly established by the descriptions of the technologies that can be found on the resources of the software operators. A comparison of the operating principles of artificial intelligence systems such as Amazon Recommendation (which creates a recommendation system to show the most appropriate products), Palantir (which creates a system that allows one to determine indirect connections between companies, based on data from a large number of sources) and Google (which creates a recommendation system to show the most appropriate advertising), has shown that despite such different

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63 *In Russia, Recommender Algorithms*, *supra* note 43.

64 В России предложили частично отменить рекомендательные алгоритмы интернет-сервисов // Habr. 19 мая 2022 г. [In Russia, they proposed to partially cancel the recommendation algorithms of Internet services, Habr, 19 May 2022] (Feb. 2, 2023), available at https://habr.com/ru/news/t/666574/?ysclid=l45l9avxr9771982202.

fields, recommendation systems based on artificial intelligence use similar criteria for processing information about the user:

• items and services purchased in exchange for real payments (for example, Amazon Recomendation, Palantir and L'Oreal create a system to select the most appropriate cosmetics for a customer based on their previous purchases);

• products added to lists but abandoned (e.g. Amazon Recommendation, Palantir, NLP Architect and Phillips create recommender systems to determine the most suitable devices for the user and Netflix creates a system to recommend the most suitable series and movies to the user);

• referral sites (such as Amazon Recommendation, Palantir, NLP Architect, L'Oreal, Netflix) to expand the user's view of other interests and the number of items viewed before the final transaction; and

• search session time (Amazon Recommendation, Google, NLP Architect, Netflix) among other criteria.

To ensure consumers' and couriers' rights to information, the China-based delivery platform Meituan Waimai, (美团外卖) in November 2021, published on its website the working mechanism, basis and scheme of the planning and decision-making algorithms used to organize delivery routes, allocate orders and determine time, making it intuitive and directly guaranteeing transparency of the relevant algorithms.[65]

In addition, recommender systems are used for so-called pricing experiments (like A/B testing, etc.) in which the same products are offered at different prices and the results are analyzed (for e.g. Palantir, NLP Architect); "packaging experiments" where different products are offered in different "bundles" or have discounts on different item pairs and experiments with "wish lists" to analyze user data flow.

Surveys conducted to rate or rank the user or his or her community or social environment create an information environment that is shaped by positive content, allowing you to learn the details of the user's personal life even beyond the immediate operations on the platform and create a very complete profile of the subject.

In order to test the hypothesis about the usefulness and effectiveness of the disclosure of the recommendation algorithm, let us turn to the experience of the Russian consumer goods and services aggregator, Ozon, which has demonstrated the openness of its platform.[66]

Recommendations on Ozon are a set of widgets on the site and in the app that display a selection of products that may be of interest to the user. Ozon's recommendation system is responsible for selecting products that are relevant to

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[65] Meituan Waimai publishes algorithms for "order allocation" to comprehensively enable tripartite collaboration [美团外卖公布"订单分配"算法，综合保障三方体验] (Feb. 2, 2023), available at https://new.qq.com/rain/a/20211107A08WP400.

[66] Алгоритм рекомендаций на Ozon [Recommendation Algorithm on Ozon] (Feb. 2, 2023), available at https://docs.ozon.ru/legal/algorithms/recomendation-algorithms/.

the context in which the widgets are displayed. Recommendations can be divided into two groups: product recommendations and personal recommendations.

How does the AI algorithm function? For example, one of the options is dedicated to selection of candidates.

The recommendation service selects several thousand candidates among Ozon (Russia's leading multi-category e-commerce platform) products that are relevant to the context of showing recommendations. Similar goods are selected in the same category as the current product. Related products are products from those categories that are frequently purchased together with the current product. For the personal recommendation widget, the product categories in which the user bought or looked at the products are analyzed.

After the selection process, it is necessary to rank the candidates. The selected 2,000–3,000 items are ranked according to the user's purchase probability. The ranking of these items depends on the attributes that the machine learning model deemed important. As a result of the ranking, each item is scored from 0 to 1.

The score obtained in the previous step is increased for the product if it is one that is also being promoted. Advertising promotion is the purchase of a boosting coefficient for money.

The top products may be similar, so no more than two products from each category are selected in the final listing.

Finally, depending on the widget, anywhere from 3 to 200 items selected in the previous step will be added to the recommendations.

In China, the information about the algorithms provided to the authorized bodies for registration is more detailed than the information disclosed to the public in order to achieve "transparency of the aquarium."[67] The authorized bodies, which receive the basic secrecy of the algorithms, also have a statutory duty of confidentiality, which can effectively eliminate the doubts of entrepreneurs about the improper disclosure of trade secrets due to the registration of algorithms and the occurrence of unfair competition by a third party. In addition, in practice, authorized authorities may also use the 'self-assessment report on algorithm' to clarify, supplement and expand the requirement for specific information to be registered, in order to avoid the algorithm recommendation service provider from refusing to provide the necessary information, such as the scope of the algorithm, the service user, the risk level of the algorithm and so on, on the grounds that there is no clear statutory provision.

Through the research, it was revealed that despite the significant steps in the development of legal acts that were taken by legislators in different countries, all of which were taken in the same direction, unsolved problems persist.

First, we noticed that recommendation algorithms are constantly improving and changing, becoming more complex and non-obvious. The legal requirement for transparency cannot be satisfied by a one-time publication of the principles of

[67] Cary Coglianese & David Lehr, *Transparency and Algorithmic Governance*, 1(6) Admin. L. Rev. 71 (2019).

the system. The problem is that algorithmic transparency strives to constantly learn to adapt to context in addition to acquiring the capability to detect the source of data flows used and generated by AI systems, to display and precisely recreate the mechanisms by which these models make certain decisions. Consequently, a legal mechanism for regular auditing of systems is required. It is necessary to regularly update the information disclosed.

Second, it is evident that at the legislative level, it is not possible to establish exactly what information should be required to be disclosed. According to the fundamental reasoning, there is no "one size fits all" solution. The "main parameters" that must be disclosed must be determined by the providers on a case-by-case and service-by-service basis.[68] A possible solution would be to establish best practices for platform or entire industry disclosure of recommendation systems principles.

This could mean a sort of a "right of explanation" under the General Data Protection Regulation (GDPR).[69] It is unclear, however, whether such an "explanation" should cover a specific algorithmic component that influences the decision or whether it should cover the entire operation of the algorithmic system.[70]

Finally, the most acute problem today is the collision between the rules on transparency of recommender systems and preserving the commercial secrecy of the digital platform. As stipulated by the Trade Secrets Directive, a trade secret is information which meets three requirements (Art. 2(1)): (a) it is secret; (b) it has commercial value due to its secrecy and (c) it is subject to reasonable steps by the information holder to keep it secret.[71] Insofar as algorithms are bits of information, particularly instructions, intended to carry out a production-related task, they may be categorized as trade secrets. As long as they meet the aforementioned criteria, algorithms can be protected as trade secrets and thus fall under the description.[72] It can be said that the Chinese authorities have also taken a prudent stance in balancing the management of algorithms and the protection of commercial secrets. In Russia, the disputes over these issues are only now starting to gain momentum.

In other words, experts have only to assess from a legal perspective the prospects of preserving the commercial information of digital platforms as opposed to ensuring the public interest in the openness of recommendation algorithms.

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68 Giovanna Di Toro, *Algorithmic Transparency between Legal and Technical Issues* (2021).

69 Sandra Wachter et al., *Why a Right to Explanation of Automated Decision-making Does Not Exist in the General Data Protection Regulation*, 7(2) Int'l Data Privacy L. 76 (2017).

70 Gianclaudio Malgieri, *Automated Decision-making in the EU Member States: The Right to Explanation and Other 'Suitable Safeguards' in the National Legislations*, 35(5) Computer L. & Sec. Rev. (Article 105327) (2019).

71 Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure.

72 Di Toro 2021.

Thus, a number of different states have recognized the problem and are approaching it from different positions. Each region chooses what to prioritize in terms of the law. We can see that for China and Europe, all areas of platforms are important; for Russia, news platforms and video hosting are of interest and for India, primarily social media. However, in all of the countries, the requirements for the disclosure of the recommendation engine to a certain extent are expanding. Both the volume of open information and the order of its disclosure differ. Thus, this study demonstrates the commonalities and differences in the approaches of different countries.

Conclusion

It is now clear to lawmakers and politicians worldwide that government and public intervention in the operation of recommendation algorithms is unavoidable. The choice is between the law and the practices of companies in the order of self-regulation. Most likely, the middle way will be justified when the Codes of Ethics and industry standards continue to be applied against the background of the adoption of the law. We should not expect the legislature to completely reject recommendation systems, as this will have a negative impact on the processes of services. But even excessive additional regulation in the context of already existing requirements in the field of personal and big data may lead to a loss of consumer value for such services by making the process of developing and maintaining such systems more complicated and expensive.

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