

ADMINISTRATIVE PRACTICE AND DIGITAL TECHNOLOGIES IN THE EXERCISE OF THE RIGHT TO APPEAL: THE EXPERIENCE OF EXECUTIVE AUTHORITIES AND LOCAL SELF-GOVERNMENT BODIES

Andriy Koziar,

lawyer, director of PARK-BUD PLUS LLC

ORCID <https://orcid.org/0009-0007-9378-3540>

e-mail koziyar_andriy@ukr.net

Abstract. The article examines the impact of digital technologies on the administrative practice of considering appeals of citizens and legal entities. The modern regulatory framework of Ukraine, which regulates the right to appeal, access to public information and the procedure for providing administrative services, is analyzed. Particular attention is focused on the current challenges of contemporary administrative law scholarship, in particular on assessing the impact of digital technologies on the administrative practice of handling appeals submitted by citizens and legal entities, determining the effectiveness of electronic services and automated platforms, as well as analyzing the role of the human factor and regulatory and ethical principles in ensuring the legality, transparency, and fairness of administrative procedures.

Keywords: subjects of appeals, digital transformation, human factor, administrative practice, digital appeals.

INTRODUCTION. The issue of exercising the right of citizens and legal entities to address to executive authorities and local self-government bodies is taking on a new dimension in the context of the digitalization of administrative processes. Despite the current regulatory framework, the practice of considering such claims is characterized by heterogeneity of approaches and varying levels of use of digital tools, such as electronic petitions, online appeals, or integrated platforms for interacting with the public. Electronic petitions, which are becoming a popular tool for citizens to influence decision-making processes, require attention not only to the technical side of their work. Transparency of procedures, accessibility for different groups of the population, and the validity of decisions made by authorities regarding the consideration of petitions are key factors in strengthening citizens' trust in digital communication formats. Similarly, the use of automated queues, electronic appeals, and integrated management systems has great potential for optimizing administrative processes. Meanwhile, their technical efficiency may lose its significance without taking into account the human factor, as well as compliance with the legality and ethics of decisions. Modern research confirms that the social aspect is an important factor, indicating a direct dependence of the level of citizens' trust in electronic services on the transparency of administrative activities and equal access to such platforms. A formal approach to the implementation of digital technologies without taking into account the real needs of users may entail the risks of a new wave of bureaucratization or the recurrence of old problems based on negative experience of interaction with the public administration system.

Among the main challenges of digital transformation, one should highlight the issue of responsibility for decision-making, especially in the context of partial implementation of digital technologies. For example, algorithms that make decisions based on given parameters can deprive the process of an individual approach in atypical cases or complex situations. In such cases, human participation and review of the results of

automated analysis remain important.

Therefore, the digitalization of administrative procedures requires their phased implementation, where monitoring and evaluation of their efficiency and effectiveness is a key element in decision-making on the implementation of innovations. E-government should be not only a tool for performing operational tasks, but also a mechanism for ensuring transparency, accessibility and increasing trust among citizens and legal entities. To achieve this successfully, an interdisciplinary approach is needed, covering technical, legal, administrative and social aspects.

RESEARCH METHODOLOGY

Type study is based on a comprehensive methodological approach that combines general scientific and special legal research methods. The dialectical method was used to examine the evolution of administrative practice in the context of digital transformation and to identify the interrelationship between technological innovation and the realization of the right to petition. The formal legal method served as the basis for analyzing the relevant legislation governing the submission and consideration of appeals by citizens and legal entities.

The comparative legal method was applied to assess the development of digital administrative practices and to compare traditional administrative procedures with modern electronic services and automated platforms. The systemic and structural methods enabled the examination of the right to petition as an integrated element of public administration and the identification of the interconnections between legal regulation, digital technologies, and institutional mechanisms for protecting individual rights.

The empirical basis of the study included the analysis of the administrative practice of executive authorities and local self-government bodies, with particular attention paid to the functioning of official electronic services and digital platforms used for submitting and processing appeals. This made it possible to evaluate

the practical implementation of digital communication mechanisms and to assess the relationship between technological efficiency, the human factor, and the legal and ethical principles that ensure the legality, transparency, and fairness of administrative procedures.

The combination of these methods made it possible to comprehensively evaluate the impact of digital technologies on administrative practice and to formulate proposals for improving the legal regulation of electronic interaction between public authorities, citizens, and legal entities.

RESULTS. The study of the impact of digital technologies on the implementation of the right of citizens and legal entities to appeal should become a starting point for improving administrative practice, taking into account moral and ethical principles and sustainable development goals. Administrative policy and practice should harmoniously combine advanced technological solutions and the human factor, creating an effective and at the same time humane system of public administration.

The problems raised concern urgent questions about the integration of administrative practice and technological approaches in order to achieve the optimal balance between transparency, efficiency and fairness in the process of considering appeals. In particular, the issue of changes in assessments of the activities of state authorities and local self-government bodies depending on the degree of evidence of the participation of the human factor in the decision-making process, as well as the impact of this aspect on the level of citizens' trust in electronic services, remains important. According to the results of research in the field of human interaction and digital technologies, focusing on human participation in the decision-making process can cause a more critical assessment of the actions of state authorities, as well as increase the requirements for compliance with established rules and procedures. This forms a three-component approach to administrative practice, which involves taking into account the norms regulating the actions of state authorities and local self-government bodies, standards for the use of digital technologies, as well as norms aimed at ensuring responsibility for the organization and administration of electronic services.

Thus, there is a need for a comprehensive analysis of the activities of executive authorities and local governments from the point of view of the impact of digital technologies on the implementation of the right to petition. Meanwhile, it is important to assess the effectiveness of existing administrative and procedural norms and identify ways to improve them through the integration of human and technological factors.

The issue of the implementation of the citizens' and legal entities' right to appeal, in addition to the prism of administrative procedures and the development of digital technologies, is the subject of research in the scientific works of many Ukrainian and foreign scientists. A significant contribution to the study of this issue has been made by scientists from various fields of law, in particular O.V. Bulgakova, K.O. Nesterenko,

A.A. Starodubtsev, V.P. Tymoshchuk, N. Wiener and others. However, the topic is dynamic and actively being developed, as digital technologies transform traditional administrative practice and create new mechanisms for implementing the right to address through electronic services, automated platforms and integrated management systems, and its research is still at the development stage, which requires further comprehensive scientific understanding.

In this regard, an important objective of contemporary administrative law scholarship is to assess the impact of digital technologies on the administrative handling of appeals submitted by individuals and legal entities, evaluate the effectiveness of electronic services and automated platforms, and examine the role of the human factor, as well as regulatory and ethical principles, in ensuring the legality, transparency, and fairness of administrative procedures.

DISCUSSION. The development of digital technologies in the field of administrative procedures allows executive authorities and local self-government bodies to go beyond routine forms and apply adaptive approaches to considering appeals. Expanding the scope of interaction of the modern public system with the subjects of appeals (citizens and legal entities), the legislator has adopted a number of regulatory legal acts, in particular the laws of Ukraine "On Citizens' Appeals" [1], "On Information" [2], "On Access to Public Information" [3], "On Administrative Services" [4], "On Administrative Procedure" [5]. Their adoption led to the transformation of administrative and legal mechanisms of interaction between the state and citizens, which was manifested in the transition from a power-management model to a service-oriented paradigm of public administration activities aimed at increasing the level of openness and transparency of the activities of government bodies and local self-government, creating convenient conditions for citizens and legal entities to exercise their rights and legitimate interests, as well as forming a modern public administration system focused on human needs.

This approach is consistent with the position of V. I. Teremetskyi and Ya. V. Zhuravel, who emphasize that digitalization of executive authorities should not be limited to the creation of electronic services, but should be understood as an organizational basis for optimizing public administration through the use of state registers, online services, automated data processing, systematic control and audit [6, p. 109–110].

The realistic prospect of implementing electronic management systems and automated platforms takes administrative practice from the traditional plane to a new level of research, where not only rules, but also moral and procedural standards play a key role. The task of digitalizing administrative practice is to ensure that the actions of government bodies and local self-government comply with legislative norms and expectations of the subjects of the appeal. Considerable attention is paid to technical aspects: the algorithm for processing appeals, automated queues, electronic petitions. However, the effectiveness of

digital services cannot be assessed solely by technical criteria: normative and ethical approaches to decision-making in complex or conflict situations are crucial.

For example, in the context of ensuring an adequate level of protection of human rights and freedoms, the institution of the Commissioner of the Verkhovna Rada of Ukraine for Human Rights occupies a special place in the system of public power. Appealing to the Commissioner is not only a form of individual protection against violations by state authorities or officials, but also an effective tool for monitoring systemic problems in the field of public administration. It is thanks to the institution of parliamentary control that a balance is ensured between the digitalization of administrative processes and the need to preserve the humanistic principles of public administration, which guarantees the real opportunity for each citizen to defend their rights in the context of technological transformation of public administration. In accordance with the Law of Ukraine "On the Commissioner of the Verkhovna Rada of Ukraine for Human Rights" [7], the activities of this institution are aimed at exercising parliamentary control over the observance of constitutional rights and freedoms of man and citizen. Within the scope of his competence, the Commissioner considers applications from individuals and legal entities, verifies the facts of alleged violations of rights, requires state authorities and local self-government bodies to eliminate these violations, and, if necessary, initiates the responsibility of officials. One of the important advantages of the Commissioner's work is his independence in decision-making and the possibility of extrajudicial protection of rights, which makes him an effective alternative to traditional administrative and judicial procedures. Consideration of applications is characterized by flexibility, speed and confidentiality, which allows for a prompt response even in cases where other methods of legal protection are ineffective. Given the processes of digitalization of public administration, the importance of implementing electronic communication mechanisms between citizens and the Commissioner's institution is increasing, which provides wider access to human rights instruments and contributes to increasing the level of trust in public authorities. Thus, the Commissioner's website contains complete information on the methods of contacting the Commissioner, including the possibility of contacting by mail or e-mail, as well as the possibility of contacting in person on specified days and hours.

Along with the activities of the Commissioner for Human Rights of the Verkhovna Rada of Ukraine, an important role in the practical implementation of the right to appeal is played by executive authorities and local self-government bodies. They directly interact with citizens and legal entities, ensuring the reception, processing and consideration of appeals in digital format. The digitalization of administrative procedures allows creating new communication tools between authorities and society, including electronic receptions, online platforms, chatbots, mobile applications and integrated document management systems.

Analysis of the websites of the Cabinet of Ministers in Ukraine and central executive bodies shows that they operate on the basis of a single principle - openness, which involves the formation, publication and systematic updating of information about the activities of government bodies, their powers, structure, management, regulatory legal acts regulating the relevant sphere, as well as mechanisms for interaction with the public. This ensures the implementation of the Law of Ukraine "On Access to Public Information" [3] in the implemented requirements for guaranteeing the transparency of their activities. The web resources of executive bodies publish work plans, reports, statistical data, results of decisions, as well as information about the possibilities of submitting appeals, requests for public information and receiving administrative services in electronic format. This approach allows not only to inform the public, but also to activate their participation in public administration processes, contributes to increasing the level of trust in state institutions and creates conditions for more effective public control over the activities of executive bodies.

In practice, the implementation of the principle of openness is ensured through a number of electronic platforms and services. In particular, the portal of the Cabinet of Ministers of Ukraine (<https://www.kmu.gov.ua>) provides access to regulatory legal acts, government programs, work plans and public reports, and also allows submitting electronic appeals and requests for information. The Ministry of Digital Transformation of Ukraine (<https://thedigital.gov.ua/>) has implemented integrated services on the Diya portal, which include receiving administrative services online, forming electronic petitions and applications, as well as automated processing of citizens' appeals. In addition, the Government "hotline" (<https://www.kmu.gov.ua/uryadova-garyacha-liniya-1545>) provides a 24-hour mechanism for communication between the Government and citizens, which allows for a prompt response to problematic issues raised in citizens' appeals, while appeals are accepted using electronic communications and transmitted to authorities in accordance with their competence. On the websites of other central bodies (the Ministry of Justice of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine, the Ministry of Finance of Ukraine, and others), the principle of openness is ensured in a similar way in accordance with the Law of Ukraine "On Access to Public Information" [3] and is manifested in a standardized presentation of information about the structure of bodies, officials, their powers, as well as in the publication of work plans, reports, and regulatory legal acts regulating the relevant sphere of activity. Most resources provide interactive opportunities for subjects of appeal: submitting requests for public information, appeals, complaints, and proposals in electronic format, tracking the status of consideration of appeals, and receiving a response in a user-friendly manner. Such a unified practice, which includes a single approach in the activities of central executive bodies and their territorial bodies, contributes to clarity and legal certainty in the interaction of citizens and legal entities with authorities, increases the efficiency of processing appeals,

and ensures the stability of administrative procedures. Moreover, in accordance with paragraph 4 of Article 7 of the Law of Ukraine "On Central Bodies of Executive Power" [8], territorial bodies of ministries, within the limits of their powers, issue orders of an organizational and administrative nature and orders that are administrative acts. Such administrative acts enter into force, are executed, may be appealed administratively and cease to be effective in accordance with the provisions of the Law of Ukraine "On Administrative Procedure" [5]. This law defines the general principles of preparation, adoption, entry into force, execution, appeal and termination of the effect of administrative acts issued by executive authorities in accordance with their competence. As rightly noted by K.O. Nesterenko & O.V. Bulgakova "The Law of Ukraine "On Administrative Procedure" is a law on the balance of public and private interests. Great responsibility lies with administrative authorities, which must ensure a fair and lawful resolution of cases" [9, p. 485]. Continuing the opinion of the researchers, we emphasize that this allows us to provide a clear procedural framework for the interaction of citizens and legal entities with government bodies in the process of making administrative decisions. For example, when receiving administrative (state) services in accordance with the Law of Ukraine "On Administrative Services" [4]. In particular, on the website of the State Service for Geodesy and Cadastre of Ukraine (<https://e.land.gov.ua/services>) in the electronic services section, citizens and legal entities can receive administrative services by applying for obtaining information from the State Land Cadastre, mass land valuation, issuance of information from land management documentation from the State Fund of Land Management Documentation and a number of others.

In this context, the position of V. I. Teremetskyi and Ya. V. Zhuravel is important, according to which registration actions should be considered as a legal form of public administration, since they are connected with the exercise of public authority, the provision of administrative services and the official recognition of legally significant facts by the state [10, p. 230, 234].

Meanwhile, the need for authorization has been introduced for a certain category of services, which is provided in accordance with the Law of Ukraine "On Electronic Identification and Electronic Trust Services" [11]. According to the provisions of the aforementioned law, authentication is an electronic process that allows confirming the electronic identification of an individual, legal entity or information system, as well as the origin and integrity of electronic data, and multi-factor authentication involves the use of two or more factors from different authentication groups.

Authentication mechanisms play a key role in ensuring the security of administrative services, protecting personal and confidential data of citizens and legal entities, as well as guaranteeing the authenticity and legal significance of electronic documents. They create favorable conditions for the effective digitalization of administrative practice, strengthen trust in electronic

services and contribute to the establishment of a service-oriented approach in the relations of government bodies with service consumers. The integration of multi-factor authentication into the service provision process ensures control of access to digital resources and reduces the risks of unauthorized intervention, which is an integral part of modern e-government.

At the level of local self-government, whose activities are regulated by the Law of Ukraine "On Local Self-Government in Ukraine" [12], the implementation of the right to appeal by citizens and legal entities is also actively digitalized. For example, on the portals of city councils, such as the Kyiv City Council (<https://kyivcity.gov.ua/services>) or the Lviv City Council (<https://city-adm.lviv.ua/services>), the procedure for submitting electronic petitions, complaints, proposals and requests for information, and obtaining administrative services is stipulated. It is also provided possibility tracking the status of requests in real time and receiving responses in digital format. Most of these services use authorization users through means electronic identification and multifactor authentication authentication, which guarantees protection personal data and legal certainty electronic documents.

However, the practice of applying digital platforms shows that human factor remains important element in the procedure consideration of appeals. Research show that citizens strictly evaluate decision administrative organs when they realize their human origins or foresee influence human factor in development algorithmic systems. Citizens generally expect compliance with rules and procedures, guided by the principles of deontological approach, when the assessment actions is based on duties and rights, not solely on results. Similarly to moral dilemma in philosophy, administrative solutions in a digital environment often require search compromise between the formal correctness of procedures and the maximum assistance interests citizens. Such approach reveals complexity human expectations and emphasizes limitation automation as a full-fledged replacements human control. Depending on whether are perceived administrative decision as a consequence programming by humans or as an autonomous action digital systems, they can get different public assessment.

Thus, modern administrative practice in the field digital appeals encounters from three main aspects: the need taking into account regulatory regulation actions officials, standards functioning digital platforms and the role human in the design and monitoring of such systems. This feature necessitates a comprehensive approach to implementing procedures that combine advantages automation from effective control and participation people at every stage, and also provide compliance legality and ethics principles.

As Norbert Wiener noted long ago, machines act much faster than humans and perform operations more accurately, while understanding their mode of action often comes much later than the completion of the task they perform [13, p. 1355]. In the context of

the digitalization of administrative practice, this means that any electronic systems or platforms for considering appeals must be designed so that algorithmic solutions comply with legislative norms and societal expectations. The development of automated appeals consideration systems goes through various methodological approaches. Previously, formalized systems based on strict rules and algorithms were used, which ensured transparency and controllability of decisions, but were limited in flexibility and ability to respond to new or contextually complex appeals.

Modern platforms actively use data for adaptive learning and modeling of the behavior of administrative bodies. This allows automated systems to process mass appeals more efficiently. However, such approaches are accompanied by certain risks: algorithms can reproduce human biases or misinterpret complex circumstances that require carefully substantiated legal and ethical decisions. Moral dilemmas in decision-making by government and local governments entail a balancing act between compliance with formal rules and maximizing benefits for citizens and legal entities. For example, an electronic system may offer a solution that meets procedural requirements but is inferior in efficiency to the public good, or vice versa - contribute to a more beneficial solution that potentially violates the principles of justice or equality. The human factor in this process remains critically important. Studies show that citizens evaluate the actions of administrative structures much more strictly if it is obvious that decisions were made by people, even if they are implemented through digital platforms. This is evidenced by the presence of a sufficient number of legal disputes in administrative courts on issues of appealing decisions of government entities (the website of the Judicial Power of Ukraine (https://court.gov.ua/inshe/sudova_statystyka/)).

Additionally, administrators, when programming or controlling digital/electronic systems, become the object of evaluation in terms of legality, compliance with procedures and ethics of actions. This “human component” sets stricter rules and limits for automated platforms, because the sense of responsibility for decisions becomes a normative reference point for the entire process of handling requests. For example, in the “human-digital system” model, the extent to which the administrator has correctly configured the system for decision-making is evaluated, while in the “digital system” model, the autonomous action of the platform is evaluated. This approach demonstrates that public expectations regarding digital technologies in the field of requests always integrate the assessment of human responsibility and ethical regulation of procedures.

Thus, the modern practice of electronic administration of appeals illustrates a key challenge: it is necessary to combine the effectiveness of digital technologies with human control and responsibility, compliance with legality and ethical norms. This requires a comprehensive approach to the design, implementation and evaluation of digital platforms in government and local self-government bodies.

It should be noted that the law on administrative procedure was created to solve collective problems that arise in a large number of similar appeals, while the delegation of certain powers to executive authorities is an important tool for ensuring the effective consideration of appeals. Meanwhile, administrative exclusivity, which is associated with excessive power and too much freedom of interpretation of the law, is a misconception, since the powers of administrative authorities are not something exceptional: all state authorities have a certain discretion and fill gaps in the legislation, but this discretion is always limited by law and subject to control by higher authorities or the court. An important feature is that legislation and case law are gradually forming a “new administrative exclusivity”: broad formulations of laws, which must be interpreted in their literal sense, are often narrowed to limit the powers of authorities in considering appeals. This can complicate collective problem solving, stimulate the search for workarounds and create uncertainty in the application of procedures.

Thus, although administrative authorities are endowed with significant powers to consider appeals effectively, excessive concentration of power and excessive narrowing of the freedom to interpret the law can hinder the transparency, predictability and fairness of administrative procedures. The power to create exceptions to general rules is part of the daily work of administrative authorities, as is the power to apply special procedures to protect citizens' rights when appropriate. Of course, the use of such a discretionary approach occurs more often in some cases than in others. For example, the consideration of a citizen's appeal for compensation for damages by an administrative authority will differ from the consideration of an application for the provision of an administrative service. However, administrative systems have long developed rules and procedures to take into account such differences.

CONCLUSIONS. In summary, several key conclusions can be drawn regarding perceptions of responsibility and the admissibility of actions in the context of administrative practice concerning appeals.

First, the view that an employee or an automated (electronic/digital) system should not make certain decisions (e.g., reject an application or suspend a procedure) does not necessarily preclude the belief that such actions may serve the interests of efficiency or the protection of citizens' rights. This finding highlights the challenge of balancing formal legal requirements with practical considerations of administrative effectiveness.

Second, virtually no significant difference was observed in perceptions of actions performed by a human actor and those performed by an automated (electronic/digital) system within the administrative process. Approximately the same proportion of participants considered it acceptable for decisions to be made either by an employee or by an algorithm-based system. Although a slightly higher proportion of participants expected an automated system to act more quickly, this difference was not statistically significant. These results indicate the

absence of a clear moral dichotomy between human decision-making and automated administrative procedures.

Third, evaluations of the acceptability of decisions were more formalistic and rule-oriented when the human role in programming the system was made explicit. When the algorithm was presented as operating autonomously, its decisions were perceived in a manner similar to those made by human actors. However, when the system's actions were explicitly linked to the decisions of an administrator or developer, participants tended to apply legal and procedural rules more strictly. This suggests that transparency regarding human involvement

in administrative procedures influences perceptions of legitimacy and responsibility.

These findings raise important questions concerning moral and legal accountability in administrative procedures that rely on algorithms and automated (electronic/digital) systems. The presence of identifiable human oversight may enhance trust in, and the perceived legitimacy of, administrative decisions. Conversely, delegating decision-making authority to a system without a clearly identifiable responsible actor may result in stricter evaluations of the appropriateness and legitimacy of such actions.

REFERENCES

1. On Citizens' Appeals: Law of Ukraine No. 393/96-VR of 2 October 1996 as of August 9, 2023. URL: <https://zakon.rada.gov.ua/laws/show/393/96-%D0%B2%D1%80#Text>
2. On Information: Law of Ukraine No. 2657-XII of 2 October 1992 as of February 12, 2025. URL: <https://zakon.rada.gov.ua/laws/show/2657-12#Text>
3. On Access to Public Information: Law of Ukraine No. 2939-VI of 13 January 2011 as of March 25, 2025. URL: <https://zakon.rada.gov.ua/go/2939-17>
4. On Administrative Services: Law of Ukraine No. 5203-VI of 6 September 2012 as of December 19, 2024. URL: <https://zakon.rada.gov.ua/go/5203-17>
5. On Administrative Procedure: Law of Ukraine No. 2073-IX of 17 February 2022 as of December 19, 2023. URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text>
6. Teremetskyi V. I., Zhuravel Ya. V. Digitalization as an organizational basis for optimizing executive authorities. *Private and Public Law*. 2020. No. 2. Pp. 108–112. DOI: <https://doi.org/10.32845/2663-5666.2020.2.21>.
7. On the Ukrainian Parliament Commissioner for Human Rights: Law of Ukraine No. 776/97-VR of 23 December 1997 as of December 13, 2022. URL: <https://zakon.rada.gov.ua/go/776/97-%D0%B2%D1%80>.
8. On Central Bodies of Executive Power: Law of Ukraine No. 3166-VI of 17 March 2011 as of August 21, 2025. URL: <https://zakon.rada.gov.ua/go/3166-17>
9. Nesterenko, K.O., & Bulhakova, O.V. (2023). *Administrative Procedure as a New Stage of Interaction between Public Authorities and Society*. *Analytical and Comparative Jurisprudence*, 6, 482–486. DOI: <https://doi.org/10.24144/2788-6018.2023.06.83>
10. Teremetskyi V. I., Zhuravel Ya. V. Implementation of registration actions as manifestation of the legal form of public administration. *Bulletin of Kharkiv National University of Internal Affairs*. 2020. No. 2(89). Pp. 227–238. DOI: <https://doi.org/10.32631/v.2020.2.21>.
11. On Electronic Identification and Electronic Trust Services: Law of Ukraine No. 2155-VIII of 5 October 2017 as of October 10, 2024. URL: <https://zakon.rada.gov.ua/laws/show/2155-19#Text>
12. On Local Self-Government in Ukraine: Law of Ukraine No. 280/97-VR of 21 May 1997 as of August 21, 2025. URL: <https://zakon.rada.gov.ua/laws/show/280/97-%D0%B2%D1%80#Text>
13. Wiener, N. (1960). Some moral and technical consequences of automation: As machines learn they may develop unforeseen strategies at rates that baffle their programmers. *Science*, 131(3410), 1355–1358. DOI: <https://doi.org/10.1126/science.131.3410.1355>.