DIGITAL TRANSFORMATION IN CRIMINAL JUSTICE AND LABOR LAW

Article

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Theoretical and Methodological Foundations of the Concept of Digital Transformation in Criminal Proceedings

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Abstract: The article addresses issues related to the necessity of developing a concept for the evolution of Russian criminal proceedings under conditions of digital transformation of society and state, as well as theoretical and methodological problems associated with defining the digitization of the national judicial system. A detailed analysis is conducted on contemporary socio-philosophical, sociological, managerial, and legal theories that could serve as a basis for solving these tasks. The author identifies and describes explanatory capabilities of several modern theoretical constructs, namely the theory of sociotechnical systems, communicative action theory, theory of social construction of reality, justice theory. Additionally, self-learning organizations theory, game theory, and decision-making theory are also examined. Various strategies for using concepts such as goal setting, systems, lifeworld, communication, legitimation, justice, efficiency, formulas, and principles proclaimed through the application of these theories during conceptualization are justified.

Keywords: sociotechnical systems; communicative action; lifeworld; construction of reality; decision making; justice; effectiveness

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Contents

I. Introduction

In his endeavor to formulate a concept of digital transformation in the criminal justice system, the author reflected upon the theoretical and methodological foundations that could form its basis. Obviously, this does not refer to technical issues lying within the realm of information and communication technologies, which require separate discussion. However, there is much in the areas of philosophical, cognitive, sociological, legal, management, economic, and even psychological knowledge that could provide a foundation for such conceptualization. Among the theoretical frameworks that immediately come to mind in connection with the above are the theory of sociotechnical systems, the concept of social construction of reality, and the theory of communicative action. Interdisciplinary methodology naturally serves as the core method. Moreover, from a methodological perspective, special attention should be given to the justice theory, game theory, and decision-making theory.

The theory of sociotechnical systems will help to construct the logic and calculate logistics for managing the process of digital transformation in criminal proceedings. The use of the concept of social construction of reality will enable forecasting the main parameters of the

social reality that inevitably emerges from the created administrative management system as well as the aforementioned sociotechnical system. Reliance on communicative action theory arises from an awareness of the importance of addressing a complex goal-setting system, which is inevitable within sociotechnical systems. This issue gains particular significance due to the specifics of the court as a sociotechnical system oriented not only towards efficiency but also justice. From this binary goal-setting stems the necessity of studying the current stage of theoretical research on the notion of justice, including game theory and decision-making theory applications. It seems unnecessary to provide additional justification for turning to interdisciplinary methodology — heterogeneous subjects combining technical, social, anthropological, legal, economic, and other dimensions are planned to be theoretically examined at all stages.

II. Sociotechnical Systems Theory

Here we can see an ideal case of a sociotechnical system because the interaction between office equipment, infocommunications technologies, individuals, and professional social groups cannot be adequately described either in technical, legal, organizational-management, or sociological terms. Multiple individuals, including victims, defendants, witnesses, judges, investigators, operatives, experts, and IT specialists interact with computers and networks both individually and collectively. At the same time, these computers, networks into which they are connected, accumulated data arrays, and digital or digitized traces left at crime scenes function separately, rather than forming purely technical systems, entering together with individuals and collectives into sociotechnical systems of judicial proceedings (Sergeev, 2022).

The term *sociotechnical systems* was not created through philosophical reflection or methodological analysis. Instead, it emerged as a result of improvements in managerial practice back in mid-twentieth century thanks to Eric Trist and Ken Bamforth. Employees of a London-based design-research institute specializing in scientific labor organization, management, and rationalization attempted to address issues

arising in British coal mines' operations and difficulties in developing effective instructions for personnel.

Eric Trist and Ken Bamforth criticized the previous approach based on technological imperative, viewing humans merely as extensions of machines or nonoperational appendages to them. According to earlier understanding of human-machine interaction, all human work was reduced to following precise instructions dictating button-pressing or lever-pulling actions. To overcome this imperative, they turned to Ludwig von Bertalanffy's ideas, according to which people were required to think and make more complex decisions across all levels beyond what could be prescribed by any instructions (Gintciak et al., 2024).

In the paradigm of sociotechnical systems, a human was first conceptualized as a resource requiring development and an active collaborator with other actors. Initially, people appeared in sociotechnical systems as a separate subsystem described using behavioral-social psychology terminology. This subsystem connects with the technical subsystem encompassing artifacts or objects defined in machine operation and functionality terms, as well as with the economic subsystem the activities of which are framed in terms of effectiveness. Sociotechnical systems can schematically be depicted as an "acorn" consisting of two parts. There is one activity (a), such as practical interventions accompanied by corresponding studies. Certain organized structures, like symbolic or material-technical ones, are designed and then implemented; then these symbolic and material-technical structured organizations integrate into another activity (b), similarly organizing it (Shchedrovitsky, 1992, p. 49).

The author of this visualization wrote about the complex and heterogeneous nature of sociotechnical systems, stemming from their nonlinear interaction pattern. The complexity of sociotechnical systems compels developers to consider not just the existence of two interacting and interdependent levels — the social and technical — but also an entire elemental interaction system, wherein individual elements of social and technical natures blend sequentially into a heterogeneous yet flexible ensemble governed by systemic principles. Subsystems emerge, assuming moderating or coordinating roles relative to these elements. G.P. Shchedrovitsky specifically emphasizes the unique role played by

the projected activity system, which governs both social and technical systems while itself becoming subject to governance. "This second component of the sociotechnical system is the projected activity system, i.e., the one we are trying to manage. Thus, in the 'upper' part of the 'acorn' we create certain structured arrangements and incorporate them into the 'lower' activity, imposing them as a distinct form. In other words, we constantly engage in some sort of activity over activity, and I believe this situation ultimately gives rise to the task of control in its refined form" (Shchedrovitsky, 1992, p. 51).

G.P. Shchedrovitsky emphasized that the topic of sociotechnical systems should evolve independently — not as an add-on to theories of management or engineering-driven automatic regulation, despite ongoing attempts to do so. The founder of the methodological movement argued against cybernetic models and regulatory theories formulated in cybernetic terms with their schemes of direct and feedback loops serving as foundational frameworks for developing concepts of sociotechnical interaction. "Our objects, G.P. Shchedrovitsky asserted, are Natural/Artificial systems since they possess, firstly, a natural life component, secondly, an artificial component resulting from being enveloped and assimilated by other activity systems, and thirdly, a resultant factor along which movement actually occurs and must proceed" (Shchedrovitsky, 1992, p. 50).

Gradually, the focal point of authors investigating sociotechnical systems shifted toward areas of technological innovation, knowledge-intensive industries, and particularly large-scale IT project design. "The evolution of socio-technical theory can also be reviewed in terms of the focus on socio-technical designs and interventions. For instance, over time socio-technical research has involved the integration of numerous perspectives, deviating from the original organizational focus. In the Information Systems and ICT fields, for example, Morris states that sociotechnical systems literature can be grouped based on several dominant perspectives including, but not limited to, the social sciences, organizational sciences, engineering, and complex systems viewpoints" (Abbas and Michael, 2025). At the same time, others focused on dynamic characteristics of these entities, exploring processes of transition, transfor-

mation, or reproduction of systemic qualities within the context of resilience and multilevelness (Geels, 2010).

Thus, under the sociotechnical systems, we refer to systems in which interactions occur among elements of social and technical nature. Within these systems, people, statuses, roles, and institutions become interconnected with technical devices, software, information-communication technologies, and networks. Optimization of designing sociotechnical systems hinges upon synchronously accounting for requirements of technical and economic efficiency alongside humanitarian aspects such as fairness, freedom of choice, responsibility, realization, and even existential concerns.

III. The Court as a Sociotechnical System

When developing algorithms for use at various stages of legal proceedings, questions arise that require the application of sociotechnical systems theory. Viewed as a sociotechnical system, the court raises the issue of legal compatibility. "Legal compatibility differs from legality in the way that legal compatibility not only strives for compliance to lawful statutes and regulations, but also takes the compliance with higher-order legal goals into account. The following areas were considered to be of importance for legal compatibility: avoiding personal reference in data, ensuring information security, enabling freedom of decision, increasing transparency, ensuring traceability, and increasing usability. The areas are partially linked with each other. A conflict exists between the avoidance of personal references and ensuring traceability. The results help explain legal compatibility with regard to applications on a theoretical basis" (Hoffmann et al., 2015, p. 112).

It is intriguing how Hoffmann distinguishes between legal goals at two levels: primary-level goals and higher-order goals. Primary-level goals, according to Hoffmann and his coauthors, involve preventing legal consequences — neither individual nor collective members of the sociotechnical system should violate laws, although common sense suggests that legal liability might be shared between a machine and an individual or group. Essentially, this implies distributing legal account-

ability between developers of infocommunications technology and users thereof (Brazevich and Zavaritskaya, 2016).

Higher-order legal goals may entail achieving justice, upholding legality, protecting human rights, etc., implying that new infocommunications technologies' implementation should minimally avoid diminishing justice, legality, and human rights protection. In this context, technological innovations would justify themselves by boosting organizational-legal or financial-economic efficiency in courts and investigations. However, the ultimate objective remains digitization aimed at producing fairer judicial rulings, strengthening rule of law, and enhancing human rights protections. For instance, new technologies allow making accusations more evidence-based, reducing rates of judicial error, and increasing punishment inevitability, among other benefits.

The initial phase of introducing infocommunications technologies is an informational one which involves creating a unified informational environment. It begins with establishing databases accessible via the Internet, linking employees of investigatory bodies and courts at all levels into a community where members freely communicate and exchange documents and essential information. Gradually, it manages to channel the efforts of judges, investigators, and software developers into creating platforms whose unification essentially transforms a multitude of legally connected, yet still fairly autonomous, judicial bodies into a complex, integrated sociotechnical system through the Online Justice service.

A decision to establish this platform was made less than five years ago, and today the project's implementation gathers momentum as regional and district courts actively test it. Through Online Justice, citizens can submit pre-trial claims without leaving home, expedite claim submission to judges, or obtain divorce if their spouse resides elsewhere.[1] Federal Law No. 267-FZ dated 8 August 2024 (Amendments to the Criminal Procedure Code of the Russian Federation), which came into effect on 5 February 2025, guarantees detainees held in detention centers the right to meet with defense attorneys remotely via video-

[1] Guide: How to file a pre-trial claim from home (spoiler: not by email); Speeding up the process of submitting a claim to a judge; How to get a divorce if your spouse lives in another region? (https://pravosudieonline.ru/poleznye-stati/).

conferencing services. Organizing such connections presents significant technical, legal, and administrative challenges, which the introduction of Online Justice aims to resolve.

The second stage of digitalization (or digital transformation) in court proceedings can be referred to as a period when all its stages become so algorithmized that direct human involvement — be it investigators, prosecutors, lawyers or judges — is no longer necessary. Concepts such as "digital court" or "smart court" arise, where the entire case cycle is transferred into a digital environment. This becomes possible not only due to the introduction of digital platforms but also through active engagement of artificial intelligence systems for their maintenance. Many experts see here an opportunity to reduce the likelihood of judicial errors or increase the independence of courts (Burdina and Chizhov, 2023). However, they warn against excessive enthusiasm regarding digitization of legal processes, identifying challenges posed by this approach to established balances between branches of power and even principles of justice.

The second stage raises significantly more questions because the very idea of transferring powers to machines, algorithms, computer programs — even if these are called AI — conflicts with many theorists' and practitioners' understanding of the nature and essence of judicial authority. As E.V. Burdina and V.N. Kornev assert, "a revolutionary method of delegating decision-making authority to AI falls short of the task to protect rights, only to result in a damage to fundamental values of judicial power well beyond any economic benefit. A full and uncontrolled delegation of the decision-making authority from a human judge to AI is incompatible with the nature of judicial power. With technologies opposing the fundamental values of justice as fair trial, there is a need to regulate the extent and forms of control over the use of artificial intelligence as well as formulate relevant prohibitions" (Burdina and Kornev, 2024, p. 124).

If we consider the judiciary as a sociotechnical system, it is easy to identify all the main characteristics of such systems. Firstly, there is joint optimization of social and technical aspects rather than mere adjustment of technology to the tasks of judges and investigators, let alone searching for applications of certain devices, software, and algorithms

within traditional legal procedures. It entails a new conceptualization, still grounded in ideas of legality and fairness, but whose implementation must be rethought and redesigned from scratch since neither technological nor social solutions exist yet — they need to be created. Thus, significant administrative and social resources previously spent on reducing subjectivity in judicial decisions or protecting human rights could now be saved, while comparable costs may become necessary to neutralize a "machine error" or cognitive dissonance.

Secondly, common sociotechnical systems are designed to achieve specific goals, meaning that balance between technical efficiency, social effectiveness, adherence to lawfulness, and equity depends not just on initial capabilities but also on goal setting mechanisms.

Finally, thirdly, sociotechnical systems should demonstrate adaptability via self-learning — a prerequisite for ensuring complex interactions among people, technologies, and the surrounding environment. The theory of self-learning organizations became a landmark event in management theory and practice, though applied exclusively to business entities, leaving institutions like courts or prosecutor's offices largely out of focus. Meanwhile, introducing changes into laws, regulations, instructions, algorithms, or programs represents part of organizational self-learning process (Tayursky and Belova, 2014).

Lawmakers and enforcers, judges and investigators, engineers and programmers are compelled to seek new forms and models of interaction between humans and computers or improve existing ones. "1) Use of digital guidelines and methodological recommendations for collecting evidence and verifying its reliability and consistency based on specially developed mathematical models, as well as enabling audio and video recordings at various stages of investigation, starting from crime scene inspection up until detention and interrogation of suspects; 2) utilization of AI technologies to support interrogations, including a natural language processing system providing diagnostic criteria for evaluating statements made during questioning (absence of contradictions, contextualization, etc.); 3) employing AI tools in criminal trials, including systems capable of displaying evidence presented in courtrooms and identifying similar cases adjudicated in the past" (Dragilev et al., 2022, p. 57).

Without a doubt, developing a governance system will proceed step-by-step. The first phase involves digitizing judicial processes considering them as mechanical structures, whereas the second phase aims to implement opportunities afforded by viewing the court as an organic system capable of self-organization and learning. Mechanical structures feature rigid and unambiguous connections between elements arranged according to hierarchical principles. Each element has clearly defined and strictly specified tasks regardless of whether the organization's structure follows project-based or matrix principles. Organizations with mechanical structures typically have clear work algorithms, tasks being highly uniform and formalized. Organic structures allow high degrees of freedom in decision-making. Functions and responsibilities might shift dynamically between individual employees and whole departments (Murrell et al., 2009).

Digitizing justice requires law enforcement officials to assess potential mismatches between the courts functioning as an administrative-bureaucratic system versus a social one. A court as a social system fits mechanically and organically into other societal systems. Social tensions may mature outside the legal framework, leading individuals to turn to courts seeking resolution, which function both bureaucratically and socially. Digitization risks exacerbating conflicts between these two modalities.

The issue of correspondence between the letter and spirit of the law acquires particular relevance. Although both concepts are metaphors, they concisely capture the essence of the problem when the formal side of law diverges from its substance, i.e., the original intent of lawmakers. This topic is truly vast, but the active integration of information-communication technologies places it in a new context — internal convictions of judges maintained substantial presence of humanity throughout all stages of litigation, limiting pressure exerted by formality. Inevitable reduction of common sense and everyday consciousness in the course of digitization poses the question about unity of spirit and letter as one concerning congruence of meaning and intention. This question demands additional research.

IV. Theory of Communicative Action

Emerging in the sixties of the twentieth century, the Theory of Communicative Action combined numerous philosophical traditions and scientific concepts once deemed incompatible and actively competing in the realm of theoretical knowledge. Its author Jürgen Habermas managed to reconcile Marxist ideas, interpretive sociology, phenomenology, structural functionalism, analytical philosophy, and speech act theory. He built his theory upon Marx's concept of social interest, thematicized in line with Weberian distinction between purposive-rational and value-rational action. Husserl's notion of lifeworld was integrated with Parsons' theory of social systems, resulting in a sophisticated formula of society as both a system and a lifeworld. Particularly important were Wittgenstein's and Searle's insights into language as a special kind of activity — it was precisely this approach that enabled Habermas to construct semi-sociological, semi-linguistic models of verbal influence exercised by some social actors over others and to reconceptualize social interaction as communicative (Kimelev, 2021). All these developments contributed to extensive use of theories and methods of communicative action in jurisprudence.

In analyzing the sphere of judicial proceedings, the theory of communicative action provides an opportunity to identify and describe mechanisms for using language and nonverbal means to achieve mutual understanding and coordinate actions among judges, attorneys, prosecutors, and other participants in the trial process. Without applying this toolkit, discussing the fairness of judgments rendered by courts makes little sense. Therefore, employing the theory of communicative action in jurisprudence allows us to perceive social reality beyond static public relations, norms, and sanctions, as classical sociology prescribes. Understanding the judicial process as a communicative process, along with highlighting communication goals and methods aimed at achieving consensus, creates possibilities for activating explanatory resources from sociology, logic, argumentation theory, valuation, and related disciplines.

Thus, among the key ideas of the theory of communicative action applicable to judicial practice, one can include the orientation towards rationality, where communication participants are willing to argue their positions and accept arguments from others without reducing everything to pursuit of personal interests alone (Baklanov and Baklanova, 2025). This is facilitated by distinguishing instrumental and communicative rationality, wherein each participant acts not solely in their own interest but also in the interest of the collective endeavor, which is essential for realizing the objectives of justice. Significant emphasis is placed on conditions for achieving mutual understanding, which goes far beyond merely exchanging information or directives. Such communication requires goodwill from participants, expressed in readiness for dialogue, openness, and willingness to fully or partially acknowledge another party's position. Two crucial aspects of comprehending the judicial process emerge: orientation toward reaching consensus and necessity of critical evaluation. Communication in judicial proceedings will succeed only if it contributes to achieving consensus regarding facts, legal norms, and fair resolutions, thereby transforming consensus-building into a vital component of social integration and maintenance of public order.

The function of critical assessment safeguards the communicative process of judicial proceedings from imposition of any single viewpoint, a risk that always presents during litigation, thus preventing achievement of shared understanding and agreement. Without a doubt, this theory has limitations in this analysis — there is actually no objective of reaching consensus in criminal procedure. Consensus might result from negotiation, yet procedural cognition does not — and cannot — have such an aim, given that application of Russian Criminal Code provisions necessitates precise establishment of factual circumstances surrounding the offense committed. Any doubt, owing to the presumption of innocence, either requires proof, refutation, or interpretation favorably to the defendant. Hence, consensus differs markedly from civil disputes, where the objective lies in proving guilt, which must occur under one of several prescribed scenarios. Consequently, discussions within criminal procedure focus on feasible standards of proof: either "preponderance of evidence" (relative to civil disputes) or "beyond reasonable doubt" (regarding assertions of guilt and content of charges).

While the former standard aligns somewhat with communicative technologies, the latter imposes authoritative and imperative requirements on investigator and judge alike. It is precisely this standard that digital technologies, including AI programs, should ensure compliance with.

The theory of communicative action offers novel explanatory and design possibilities in the field of decision-making process analysis. Reconstructing the capacities for information exchange and argumentation among participants in the judicial process is of utmost importance. This concerns not only efficiency but also impeccable observance of the accused person's right to present arguments in defense, coupled with technological facilitation of the duty incumbent upon investigators and courts: a) to verify defense arguments; b) to refute them by introducing irrefutable evidence into the case, rather than relying on alternative opinions and arguments akin to those used in regular communication; c) if unequivocal refutation proves impossible, then account for defense arguments when defining the scope of accusation, rejecting its unsupported parts or interpreting doubts in favor of the accused, provided remaining uncertainties remain irreconcilable. See Art. 14, Para. 2 of the Russian Code of Criminal Procedure.

Jürgen Habermas raised the issue of juridification of social life, linking it with the search for relationships between system and lifeworld. He highlighted the significance of preserving the lifeworld and preventing its colonization by the system through the growth of written law. Analyzing Max Weber's work on the interplay between law and morality amidst the increasing complexity of formal organizations, he focused attention on the communicative specificity of legitimation processes. "Modern compulsory law is uncoupled from ethical motives; it functions as. a means for demarcating areas of legitimate choice for private legal persons and scopes of legal competence for officeholders (for incumbents of organized power positions generally). In these spheres of action, legal norms replace the prelegal substratum of traditional morals to which previously, in their meta-institutional role, legal norms had reference. The law no longer starts from previously existing structures of communication; it generated forms of commerce and chains of command suited to media of communication. In the process, traditionally customary contexts of action oriented to mutual understanding

get shoved out into the environments of systems. Using this criterion, we can locate the boundaries between system and lifeworld, in a rough and ready way such that the subsystems of the economy and the bureaucratic state administration are on one side, while on the other side we find private spheres of life (connected with family, neighborhood, voluntary associations) as well as public spheres (for both private persons and citizens)" (Habermas, 1987, p. 263). In this regard, it remains critically important to maintain the harmonizing function of the judiciary in balancing the relationship between morality and law, system and lifeworld. If, prior to the digital era, this challenge was addressed through reliance on the institution of internal conviction of judges, in today's digital reality, new mechanisms of interaction must be found (Baklanov and Baklanova, 2025). However, the primary task remains unchanged, it is to prevent separation between the system and lifeworld.

V. Theories of Social Construction of Reality

The theory of social construction of reality emerged in the second half of the 20th century at the intersection of phenomenology, Marxism, and constructivism, formulated primarily by Peter Berger and Thomas Luckmann. This theoretical construct complements epistemological and design approaches to understanding society as communication. For a long time, the concept of reality was associated with the belief that something exists independently of human thought or consciousness. Gradually, however, theorists began to realize that attempts to describe a reality independent of humans ultimately failed. An interim solution involved separating reality into objective and subjective components within one's mind, although this division gave rise to further difficulties.

A new phase in addressing the concept of reality came with the emergence of epistemological and social constructivism. Their core assertion is that reality is constructed through the processes of cognition and social interaction. Despite this claim, the original meaning of the term remained intact: constructed realities do not simply reflect creative imagination but stem from active exploration or even transformation of the external world. Berger and Luckmann's unique contribution

lies in positing that social reality arises through the creation of societies themselves, and nature is not conceived as an antithesis to society but rather as an integral part of it, emerging later than social roles and institutions. Thus society itself is seen as the outcome of interactions among individuals and groups, giving rise to systems composed of meanings, actions, perspectives, roles, and norms. The reality formed through interaction undergoes continuous habituation, institutionalization, legitimization, and objectification. Everyday practices sediment ("solidify") into stable structures that resemble objects or objective facts, guiding subsequent activities of individuals.

From a conceptual standpoint, the examined theory posits that interaction inevitably engenders typifications, which gradually assume the role of commonly accepted norms. A second pivotal consequence of interaction is institutionalization — norms arising from typifications transform into social institutions, thereby establishing social order. Legitimacy of social orders in these societies hinges on systems of knowledge, as knowledge serves as a mechanism for attributing meaning to institutions and integrating them into widely recognized value systems. Ultimately, the legitimation of social norms and values gives rise to what is conventionally termed objective reality. "Legitimation as a process is best described as a 'second-order' objectivation of meaning. Legitimation produces new meanings that serve to integrate the meanings already attached to disparate institutional processes. The function of legitimation is to make objectively available and subjectively plausible the 'first-order' objectivations that have been institutionalized. While we define legitimation by this function, regardless of the specific motives inspiring any particular legitimating process, it should be added that 'integration,' in one form or another, is also the typical purpose motivating the legitimators" (Berger and Luckmann, 1966, p. 110).

Legal reality constitutes a type of socially constructed reality, following the same underlying patterns governing the construction of any other type of reality: economic, cultural, or mundane. Indeed, judicial proceedings represent a distinct domain of social and human existence where individuals and collectives engaged in the legal process face the task of constructing a legally valid reality acceptable to other members of society. For the proper functioning of the social system, it is crucial

to convince the maximum number of participants and observers of the fairness of the judgment reached by the court — a persuasive effort falling within the realm of communicative action, contrary to the dictates of instrumental reason.

Employing the theory of communicative action alongside the theory of social construction of reality enables us to grasp how essential it is for judges, attorneys, and other stakeholders in legal proceedings to enhance and deepen their socio-communicative competencies, encompassing skills such as listening, engaging in dialogue, participating in group deliberations, and fostering mutual understanding. However, in the context of digitalization, the complexity and intricacy of this task multiply exponentially, directly impacting assessments of the legitimacy of justice. The construct of "mutual understanding" assumes central importance here: digitalization may introduce deviations from "reality," potentially disregarding defendants' testimonies as inherently flawed sources of information. Nevertheless, this fundamentally contravenes Art. 14, Section 2 of the Criminal Procedural Code: the issue is not mutual understanding per se, but rather the capacity of Artificial Intelligence to comprehend the content of information, compare it with already available data, evaluate its legal and defensive significance, assess the obligation to take this information into account when drawing conclusions, and develop algorithms mandating investigators to follow these procedures. There is no room for concessions rooted in "mutual understanding" or socio-communicative approaches: "I understand you, but you must also understand me."

Meanwhile, the application of this theory is particularly valuable given the growing volume, complexity, and heterogeneity of written law, which amplifies its influence on social structures, institutions, and practices. It would not be an exaggeration to state that legal reality becomes constitutive for social reality, with social institutions increasingly dependent on the regulatory functionality of legal norms and institutions (Zakharova, 2025). Admittedly, the content of these structures and institutions, as well as their performed functions, remain constant; however, operational modes are shaped directly by normative legal regulation.

VI. Justice Theory, Game Theory, Decision-Making Theory

John Rawls' theory of justice could play a distinctive role in the project of digitalization. Its uniqueness lies in an innovative theoretical foundation that combines traditional philosophical reflections on justice, virtue, goodness, etc., conducted within the genre of thought experiments, with modern analytical tools employed in contemporary economics, such as game theory and managerial decision-making theory. Consequently, this theoretical construct is intriguing not only for its substantive content and explanatory capabilities, but above all for the experience gained from utilizing this instrumentarium in theoretically describing and designing judicial, law-enforcement, and legislative practices.

As well known, in criminal proceedings, the fairness of a court sentence is typically assessed by proportionality between punishment duration and the severity of the crime committed. To this definition, the fairness of the legal process itself is added, determined in accordance with societal features and corresponding legislation. For instance, in a class-based society, equality before the law is denied legislatively, whereas democratic states proclaim such equality. Additionally, one may discuss the implicit recognition by most societal members of the right to violate laws, especially if such violations are perceived as unfair but effective. Notably, Jean-Jacques Rousseau cast doubt on the possibility of genuine equality before the law between rich and poor during the Enlightenment era, while Karl Marx and his followers categorically rejected this notion a century later. Fundamental modern ideas, such as the social contract theory, natural law, and human rights, consequently came into question.

John Rawls utilized game theory and decision-making theory to salvage the concept of contractarianism, requiring him to recognize compatibility within his theory between formal equality (the first principle) and real inequality (the second principle). The first principle pertained to so-called freedoms, while the second urged minimizing actual inequalities by redistributing benefits in favor of the least advantaged: "First: each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme

of liberties for others. Second: social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all" (Rawls, 1999, p. 53). To proclaim these two principles, which from the perspective of classical theory appear contradictory, one must equip oneself with the exact methodological apparatus discussed above.

Yet, how can decision-making theory and game theory be applied to formulate a concept for the evolution of criminal justice in the context of society's and state's digital transformation? Following the algorithm of a thought experiment, John Rawls constructed a hypothetical mental model where each individual finds themselves in an initial position equally distant from the various roles they might assume in society (their social status) and, subsequently, from the portion of goods and resources they can claim or anticipate receiving based on that status. Separated from the future by a veil of ignorance, each individual hopes for a distribution they consider fair, whether it adheres to the principle of "equal shares for all," "proportional to input and effort," or even "from each according to their abilities, to each according to their needs." Transition then takes place to the actual condition, which never completely embodies any of the possible principles. However, Rawls' proclaimed principle of "justice as fairness" permits reconciliation between expectation and reality, as no one can alter their situation for the better from the initial state, and institutions must be structured in a manner that compensates for the resulting disparities (Zakharova and Przhilenskiy, 2019).

Regarding access to justice, all these theoretical-hypothetical considerations prove equally relevant and effective. Elements of game theory are employed by the author of the justice theory to illustrate that finding optimal strategies in conflict situations involving intersecting interests of multiple parties requires not linear but multi-vector rationality. Mathematical modeling of people's decisions and actions during their interaction, taking into account mutual consideration of interests and calculation of multicomponent goal-setting incorporating adversaries' potential moves, is indispensable for this purpose.

This type of modeling ideally suits reproduction of judicial process algorithms, where three principal players are involved: the *prosecution*, to which victims and their representatives belong; the *defense*, com-

prising suspects, defendants, and their advocates; and the court. These constitute the first circuit, which must incorporate victims, defendants, and others, as they play a decisive role in case proceedings. The second circuit includes witnesses, experts, specialists, translators, and other contributors supporting this activity. Within these two circuits, players or conflict participants pursuing their respective interests replicate an algorithm of move exchanges (decisions taken immediately in response to opponents' decisions), which can similarly be reproduced within a computer simulation framework.

The Big data methodology allows even relatively low-powered computers to calculate all possible courses of action for participants, compare them, and select the optimal option. The only caveat is that each decision is based not purely on cold calculations but also on the will of each actor, their emotions, inner beliefs, and subjective evaluations. None of these factors can be simulated, and there is no intention to substitute victims or defendants with virtual counterparts unless it relates specifically to training simulators. A player's plan of action, determining behavior in any conceivable gaming situation, can be derived from the strategy they articulate. The final outcome of the game — that is, winning or losing — is calculated based on mutual evaluation of all participants' strategies and comparative analysis thereof.

Decision-making theory is extensively applied to analyze court operations. Its tenets help illuminate issues related to selecting the best-fitting rationale for a judge's ruling, which must be argued and objective. With the aid of this theory, criminal proceedings acquire systemic character, especially crucial in complex cases where numerous factors must be considered using a unified methodology of evaluation. This aspect gains particular significance in collegial courts, where decision-making directly relies on judges' capability for productive communication. Behind a court verdict stands not merely a collective drive for consensus at any cost, but rather a situation where all judges are able to trace logical sequences of arguments and endorse a draft decision aligned with their inner convictions. Decision-making theory is invaluable in instances of legal uncertainty, when choosing the best decision rests on accounting for the risk of insufficient substantiation. Nonetheless, when a decision is required, its availability is preferable to its absence.

VII. Conclusion

It is therefore acknowledged that, alongside technical and legal challenges, the adaptation of criminal proceedings within the context of society's and state's digital transformation — as well as the process of their own digitalization — is accompanied by the necessity to address a multitude of social, socio-psychological, and administrative-managerial problems. Addressing these issues calls for mobilizing considerable theoretical and methodological resources of contemporary social-philosophical and sociological knowledge capable of explaining the possibilities and limits of intervention in established arrangements for organizing and administering justice, forecasting the trajectory of forthcoming transformations. Furthermore, it is essential to explore the feasibility of designing specific modifications in social, legal, and technical realities, as the convergence of social, legal, and technical systems cannot be left to chance.

There are still many questions and doubts. Can a program integrate all possible strategies that arise spontaneously, subjectively, often uniquely, and momentarily within a case? Moreover, can we even speak of strategies when they are not explicitly articulated but secretly formed and remain uncertain and undeclared? Numerous legal professionals believe that this facet of the process defies digital formalization. At minimum, an AI algorithm must incorporate all plausible responses of level-one participants to the diverse range of behaviors exhibited by their counterparts in competitive investigations. Whether this can be achieved remains to be seen over time.

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