Research on the Competition Law Risks and Regulation Brought by Generative Artificial Intelligence

Youchun Yu

Law School, Liaocheng University, Liaocheng Shandong, 252000, China

Abstract. The emergence of chatGPT signifies that Artificial Intelligence (AI) technologies for generating content will have a significant impact on people's work and lifestyle. Nowadays, R&D of generative AI such as chatGPT has become the core domain in the latest wave of technological competition among nations, yet we must be aware that it may result in the disclosure of trade secrets, abuse of dominant market position and other market competition and monopoly risks. In order to regulate the advancement of generative artificial intelligence, it is imperative to refine the existing legislative framework and establish a novel regulatory architecture that involves the participation of the government, corporations, and end-users, to ensure both the free development of technology and its orderly compliance, and guard against the occurrence of malicious competition and market monopolies.

Keywords: Artificial Intelligence; Anti-competition Agreements; Unfair Competition; Algorithmic Monopoly.

1. Introduction

ChatGPT harnesses the synergy of "big data, extensive computing power, and robust algorithms" to construct an expansive AI language model capable of engaging users in interactive and conversational exchanges, encompassing multiple rounds of dialogue by utilizing instructional prompts. Notably, chatGPT possesses the ability to challenge erroneous assumptions and reject unsuitable user requests. Nevertheless, chatGPT also shares the general limitations inherent to vast-scale language models, including its knowledge base being confined to pre-training data predating its deployment. The immense cost associated with training an extensive foundational model and the potential for mechanical output, diminished overall quality, and occasional errors further compound these constraints. However, despite its current imperfections, chatGPT has demonstrated substantial potential in propelling AI efficacy forward through iterative enhancements, heralding a transformative impact on societal lifestyles and professional domains. Presently, the research and development of chatGPT have emerged as focal points within the latest round of global technological competition, prompting prominent US technology giants such as Google, Microsoft, Amazon, and Meta to intensify their involvement and investments in the realm of large models.

As technology, chatGPT itself is a double-edged sword. While chatGPT's disruptive innovation can be seen as an important milestone in the development of artificial intelligence, its transformative technology that makes human life smarter and more efficient. However, it also presents new challenges. People must adjust the regulation mode to flexibly deal with the unknown risks caused by technological iteration and timely address the security problems caused by technological progress. Risk management is imminent. At present, the European Union and the United States have initiated the legislative process to tackle the potential risks that AI technology may cause.

The key to the regulation of generative AI such as chatGPT lies in how to strike an appropriate balance between risk prevention and technological development, which requires the cooperation of regulators, R&D and application enterprises and beyond to improve the agility and adaptability of regulation. From the perspective of competition law, this paper will focus on the potential challenges brought by generative AI represented by chatGPT to analyze and explore possible regulatory solutions.

2. The Risks of Competition and Monopoly Brought by ChatGPT

2.1 The Disclosure of the Trade secrets of Other Market Players Caused by Data leak

Generative Adversarial Networks (GAN) consist of two neural networks: the generator and the discriminator. The generator is capable of synthesizing counterfeit data that closely resembles real data, while the discriminator can differentiate between genuine and fake data. And these two networks can play with each other and optimize their parameters until the fake data generated by the generator is indistinguishable from the real data. The inherent strength of generative collusion lies in its capacity to generate high-quality synthetic data, presenting immense possibilities for applications in image generation, music composition, natural language processing, and other domains. Competitive generative AI tools exhibit a reciprocal behavior, utilizing and acquiring knowledge from each other, actively engaging in an interactive process. When a chatbot gains access to publicly available business terms employed by its competitors, including pricing and conditions, it can adapt and modify its own business terms accordingly. While this adaptation can be interpreted as an autonomous response to market changes, if the majority or all of chatbots in the market adopt the same general terms and prices as they cannot realized competitive order of the market, which would dramatically undermining the competitive order of the market.

When it comes to the platform collusion, chatbots can establish platform for operators in disparate markets, particularly as they are able to collect and release data. For instance, if a competitor in an industry provides chatbots with their current pricing, production, or other sensitive data, as well as asking chatbots relevant questions to obtain data about others. The confidential business information, therefore, could easily be leaked. Moreover, data disclosure triggered by chatGPT may lead to three legal risks: the privacy infringement caused by the disclosure of users' personal information; unfair competition and infringement caused by the leak of trade secrets; national security problems caused by the disclosure of national secrets. Among them, the third type of risk is relatively low due to the strict supervision of national confidential documents and information which are rarely disclosed online. However, the popularity and widespread use of chatGPT around the world have significantly increased the first two categories of risk.

Under EU competition law, chatbots providers could be held liable when the disclosure of trade secrets infringes the legitimate rights and interests of the market entity concerned. Therefore, the providers need to take some reasonable measures to keep users' data secure, and may be held liable if data is disclosed because the chatbot providers fail to take reasonable steps. The first step to solving this problem is to ensure that some reasonable security measures are taken to protect the user's data, including encrypting data, restricting data access, monitoring data access, backing up data, and so on. These measures should be expressly stated in the privacy policies, and transparent data handling information should be provided. For chatbots providers, if data disclosure occurs, immediate action needs to be taken to minimize the number of affected users and notify users as soon as possible. In addition, the providers should actively assist other market players to protect their trade secrets.

Therefore, if technology developers cannot effectively regulate the application of generative collusion and platform collusion, it will easily lead to unfair competition and anti-competition risks in the market related to monopoly, thus damaging the interests of relevant market players. At the same time, due to the lack of technical resources, it is difficult for law enforcement agencies to identify the effect of competition restriction on the market generated by the open technical scheme, and it is difficult to identify and deal with the final results, which brings difficulties for the regulation of anti-competitive behavior. In this regard, the current legal system needs to be adjusted in time to cope with the risk of destroyed order of competition caused by massive existing technologies generated through artificial intelligence.

2.2 Market Monopoly Caused by Algorithm Collusion and Algorithm Barriers

According to the traditional theory of anti-monopoly law, anti-competition collusion is based on the communication and agreement between operators. The basis of examining monopoly agreements

between regulators and anti-monopoly law enforcement agencies is to analyze the communication and information exchange between operators, and judge whether there is "collusion" in violation of monopoly laws and regulations through the examination of their behavior and intention. However, artificial intelligence may realize "tacit collusion" without communication based on internal algorithm. For example, in 2015, Uber used the algorithm to reach price collusion among its drivers who were in a competitive relationship, harming the interests of users. In practice, the abuse of algorithms by enterprises to form digital cartels and secure monopoly profits presents more challenges for antitrust law enforcement. At present, how to define whether artificial intelligence algorithms engage in "tacit collusion" has become a big problem of antitrust regulation. Unlike European and American countries, there have been no documented cases of algorithmic monopolies so far. This can be attributed to several factors. Firstly, the algorithm monopoly behavior is characterized by novelty, professionalism, complexity and concealability, so it is not easy to be recognized. Secondly, in the face of the abuse of algorithms in the age of artificial intelligence, the anti-monopoly law generated in the industrial age and matured in the information age lag behind; Lastly, there is few profound theoretical research on the abuse of algorithms and the regulation of anti-monopoly law.

In addition, AI, devoid of moral code and the ability to make independent decisions, will maximize the benefits through the exercise of instructions without additional constraints. Therefore, if AI finds that collusion is more favorable than competition through autonomous deep learning and decision-making, then anti-competitive effects may be generated even if the monopoly intention is not set in advance.

At the same time, generative AI will also have an impact on the healthy competitive order of the information technology market. The R&D and operation of generative AI require high technical and capital investment, such as 1 cent consumption of computing cloud service cost per chat-GPT interaction, which means that technical barriers and market monopolies are easy to form in this field. The early breakthrough made by chatGPT's developer, OpenAI, was attributed to the huge investment from Microsoft, multiple rounds of funding and acquisitions of small specialized technology companies. The oligopoly in the Internet field may extend to the generative AI market. Only a few Internet giants can control the "sceptic" of generative AI, a key technological tool, thus limiting the opportunities for emerging technology companies to compete and survive independently. At present, the application of artificial intelligence technology is expanding day by day, and more and more enterprises and industries begin to use artificial intelligence technology to improve efficiency, reduce costs and improve service quality. By abusing the dominant market position to restrict competition, these monopolies will gain greater profits. However, they can also adversely affect the healthy operation of the market, which is mainly manifested in the following aspects: 1. Monopoly of data resources: enterprises with a large number of data resources can obtain more commercial interests through data collection, processing and analysis, thus causing barriers to the development of other competitors; 2. Limiting data sharing: Enterprises restrict data sharing through technology, resulting in that other competitors have no access sufficient data resources for innovation and competition; 3. Monopoly of human resources: Enterprises absorb outstanding talents in the field of artificial intelligence through high salary poaching and other means, so that other enterprises cannot recruit enough talents for technological innovation and research and development.

Competition law prohibits the abuse of dominant market positions, and if generative AI such as chatGPT is to be regulated, it is necessary to examine the exact field of competition for generative AI services, namely the market for related products and their applications. In response to this, chatGPT itself has positioned itself as a digital service provider, placing itself in a narrower market for natural language processing and generation, which is a clever disclaimer. ChatGPT could cause disruptive competition more broadly, such as in the marketplace for generic Internet search engines like Google Search. For consumers, it can replace or even outperform traditional search services.

2.3 Unfair Competition for the Platforms to be Crawled

In some cases, chatGPT may be used by businesses or individuals to make false claims, deceive consumers, disrupt social order, etc., in order to gain an improper competitive advantage. The purpose of capturing content by ChatGPT-like products is to provide training and learning materials for large models, thereby improving their service quality. However, this not only brings no benefits to search engine products but also replaces them, thus harming their interests. In other words, within the commercial context of chatGPT-like products, they are in a competitive relationship with search engine products rather than achieving mutually beneficial outcomes. This is also the underlying causes of the widespread opposition within the industry against chatGPT-like products. The behaviors of chatGPT-like products constitute unfair competition to the search engine platform mainly in the following parts:

First of all, the platforms to be crawled have legitimate rights and interests in the public content of the network. These platforms have put a lot of human resources and material resources into the creation and data accumulation of the crawled content, which is economically valuable. For example, the news reports published on the platforms of the various news media mentioned in the first part of this article are either created by their employees or purchased/replaced with resources from other organizations or media after paying copyright fees, which requires a large amount of human and material resources input. According to the labor theory of value, these platforms enjoy legal protection of the property rights and interests of such content. At the same time, such content is also the core resources for relevant media to strive for favorable competitive situation in the competition. For the above reasons, their rights and interests are protected by legal intellectual property rights or anti-unfair competition laws for such content.

Secondly, from the perspective of behavioral results, chatGPT-like products not only enhance their own competitive advantage but also supplant the platform to be crawled. Once users receive a comprehensive response to their inquiries through chatGPT's generated content, they no longer require subsequent visits to the platform, consequently reducing their engagement with the platform and diminishing trading opportunities.

Finally, chatGPT-like products violate the principle of good faith or business ethics, not applicable to the crawler agreement. Such products infringe upon the legitimate rights and interests of other operators and cause harmful consequences to other operators. If this behavior is not restrained, the core competitive resources with high economic value accumulated by market operators through labor will be grabbed randomly by others, and the prevalence of undeserved gains becomes the norm. As a result, no operator is willing to invest human and material resources in the creation, collection and organization of content, which is harmful to the industrial order or to the interests of consumers and violates the principle of good faith.

3. Solutions to Prevent Market Competition and Monopoly Risks Brought by AI

The market competition and monopoly risks stemming from ChatGPT necessitate a collaborative regulatory approach involving multiple entities. In the regulation of risks that involve multiple entities, the new regulatory framework must encompass the regulatory needs of government oversight, technological autonomy, and social engagement. It should also demonstrate inclusivity towards AI technology research and development. Multi-entity regulation shows the agile governance characteristics that adapt to the rapid iteration of technical risks. It not only strengthens the macro-guidance and risk protection responsibilities of government regulations, but also highlights the risk source control and self-regulation obligations of AI enterprises under the guidance of framework laws, responding to the problem of insufficient regulatory resources and the demand for regulatory coordination caused by technical risk iteration.

To be specific, first of all, we need to clear the scope of regulation objects; Secondly, we should improve the standard system and integrate the constraint functions of laws, standards and other norms.

Then, the relationship among the public regulatory organs, the regulated enterprises and the public should be clarified, and their respective functional roles and forms of action should be identified. Finally, a set of internal supervision procedures for AI technology enterprises should be built in accordance to the regulations to ensure that enterprises have enough motivation and clear mechanism to proactively implement risk prevention and control measures, and know how to handle self-regulation failure--when violations or risk spillover leads to real damage.

3.1 Improve the Legal System to Prevent the Market Competition and Monopoly Brought by AI

From a specific process perspective, it is necessary to strengthen the full-chain supervision of this type of product before, during, and after its implementation. Prior to implementation, a hierarchical market access list system should be established to conduct assessment under the regulations for chatGPt-like AI systems. In April 2021, the EU issued the proposal "Regulation of the European Parliament and of the Council: Formulate Unified Rules on Artificial Intelligence (AI Act) and Amend Certain Union Legislations". This proposal classifies artificial intelligence systems into risk levels and requires suppliers of high-risk AI systems to submit assessments according to relevant regulations before entering the market. If the intended purpose or nature of the system undergoes fundamental changes, a reassessment is required. This proposal provides valuable insights for risk management of artificial intelligence systems in our country. During the implementation process, it is important to strengthen government supervision, industry oversight, and user supervision. Additionally, improving complaint and reporting mechanisms is necessary. By combining user reports and proactive government review, we can ensure that chatGPT systems already on the market adhere to the rule of law. After implementation, measures should be taken against companies and responsible individuals who violate regulations regarding chatGPT systems. This includes conducting interviews, issuing rectification orders, imposing administrative penalties, and referring criminal cases to the public security authorities.

Most importantly, strict accountability systems need to be established and improved, with clear accountability for chatGPt-like system developers, owners, operators and users to the extent that they have control over AI. In the field of administrative legislation, the Cyberspace Administration of China and other institutions have issued some regulations, which have made preliminary regulatory provisions on the non-dissemination of information by artificial intelligence. However, as the subject of responsibility for violating the regulations and the way to bear responsibility are unclear, these regulations need to be further improved. The construction of specific responsibility allocation mechanism should conform to the principle of domination, that is, "whoever has jurisdiction over the risks should be responsible for the risks and their outcomes". The program development of R&D institutions determines the model data acquisition and output methods. Therefore, these institutions need to disclose the source of information and prove that their program design does not infringe others' privacy or trade secrets intentionally in case of disputes. Otherwise, they should bear responsibility for their "algorithm black box". The users shall have a reasonable duty of care with respect to the non-public information designated by others as private or confidential. If the user intentionally or negligently divulges data, or entices the chatGPt-like system to steal the privacy or trade secrets of others for illegal purposes, the fault users shall be liable. If, through no fault of the R&D institution's design of the program and the user's usage of it, the chatGPT-like system outputs private or encrypted information, and the third party knows or ought to know that it is the privacy or trade secret of others and illegally uses it, resulting in infringement, the third party shall bear the responsibility. The liability caused by data disclosure is usually a kind of tort liability. Compared with the subjective determination principle of tort liability, R&D institutions adopt the principle of presumption of fault, while users and third parties adopt the principle of fault liability.

3.2 The Government Should Fully Coordinate the Prevention of Market Competition and Monopoly Risks AI May Brought

In the risk regulation of generative AI technology, the government needs to coordinate the interests of various parties and strike a balance between promoting the development and innovation of AI technology and preventing and controlling risk damage. More specifically, the government should exercise the right to formulate and standardize AI laws and standards, promote the administrative legislation in the AI field, and coordinate the construction of AI industry standards for market competition and monopoly risk prevention and control; In addition, efforts should be made to supervise AI enterprises to implement norms and make commitments to reduce potential risks; Moreover, government should work to investigate and punish AI enterprises that violate the rules.

At the same time, the government needs to be highly professional to prevent and control the market competition and monopoly risks brought by generative AI, and should coordinate relevant public regulatory agencies such as science and technology, data and the Internet. “In the era of artificial intelligence, those who get data and algorithm take the lead in the development direction of the society.” For employees of public regulatory agencies, there is an insurmountable cognitive barrier between them and the technological black box of generative AI. Although consulting experts can provide technical support, it is still uncertain whether they can make up for their own ability defects to effectively recognize and track the development and running trajectory of generative AI and accurately identify risks involved. Due to relatively insufficient control over the algorithm, the government can only carry out responsive supervision over the problems that have occurred without any foresight. In today's smart society, when damage caused by technology occurs, it is often difficult for the government to analyze the root cause. It is not enough to simply depends on the correction behavior after the event. Therefore, the government needs to transform the governance mode and build an intelligent governance system. On the one hand, it should improve the technical quality of law enforcement personnel, improve the relevant infrastructure and strengthen its own computing power. On the other hand, mechanisms such as filing can be established to require AI enterprises to proactively report products and their application information.

3.3 Internal Self-regulation of AI Enterprises

Tighter government regulations lead to less room for big tech has to grow freely, but the forementioned risks have led many companies to call for government regulation and even some to start enforcing rules within their own companies that restrict the use of artificial intelligence. In South Korea, a number of Korean companies, including Samsung and SK Hynix, have restricted the use of AI tools. In Japan, Japanese companies including SoftBank, Hitachi, Fujitsu and Sumitomo Mitsui Banking Corporation have also begun limiting the use of interactive AI services in their business operations due to concerns about information leakage. These AI companies have responded accordingly. For example, “regulation is needed to ensure that security assessments are adopted, and we actively engage with governments on the best form of regulation that might be possible,” OpenAI director said in a recent article. Leading companies in AI development, including Microsoft, Google, Apple and Nvidia, will discuss how to continue AI development in the most responsible manner by setting standards for the development and use of AI technology. The National Institute of Standards and Technology released Version 1.0 of the AI Risk Management Framework (AI RMF) in January, which aims to guide organizations in developing and deploying AI systems to reduce security risks, avoid bias and other negative consequences, and improve AI credibility.

In order to achieve long-term development, AI enterprises can obtain social trust by proactively regulating technological risks and actively assuming social responsibilities, thus reducing the suspicion from public regulatory agencies and the public. AI enterprises shall undertake the obligation of internal risk control, actively cooperate with external supervision, and actively correct errors and compensate for the adverse effects caused. In this regard, the enterprise should formulate management rules and arrange professional and technical personnel to timely discover and quickly solve the emergency situation such as “DAN” which breaks through the system by inducing questions. They

should pay more attention to the illegal data sources and the disclosure of user privacy and trade secrets, proactively publicize the information sources of the chatGPt-like system based on learning and training, perform the obligation of risk warning during user registration, and provide special lines for users in need to prevent important information from being leaked through technical updates.

In addition to AI enterprises themselves, other enterprises associated with generative AI products should also be responsible for the risks of the products, which can also urge enterprises to conduct self-supervision. ChatGPT's language model training, for example, is outsourced to other companies, who also bear some responsibility for the ultimate risk of the product and can be asked to monitor the AI company's compliance with safety norms. The EU Uniform Rules on the Development of AI inherits the obligations on associated companies in the previous General Data Protection Regulation, which states that "importers, distributors and users of high-risk AI systems are responsible for ensuring compliance with regulatory requirements and safe use of these products before they are placed on the market". In effect, this regulation encourages affiliates in the AI market to monitor AI companies and advance public law goals of risk prevention and control in the private sector of market cooperation.

3.4 Give Full Play to the Role of Public Supervision Mechanisms

For mass-oriented generative AI, major decisions of AI enterprises should be required to be subject to public consultation. Due to the comprehensive application of artificial intelligence in various industries and fields, the damage of intelligent algorithms to competition and consumers is comprehensive and dispersed, and operators, technology developers and commodity service users in various fields are the first to receive feedback to a certain extent, thereby demonstrating the convenience of supervision. As AI technology moves towards universal AI, users of generative AI can exercise a wide range of consumer rights, requiring AI enterprises to take responsibility for risk information disclosure, objective and neutral content, personal information protection, data security and other aspects, and accept public consultation.

In view of such characteristics of AI business model, it is reasonable to establish internal and external joint supervision mechanism. Efforts should be made to establish and improve the external supervision mechanism, encourage professional organizations and professionals in all fields of society to supervise, suggest and report the reasonable and legal use of high and new technologies by artificial intelligence operators. In addition, establish market violation reporting information investigation mechanism, reward system to make up the unfulfilled anti-monopoly review of technical supervision and give full play to the market-oriented supervision mechanism. Correspondingly, through the joint action of internal enterprise supervision mechanisms and external supervision mechanism, sufficiently certain and transparent policies and regulations should be established to enhance the punishment of intelligent monopoly behaviors such as algorithm collusion, encourage algorithm designers and internal operation personnel to voluntarily declare and accept supervision, resulting in higher probability of illegal surrender, and the elimination of intelligent monopoly behaviors through reverse game. Measures should be taken to fully achieve all-round monitoring of the application of artificial intelligence technology, so as to achieve better anti-monopoly supervision effect. It can be predicted that products in the generative AI market will gradually increase in the future. Similar enterprises can jointly establish autonomous organizations such as industry associations, or produce certification organizations for generative AI products. These organizations from within the market, independent of AI enterprises and public regulatory agencies, can develop quality standards and conduct certification supervision on AI product risks. Of course, to play the main functions of third-party institutions and the public requires the confirmation and support of the government and the legal framework.

References

[1] Cao Shengliang, Zhang Xiaomeng. Legal Regulation of Data Competition in the Era of Artificial Intelligence [J]. Study and Practice, 2019(10): 83-91. DOI: 10.19624/j.cnki.cn42-1005/c.2019.10.009.

[2] Liu Baofu, Liu Hangyu. Challenges and Responses: How to Promote the Modernization of Social Governance in the Context of Artificial Intelligence [J/OL]. Journal of Sichuan Academy of Administration: 1-7 [2023-05-11]. http://kns.cnki.net/kcms/detail/51.1537.D.20230310.1314.006.html.

[3] Jia Liping, Cao Can. Social Risks of Artificial Intelligence Autonomous Invention and Legal Countermeasures [J]. Journal of Liaoning University (Philosophy and Social Sciences Edition), 2022, 50 (02): 82-89. DOI: 10.16197/j.cnki.lnupse.2022.02.010.

[4] Jiang Zhudou. Improvement of Antitrust Regulation in the Era of Artificial Intelligence [D]. Jilin University of Finance and Economics, 2020. DOI: 10.26979/d.cnki.gccsc.2020.000036.

[5] Xi Guiquan, Tan Xiao, Jin Xiaohong, Zhang Ting. Challenges and Responses: Attribution and Collaborative Governance of Diverse Security Risks of Large-Scale Language Models (ChatGPT) [J/OL]. Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition): 1-9 [2023-05-11]. DOI: 10.14100/j.cnki.65-1039/g4.20230413.001.

[6] Deng Jianpeng, Zhu Yicheng. Legal Risks of the ChatGPT Model and Strategies for Dealing with Them [J/OL]. Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition), 2023(05): 1-11 [2023-05-11]. DOI: 10.14100/j.cnki.65-1039/g4.20230228.001.

[7] Ding Yazhi, Ma Mengyang, Qingmu. Countries Take Actions to Regulate the Development of AI [N]. Global Times, 2023-04-13 (011). DOI: 10.28378/n.cnki.nhqsb.2023.003075.

[8] Hu Ping. Ongoing Regulations for Generative AI [N]. Financial Times, 2023-04-17 (007). DOI: 10.28460/ n. cnki. njrsb.2023.002087.

[9] Wang Yang, Yan Hai. Risk Iteration and Regulatory Innovation of Generative Artificial Intelligence: A Case Study of ChatGPT [J/OL]. Theoretical Monthly: 1-11 [2023-05-11]. DOI: 10.14180/j.cnki.1004-0544. 2023.06.002.

[10] Nie Tong. Legal Risks and Compliance of ChatGPT Generative AI [J]. Internet World, 2023(03): 29-33.

[11] Yin Jiguo. Antitrust Regulation of Algorithmic Monopolistic Behavior in the Era of Artificial Intelligence [J]. Comparative Law Research, 2022(05): 185-200.