

Digital Human Rights from the Perspective of System Theory

— Concept Definition, Social Function, and Constitutional Basis

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Abstract: *The three core issues in the “digital human rights” debate are whether “digital human rights” are possible, necessary, and feasible. Both sides of the debate focus on discovering the value of “digital human rights” to individuals from a semantic level, but ignore the significance of “digital human rights” to the whole society and its subsystems at the level of social structure. By introducing Luhmann’s System Theory, this observation blind spot can be eliminated. Fundamental rights are devoted to directly shaping not a physiological-psychological “individual” as a social environment but a social “person” that can be included by social systems. It is clear that digital human rights are the right to participate in digital communication of a “human” as a “person”, so they are possible in terms of conceptual definition. Digital human rights can help “people” lower the threshold for participation in digital communication, limit the excessive expansion of social systems, and promote the free and complete expression of body and mind, so they are necessary for social functions. There are limitations in the existing two ideas of “incorporating digital human rights into the constitution”. Based on the new construction idea of System Theory of Law, digital human rights as the right to participate in digital communication can be typified into digital communication in social sub-fields such as politics, economy, science, and art. The right to participate constructs a complete digital human rights system, making it feasible on the basis of the constitution.*

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Introduction

With the advent of the digital age, key areas related to the subsistence and development of the populace, such as shopping, dining, housing, transportation,

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education, healthcare, and labor, are being profoundly shaped by digital technologies such as big data, cloud computing, the internet of things, and artificial intelligence. On one hand, the burgeoning digital technologies have brought numerous conveniences and benefits to people's material and cultural lives. On the other hand, the "dark side" of digital technologies, such as algorithmic discrimination, algorithmic fraud, big data exploitation, and data breaches, has introduced potential ethical risks, thus creating many constraints and obstacles to improving people's material and cultural lives. Regardless of the populace's feelings and attitudes toward the arrival of the digital age and digital society, the trend of digital subsistence and development has become irreversible. Against this backdrop of the digital age and within the context of a digital society, academia has initiated a debate on "digital human rights," focusing on the human rights protection issues faced by the populace in their digital subsistence and development.

In this debate, the academic community consists of two major factions: supporters and opponents.¹ Specifically, the controversy revolves around three aspects. First, are "digital human rights" possible? Supporters argue that digital human rights represent an upgrade and transformation of the first three generations of human rights (civil and political rights, economic, social, and cultural rights, and rights to subsistence and development). They believe "digital human rights" help to enhance human autonomy through a systematic expansion of rights.² Opponents, however, contend that the concept of "digital human rights" is ambiguous and trendy, confusing the normative semantics of human rights and weakening their normative effect.³ Second, are "digital human rights" even necessary? Supporters assert that digital technologies drive fundamental social changes, and in response to the new issues arising from these technologies,

¹ Representative works of supporters: See Zhang Wenxian, "Human Rights Jurisprudence in the New Era," *The Journal of Human Rights* 3 (2019): 12-27; Ma Changshan, "The 'Fourth Generation of Human Rights' and Its Protection in the Context of a Smart Society," *China Legal Science* 5 (2019): 5-24; Gong Xianghe, "The 'Digital Attributes' of Individuals and Their Legal Protection," *ECUPL Journal* 3 (2021): 71-81; Chang Jian, "Digital Existence and Human Rights Protection," *Journal of Southeast University (Philosophy and Social Science)* 4 (2022): 45-57; Ding Xiaodong, "On the New Characteristics of 'Digital Human Rights'," *Science of Law (Journal of Northwest University of Political Science and Law)* 6 (2022): 52-66. Representative works of opponents: See Liu Zhiqiang, "On 'Digital Human Rights' Not Constituting the Fourth Generation of Human Rights," *Chinese Journal of Law* 1 (2021): 20-34; Liu Zhiqiang, "Rethinking 'Digital Human Rights' — Debating with Professor Ma Changshan and Others," *Tribune of Political Science and Law* 6 (2022): 66-80.

² Zhang Wenxian, Human Rights Jurisprudence in the New Era, *The Journal of Human Rights* 3 (2019): 12-27; Ma Changshan, "The 'Fourth Generation of Human Rights' and Its Protection in the Context of a Smart Society," *China Legal Science* 5 (2019): 5-24.

³ Liu Zhiqiang, "On 'Digital Human Rights' Not Constituting the Fourth Generation of Human Rights," *Chinese Journal of Law* 1 (2021): 20-34; Liu Zhiqiang, "Rethinking 'Digital Human Rights' — Debating with Professor Ma Changshan and Others," *Tribune of Political Science and Law* 6 (2022): 66-80.

the existing human rights concepts need to be updated accordingly.⁴ On the other hand, opponents argue that while digital technologies profoundly shape society, they do not drive fundamental social transformations. The new issues they bring about can be effectively addressed using the existing human rights framework, making the proposition of new “digital human rights” unnecessary.⁵ Third, are “digital human rights” feasible? Supporters believe digital human rights possess the characteristics of a new type of rights, distinguishing them from the first three generations of human rights and providing a constitutional normative foundation as a fourth-generation human right.⁶ Opponents argue that digital human rights are merely an external manifestation of traditional human rights in the digital age. They do not meet the basic principles of generational innovation in human rights, lack a constitutional normative foundation, and therefore, do not constitute a new type of human right.⁷

Overall, both supporters and opponents recognize the impact and challenges that the digital age poses to traditional human rights, but they diverge on how to respond to these impacts and challenges. Despite their ultimately opposing conclusions, both sides employ similar strategies: they conduct thorough analyses of the driving forces behind the development of human rights, their intrinsic logic, core mechanisms, and relational structures. These analyses assess and justify whether the rights and obligations of the subjects involved in digital human rights represent an innovation. Both factions argue from a humanistic value standpoint to determine whether “digital human rights,” as “rights of individuals in a digital society,” are possible, necessary, and feasible.⁸ They both acknowledge the influence of technological innovation on society, but they fail to elaborate on how exactly these technological innovations affect various social systems. Constrained by a humanistic value perspective, both sides focus on exploring the semantic value of “digital human rights” for individuals while neglecting the broader significance of “digital human rights” for society and its

⁴ Ma Changshan, “The ‘Fourth Generation of Human Rights’ and Its Protection in the Context of a Smart Society,” *China Legal Science* 5 (2019): 5-24; Ding Xiaodong, “On the New Characteristics of ‘Digital Human Rights,’” *Science of Law (Journal of Northwest University of Political Science and Law)* 6 (2022): 52-66.

⁵ Liu Zhiqiang, “On ‘Digital Human Rights’ Not Constituting the Fourth Generation of Human Rights,” *Chinese Journal of Law* 1 (2021): 20-34; Liu Zhiqiang, “Rethinking ‘Digital Human Rights’ - Debating with Professor Ma Changshan and Others,” *Tribune of Political Science and Law* 6 (2022): 66-80.

⁶ Gong Xianghe, “The ‘Digital Attributes’ of Individuals and Their Legal Protection,” *ECUPL Journal* 3 (2021): 71-81; Chang Jian, “Digital Existence and Human Rights Protection,” *Journal of Southeast University (Philosophy and Social Science)* 4 (2022): 45-57.

⁷ Liu Zhiqiang, “On ‘Digital Human Rights’ Not Constituting the Fourth Generation of Human Rights,” *Chinese Journal of Law* 1 (2021): 20-34; Liu Zhiqiang, “Rethinking ‘Digital Human Rights’ — Debating with Professor Ma Changshan and Others,” *Tribune of Political Science and Law* 6 (2022): 66-80.

⁸ Representative works of supporters: See Ding Xiaodong, “On the New Characteristics of ‘Digital Human Rights,’” *Science of Law (Journal of Northwest University of Political Science and Law)* 6 (2022): 52-66. Representative works of opponents: See Liu Zhiqiang, “Rethinking ‘Digital Human Rights’ — Debating with Professor Ma Changshan and Others,” *Tribune of Political Science and Law* 6 (2022): 66-80.

various subsystems at the structural level.

To address this observational blind spot, the renowned German sociologist Niklas Luhmann employed his System Theory to thoroughly examine fundamental rights as institutions in highly complex modern societies. Introducing Luhmann's System Theory can help eliminate this blind spot. Although Luhmann did not directly discuss the possibility, necessity, and feasibility of digital human rights, drawing on his unique understanding of the concept of "human" within System Theory, one can define the concept of "digital human rights" within this theoretical framework. This approach comprehensively demonstrates the social functions of "digital human rights" and solidifies their constitutional foundation. By incorporating Luhmann's System Theory, academia can gain a new observation perspective on understanding "digital human rights." This paper concludes that digital human rights represent humans' "rights to participate in digital communication." They are conceptually possible, socially necessary, and constitutionally feasible.

I. Examination of Possibility: Defining the Concept of Digital Human Rights

The term "digital human rights" inherently means "the rights of humans in a digital society." However, from the perspective of System Theory, the concept of "human" is exceptionally unique. This leads to a significant difference in defining "digital human rights" in System Theory compared to the conventional understanding adopted by both sides of the debate. Specifically, it refers to "the right to participate in digital communication without exclusion," which includes the freedom to enter and exit digital communications, such as data rights, privacy protection, and digital property rights.

A. Humans as participants in social communication

In Luhmann's System Theory, systems can be categorized into four basic types: The living system, the psychic system, the social system, and the machine system. These systems constitute environments with each other.⁹ Among them, the first three systems are autopoietic systems (Autopoiesis being self-referential). The living system mainly refers to cells, the brain, and organisms, while the psychic system refers to the system of consciousness or the mental system, encompassing a person's body and mind. The social system includes the entire society and its functional systems, organizational systems, and interaction systems. The entire society and its functional systems encompass political, economic, legal, scientific, religious, artistic, and educational systems. Organizational systems refer to groups formed for specific purposes, such as the United Nations coordinating national actions. Interaction systems denote communication relationships between individuals, such as love, kinship, and

⁹ Hans Joas and Wolfgang Knöbl, *Social Theory: Twenty Introductory Lectures*, translated by Zheng Zuoyu (Shanghai: Shanghai People's Publishing House, 2021), 247-248.

friendship formed through communication. Since different systems have different time concepts, the three types of social systems are not hierarchical but rather nested.¹⁰ This results in the conclusion that “people can no longer claim that society consists of individuals because individuals can no longer be accommodated within any subsystem of society” and “individuals must be understood as the environment of the social system.”¹¹ It is evident that, compared to other humanistic theories, Luhmann does not place “human” within society but rather ingeniously situates them outside the social system. This is a distinctive feature of Luhmann’s System Theory.

Luhmann, drawing on the ideas of biologists Humberto Maturana and Francisco Varela, defines “human” as the structural coupling of the living system (body) and the psychic system (consciousness), existing simultaneously as participants in social communication. This implies that “human” is semantically linked in threefold relationships with the living system, the psychic system, and the social system, all of which are different autopoietic systems. Specifically, as a “body-mind” structural coupling, “human” is considered the environment of the social system. While the living system and the psychic system of individuals can influence communication within the entire societal realm, they cannot truly determine it. For communication partners, the psychic system of each individual remains an opaque black box, making the likelihood of “achieving mutual understanding and consensus” through communication very low. What can be realized, at most, is the claim and assumption of consensus within social communication. Consequently, the social system neither has nor can rely on external understanding and consensus but must produce its elements — communication — autonomously.¹²

In this regard, Luhmann incisively points out, “If we start from the distinction between system/environment, we must assign humans, as living beings with conscious experiences, to either the system or the environment. If humans are seen as part of the social system, this forces the differentiation theory to be applied as a theory of human distribution — whether it be regarding class, state, nation, or group. However, this would blatantly conflict with the concept of human rights, particularly the concept of equality. Therefore, such humanism would fail due to its conditions. The only remaining option is to regard the human body and soul entirely as part of the environment of the social

¹⁰ Niklas Luhmann, *Soziale Systeme. Grundriß einer allgemeinen Theorie*, translated by Lu Guixian, et al. (Taipei: Nuannuan Bookstore, 2021), 44-54.

¹¹ Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Suhrkamp, 1998, S.744.

¹² Regarding Luhmann’s discussions on issues such as the relationship between the psychic system and the social system, the autopoietic nature of consciousness, and how consciousness participates in communication, see Niklas Luhmann, *Soziologische Aufklärung 6: Die Soziologie und der Mensch*, Auflage 2, VS Verlag für Sozialwissenschaften, 2005.

system.”¹³ In this sense, the elements of the system are not humans or actions but communications. Communication is the basic unit of the social system, where meaning is produced and continuously related to other meanings.¹⁴ Consequently, Luhmann provocatively asserts, “It is not humans, but only communication that communicates.”¹⁵

In other words, Luhmann believes that the so-called “human” is a linguistic construct, integrating the living system, the psychic system, and the social system semantically, which is used to refer to the person as a system aggregate in the lifeworld. Since the social system operates in a closed manner, it generates itself solely through self-referential operations of communication, with no intrusion from the operations of the living system or the psychic system. The same applies to the living system and the psychic system. Therefore, individuals can only be participants in social communication, not its determiners.¹⁶ For instance, during a conversation, cells, organs, or sudden bursts of blood will not emerge from the dialogue, nor will one’s brain automatically reveal the consciousness of another conversant. One can never truly know what the other person is thinking. The basic unit of the social system is communication; in society, there is only one communication following another. Structurally, humans, whether as the psychic system or the living system, never appear within society. Rather, “human” has been a semantic narrative since the Renaissance, creating the erroneous “universal cognition” that “humans exist within society” through language communication in interactive relationships.¹⁷

In Luhmann’s System Theory, the concept of “human” loses its privileged position traditionally held in Continental philosophy. Individuals are no longer the subjects of communication but merely participants in it. However, this does not mean that the importance of individuals in constructing social processes is entirely negated. On the contrary, Luhmann attempts to ensure the physical and mental integrity of “humans” by relatively detaching them from the constraints of society. Luhmann affirms the significance of individuals, considering them as

¹³ Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Suhrkamp, 1998, S.29f.

¹⁴ Luhmann’s sociology is fundamentally centered on the concept of “communication,” rather than “action.” For Luhmann, speaking of “action” or “subjects” is merely a form of “attribution” or “ascription.” The psychic system’s reference to action is simply a process that can be clearly distinguished and ascribed to an individual. “Attribution” or “ascription” is a means of reducing complexity. In Luhmann’s System Theory, “action” itself does not really exist, or at least “action” cannot be used to describe real processes. See details in Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Suhrkamp, 1998, S.103ff.

¹⁵ Margot Berghaus, *Luhmann leicht gemacht: Eine Einführung in die Systemtheorie*, translated by Zhang Jinhui (Taipei: Nuannuan Bookstore, 2016), 98-125.

¹⁶ Qi Chunyi, “System Theory and the Placement of Humanity,” *Renmin University Law Review* 2 (2019): 143-145.

¹⁷ Luhmann particularly emphasizes that “System Theory is a break with the so-called old European concept of the subject, and it must be a break.” See Hans Joas and Wolfgang Knöbl, *Social Theory: Twenty Introductory Lectures*, translated by Zheng Zuoyu (Shanghai: Shanghai People’s Publishing House, 2021), 247-248.

the necessary environmental conditions for the self-reproduction of the social system. Compared to humanistic traditions, individuals are equally important in System Theory.¹⁸ Starting from the unity of the “system/environment” distinction, the environment is an integral part of this distinction in Luhmann’s System Theory, thus its importance to the system is not lesser than the system itself. The social system presupposes and relies on a range of physical and chemical environments (such as adequate air and suitable temperature) and individuals as structural couplings of the living system and the psychic system (such as normal heartbeat and respiration and a clear consciousness). Nonetheless, all these belong to the environment of the social system. Although communication depends on these conditions, they never operationally intervene in the self-reproduction of the social system.¹⁹ Thus, individuals are regarded as part of the social system’s environment, but their concept is not dissolved. Instead, it is realistically integrated into the environment of the social system, gaining a relatively independent space from the social structure.

B. “Humans” as participants in digital communication

With the development of digital technologies such as the Internet, big data, cloud computing, the internet of things, and the rise of the metaverse, the representation of “human” in the digital society has become more diverse compared to those in traditional society.²⁰ These digital technologies do not form separate systems; instead, they interact with different types of systems (the psychic system, the living system, the social system, and the machine system), profoundly shaping the evolution of these various systems. Among them, the connection between the machine system and digital technology is the most intimate. The connections between the psychic system, the living system, and digital technology directly and profoundly shape the “human” image in the digital age.

Regarding the relationship between the machine system and digital technology, the machine system utilizes digital technology to make its hardware infrastructure an essential carrier for digital technology to participate in social communication. This has the potential to catalyze the “non-trivialization” of the “trivial machine,” making the autopoiesis of the machine system possible (e.g., self-learning algorithms based on causal reinforcement learning enabling autonomous machine decision-making).²¹ Digital technology, in turn, relies on the machine system to obtain a physical carrier for its operations, providing a

¹⁸ Zhang Haitao, “The Paradox of the Social Function of Fundamental Rights in the ‘Absence of the Individual,’” *Chinese Journal of Human Rights* 1 (2019): 96.

¹⁹ Niklas Luhmann, *Soziale Systeme. Grundriß einer allgemeinen Theorie*, translated by Lu Guixian, et al. (Nuannuan Bookstore, 2021), 224-256.

²⁰ Wang Bohan, “How Digital Technology Integrates Deeply with Human Production and Daily Life,” *People’s Tribune* 3 (2021): 76-78.

²¹ Erich Horl, “Luhmann, The Non-Trivial Machine and The Neocybernetic Regime of Truth,” *Theory Culture & Society* 3 (2012): 94-121.

stable foundation for the functioning of digital technology (e.g., the 13 global IPv4 root name servers that underpin the internet). Therefore, the machine system and digital technology have the closest association, forming a “hardware-software” hybrid, which is a prerequisite for the expanded representation of the “human” in the digital age.

Regarding the association between the psychic system and digital technologies, the psychic system leverages digital technologies to access a broader range of information, thereby enriching its consciousness (for example, people use Baidu to search for information and Dianping to find food recommendations). Digital technologies, in turn, capture the attention of the psychic system to continuously obtain data resources, promoting their learning and forming user profiles (for example, Google’s PageRank algorithm and WeChat’s personalized video recommendations).²² In the physical world, the surface consciousness of an individual’s psychic system is displayed through their actions and words, participating in social communication, while their latent consciousness does not directly participate in or influence social communication. In the digital society, both the surface and latent consciousness produced by the individual’s psychic system are simulated by digital technologies, with the expectations of their psychological consciousness being predictively generated by digital technologies (for example, Taobao’s product recommendations based on users’ possible interests). These phenomena increase the likelihood of the psychic system being “exposed” to its environment in digital communication compared to traditional society.

Regarding the association between the living system and digital technologies, the living system uses digital technologies to create keys related to its physical characteristics in the digital world (for example, fingerprint unlocking on phones and computers and facial recognition payments on Alipay). By coupling with the psychic system, digital technologies obtain “digital avatars” that differ from the physical appearance (for example, abstract data sets without human form, alien avatars, and virtual humans in the metaverse with human form).²³ Digital technologies also identify the living system’s biological characteristics to form cyborg-like entities that blend “human and machine” elements (for example, reconstructing digital human models for medical treatment based on massive-scale medical imaging data, or intelligent prosthetics enabled by modern bioelectronics). In the physical world, the biological characteristics of the living system are acquired through active and autonomous processes, relatively isolated from social communication. In the digital society, however, the living system’s biological traits and activity patterns are more easily

²² Lan Jiang, “Hermes in the Age of Metaverse: On the Mediated Soul,” *Journal of Shanxi University (Philosophy & Social Science)* 5 (2022): 24.

²³ Lan Jiang, “Metaverse and the Metaphysics of Extro-Subject,” *Shandong Social Sciences* 6 (2022): 85-92.

captured and monitored (for example, “digital sentinels” such as digital health codes, travel codes, and place codes collecting biological information and activity trajectories of the human body). This increases the likelihood of the living system being “transparent” to its environment in digital communication compared to traditional society, with the additional risk of restricted mobility (for example, the Henan bank customers were given red health codes and immediately taken to quarantine locations by relevant units).

In summary, in the digital age, the psychic system of humans extends from psychological consciousness to digital consciousness, and the living system extends from the physical body to digital avatars, resulting in a high degree of integration between the real and digital worlds. In the digital age, the human body (the living system) is represented through digital avatars, and human consciousness (the psychic system) is designed through digital awareness. However, similar to the real world, the digital consciousness and digital avatars of humans as individuals in the digital society are merely part of the environment of the social system; they constitute an essential environment for both the real and digital societies but are not the fundamental units of these societies. In the digital era, the human as “person” is abstracted by the social system into various roles (e.g., voters, consumers, workers, doctors, university professors, students, parents, children, owners, criminals, etc.), becoming participants in both real and digital social systems. The fundamental units of both real and digital societies remain real and digital communications, respectively. Humans are still participants, rather than decision-makers, in these communications. Thus, as individuals, humans are the structural coupling of the psychic system and the living system, as well as the structural coupling of digital consciousness and digital avatars. As “persons,” they also participate in social and digital communications.

C. The right to participate in digital communication without exclusion

The prevailing theory in contemporary human rights law is the three generations of human rights proposed by Czech jurist Karel Vasak in 1979. By summarizing the evolution of human rights since the 17th century, Vasak pointed out that the protection of human rights is a process of evolution and expansion rather than a hierarchy or replacement. Throughout this process, the protection of human rights has shifted from negative to positive, with the focus expanding from individuals to collectives and even to the global level.²⁴ Specifically, the three generations of human rights are negative rights, positive rights, and collective rights. The first generation of human rights advocates for protecting individuals from power abuses and providing space for political participation,

²⁴ For detailed analysis on the three generations of human rights: See Spasimir Domaradzki, Margaryta Khvostova, David Pupovac, Karel Vasak’s Generations of Rights and the Contemporary Human Rights Discourse, 20 *Human Rights Review* 4 (2019): 423-443.

including rights such as freedom, political participation, and property rights. The second generation of human rights emphasizes the state's active role in ensuring people's basic living needs, including the right to subsistence, work, education, basic labor rights, and healthcare. The third generation of human rights emerged after World War II, advocating for the protection of the cultural rights of marginalized peoples, the right of residents to self-determination, maintaining peace, and international humanitarian aid, including rights such as self-determination, peace, and development.²⁵

From the perspective of Luhmann's Social System Theory, although the three generations of human rights each have their focus, they all aim to protect the right of individuals (the public) to participate in social communication across different social systems, that is, the "right to participate in social communication without exclusion." Negative rights protect the freedom of individuals' psychic and living systems from undue and excessive encroachment by the political system, ensuring their freedom to participate in political, economic, and other social communications. Positive rights protect the existence and development of individuals' living and psychic systems, providing active support and benefits for their participation in political, economic, educational, and other social communications, thereby ensuring the well-being of their living and psychic systems. Collective rights focus on protecting the self-determination of disadvantaged individuals regarding their social environment and ensuring the survival of their psychic and living systems so that they can participate in social communications within a normal, peaceful society without obstruction or discrimination.

Luhmann posits that an individual's participation in social systems must be realized through inclusion and exclusion rules. The fundamental rights as institutions do not aim to shape the physiological-psychological "individual" as the social environment but the social "person" that can be included in social systems. Their social function shifts from ensuring individual freedom to maintaining the differentiation of social functions, especially preventing the political system from politicizing all types of social communication, which would lead to the exclusion of "persons" from communication in the entire social field.²⁶ People's social roles are diverse in a society with functional differentiation, making the corresponding social "person" rich and varied. "As everyone knows, a scientist is not just a scientist; a scientist can also be a citizen who is involved with politics and economics, seeks the law, and pursues the

²⁵ Karel Vasak, *A Thirty-Year Struggle: the Sustained Efforts to give Force of law to the Universal Declaration of Human Rights*, UNESCO Courier, 1977, page 29, accessed May 31, 2023, <https://unesdoc.unesco.org/ark:/48223/pf0000048063>.

²⁶ Vgl. Niklas Luhmann, *Grundrechte als Institution: Ein Beitrag zur politischen Soziologie*, Duncker & Humblot, 1974, S.24.

arts.”²⁷ “Humans are not subordinate to functional systems, nor can it be said that humans only belong to a certain system. People are not solely involved in the legal system without participating in the economic system; they are not only engaged in the political system without participating in the educational system. This is because humans cannot be confined to a specific subsystem within society.”²⁸ Individuals as “persons” and their “roles” can only be encompassed within different social systems, becoming constructs of social communication in the social field. Their constructs in the legal field are legal personality and legal roles, protected through legal frameworks and “legal values.”²⁹ The legal system thereby stabilizes the normative expectations of society and alleviates the time pressure on decision-making of various systems in a functionally differentiated society, serving as an immune mechanism to maintain such a society. It further protects individual rights from systems’ threats, preventing extreme situations where individuals are excluded by the entire society.³⁰ Because these artificially created constructs are different from the physical body and mind of a real person, there is a gap between the rights mechanisms established by the legal system (for example, the “frameworks” that support the operation of rights) and the protection of the integrity of a person’s body and mind.

Building on Luhmann’s framework, German System Theory legal scholar Gunther Teubner further posits that when humans, as “persons,” participate in social communication, the operations of social systems (not just political systems) can potentially threaten and harm real individuals as body-mind combinations. Thus, it is necessary to protect these individuals through pre-political, pre-legal, and even pre-social human rights. As the structural coupling of the political and legal systems, the constitution must rationally transform human rights in various social fields into fundamental rights.³¹ According to Teubner, modern constitutions protect a “person” through fundamental rights with the deeper objective of preserving the conditions for the continued existence of a functionally differentiated society, which is essentially the perpetuation of “social communication” among “persons.” In ancient times, individuals could participate in social communication as members of a “class,” “family,” “manor,” “parish,” or “guild” based on specific “identities.” However,

²⁷ Hans Joas and Wolfgang Knöbl, *Social Theory: Twenty Introductory Lectures*, translated by Zheng Zuoyu (Shanghai: Shanghai People’s Publishing House, 2021), 248.

²⁸ Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Suhrkamp, 1998, S.744.

²⁹ Niklas Luhmann, *Rechtssoziologie*, translated by Bin Kai and Zhao Chunyan (Shanghai: Shanghai People’s Publishing House, 2013), 117-129.

³⁰ Niklas Luhmann, *The Differentiation of Society*, translated by Stephen Holmos & Charles Larmore (New York, Columbia University Press, 1982), 245-251.

³¹ Gunther Teubner, “The Anonymous Matrix: Human Rights Violations by ‘Private’ Transnational Actors,” translated by Pan Weijiang, see Gunther Teubner: *Matrix, Exploitation, Alienation: A Collection of Legal Sociology by Gunther Teubner*, translated by Pan Weijiang, Gao Hongjun, et al. (Beijing: Tsinghua University Press, 2012), 192-195.

modernity has completely overturned these identity-based “intermediate structures.” Only by guaranteeing various human rights, such as freedom of thought, action, speech, and privacy, can “individuals” construct a unified “self,” thereby enabling them to participate in social communication as “persons.”³²

Correspondingly, “digital human rights” refer to the right of individuals as “persons” to not be excluded from participating in digital communication, aiming to ensure that individuals as “persons” can engage in digital interactions within various social systems. In the era of algorithmic leviathans, the state and digital platforms hold an advantageous position that is incomparable to individuals. Through the design of digital choice architectures, individuals’ digital communication in political, economic, and cultural fields is often susceptible to being suppressed. Platforms possess a vast amount of user data and algorithmic technology, significantly influencing information dissemination and the advertising market. Their monopolistic status has raised concerns about data privacy, fair competition, and information manipulation. Therefore, to create autonomous communication prerequisites for the “digital society” that emerges based on digital technologies, it is essential to transform the “digital human rights” that pertain to the formation of “digital human” into fundamental rights.

From the perspective of System Theory, different types of systems in a functionally differentiated society have their operational logic, and different types of social systems also have their distinct operational logic. Luhmann solemnly pointed out, “Science, economy, politics, and other functional domains all follow their logic; they do not need to be ordered by a top-level system or hierarchy of values.”³³ This ensures that different social systems cannot directly dictate to one another but instead achieve mutual influence through complex mechanisms such as mutual observation, selective perturbation, convergence of differences, and organized coordination among the systems.³⁴ For the legal system, other functional systems such as politics, economy, religion, science, education, mass media, as well as cultural, moral, and technological environments advocating for digital human rights, must resonate with the highly positivized legal system’s frequency in order to successfully perturb the legal system. They must be thematized by the legal system, which is “operationally closed and cognitively open, open within closure,” leading to the construction of

³² Regarding the encompassing effect of fundamental rights, the exclusionary power, and the impact of anonymous matrix of various social systems on individual citizens, see details in Gunther Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization*, translated by Lu Yufeng, reviewed by Ji Hailong (Beijing: Central Compilation & Translation Press, 2016), 159-170.

³³ Hans Joas and Wolfgang Knöbl, *Social Theory: Twenty Introductory Lectures*, translated by Zheng Zuoyu (Shanghai: Shanghai People’s Publishing House, 2021), 243.

³⁴ Gunther Teubner, *Recht als autopoietisches System*, translated by Zhang Qi (Beijing: Peking University Press, 2005), 88-107.

the surprising “digital human rights” information within the legal system.³⁵ In moral, ideological, and academic terms, the broad, non-empirical concept of “digital human rights” must be constructed as constitutional “fundamental digital rights.” Thus, the “digital human rights” in a broad sense, from the perspective of System Theory, must be transformed by the legal system’s constitution into “fundamental digital rights” to truly become “digital human rights” in the narrow constitutional sense.

According to the “legal system/environment” distinction, the concept definitions of “human rights” and “digital human rights” should both be differentiated into broad and narrow senses. Specifically, the “human rights” in a broad sense from the perspective of System Theory can be defined as the right of citizens to participate in social communication without exclusion. “Human rights” (i.e., fundamental rights) in narrow sense can be defined as the constitutional right of citizens to participate in communication without exclusion. In this case, “without exclusion” means that citizens can be included in social communication and not discarded by the social system as a “digitally useless class.” “Participate” includes both aspects of choice and refusal, where citizens can actively choose to participate in digital communication or passively refuse to engage in digital communication.³⁶ Only “digital human rights” (i.e., fundamental digital rights) in a narrow sense hold institutional significance for the legal system. Therefore, this paper adopts the definition of “digital human rights” in a narrow sense and uses it to refer to fundamental digital rights in the constitution.

II. Examination of Necessity: Social Functions of Digital Human Rights

Although the concept of “digital human rights” in a narrow sense is possible, whether the legal system needs to construct “digital human rights” in a narrow sense depends on whether “digital human rights” possess unique social functions compared to traditional human rights. This is also the necessary foundation for their inclusion in the constitution.³⁷ The integration of digital technologies and social systems has led to higher thresholds for citizens to participate in digital communication, overexpansion of digital social systems, and limitations on the free and complete expression of citizens’ physical and mental states. Digital human rights can serve their corresponding social functions by lowering the participation threshold for digital communication, restricting the overexpansion of digital social systems, and promoting the free and complete expression of citizens’ physical and mental states. Therefore, it is necessary to implement

³⁵ Lu Yufeng, “On the Reflective Law in Highly Complex Societies,” *ECUPL Journal* 6 (2021): 134.

³⁶ Regarding detailed discussions on individuals’ rights to refuse in the digital society, see Han Xuzhi, “Taking the Right to Refuse in the Digital Society Seriously,” *ECUPL Journal* 1 (2023): 22-34.

³⁷ For a detailed introduction to the social function of fundamental rights using Social System Theory, See Li Zhongxia, “The Social Function of the Fundamental Rights,” *The Jurist* 5 (2014): 15-33.

“digital human rights” as “fundamental digital rights” through the constitution.

A. Lowering the barrier for citizens to participate in digital communication

As the fundamental unit of a social system, social communication can be defined as an integrated operation composed of information, communication (*Mitteilung*), and understanding (*Verstehen*).³⁸ In the digital society, digital communication has altered the forms of elements within social communication, making digital communication a relatively independent type from real-world communication. This has raised the barrier to public participation in the digital communication of various social systems, thereby necessitating the construction of digital human rights from a constitutional system perspective.

In general terms, within the realm of real-world communication, information is “the difference that makes a difference.” Once information is constructed, subsequent communication cannot proceed entirely in disregard of it, prompting the system to produce further differences.³⁹ This continuous processing of information generates the ongoing distinction between the system and its environment. Communication does not provide information directly, meaning it does not convey what the system involved in the communication is “thinking.” During communication processes, the participating psychic system can internally instruct consciousness to complete further dialogue processes through thinking, thus keeping its consciousness independent of the social system’s communication. The same information can be conveyed in different ways, with the psychic system focusing merely on thinking without necessarily sharing these thoughts with others. Thoughts cannot directly enter the closed interactive system.

Informing is the act of expressing information. Subsequent communication often identifies itself as informing, thereby marking itself as self-referential in the system’s self-observation. Any information can become a component of communication only through informing; otherwise, it remains confined within the psychic system.⁴⁰ However, informing cannot directly replicate and input information from the psychic system into the communication system. It must first be “encoded” according to the communication system’s rules, such as through language. For instance, when A and B communicate about the beautiful scenery A saw during a trip, A cannot directly present the vivid imagery in their mind within the communication but can only inform B using language. The differences in individuals’ expressive abilities or even literary skills become particularly evident here, highlighting the differentiation between the social system and the psychic system, as well as the living system.

³⁸ For detailed explanation of the concept “communication,” see Niklas Luhmann, *Soziale Systeme. Grundriß einer allgemeinen Theorie*, translated by Lu Guixian, et al. (Taipei: Nuannuan Bookstore, 2021), 193.

³⁹ *Ibid.*, 186-187.

⁴⁰ *Ibid.*

Understanding is defined as the self-observation of a social system, which distinguishes between “information” and “informing,” and “this distinction itself projects onto understanding”.⁴¹ When communication is understood, it means that subsequent communication can recursively distinguish the informing (“who said it”) and the information (“what was said”) from the previous communication. Communication only occurs when the informed information is understood; otherwise, there is only a simple perception of the informing behavior. For example, if the communicating parties speak different languages (one using Chinese and the other German, for example), or one party speaks too softly, or if the informing method is unfamiliar, the informed party can only perceive the informing behavior without identifying its information. Thus, in the triad of information, informing, and understanding, understanding acts as the observer of the first two. Through understanding of the way of observing the other two, a complete communication operation can be generated.

With the evolution of media, the nature of real-world communication changes, making digital communication a relatively independent new type of communication. From the perspective of Social System Theory, media limits the range of choices and guides expectations, solving the problem of the “extremely low chance (or probability) of communication occurrence (and success) (i.e., “double contingency”).⁴² “Language” is used to solve the problem of the “extremely low probability of understanding.” Written texts, printing, wireless broadcasting, and other media are used to solve the problem of the “extremely low probability of informing.” “Symbolically generalized communication media” (such as power in the political system, currency in the economic system, and legal norms in the legal system) are used to solve the problem of the “extremely low probability of successful communication.” Different social systems develop specialized social technologies around their “symbolically generalized communication media.”⁴³ Throughout the long history of human evolution, the emergence of language has produced relatively fixed meanings to information in communication. The advent of written texts, printing, wireless broadcasting, and other media channels expanded human communication from present communication to absent communication. Different social systems developed complex social technologies (e.g., the economic system developed complex monetary transaction forms). Although these media revolutions significantly changed human society, they did not create virtual or digital communication

⁴¹ Ibid., 191.

⁴² Margot Berghaus, *Luhmann leicht gemacht: Eine Einführung in die Systemtheorie*, translated by Zhang Jinhui (Nuannuan Bookstore, 2016), 145-150.

⁴³ For Luhmann’s detailed explanation on “media”: See Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Suhrkamp, 1998, Kapitel 2: Kommunikationsmedien. On this basis, Luhmann’s direct disciples Dirk Baecker, Christian Fuchs, and Elena Esposito have supplemented the new medium of “the internet,” which Luhmann did not elaborate on during his lifetime, and have conducted detailed discussions on emerging issues in the digital society.

outside of real-world communication. Their complexity remains confined to real society. Meanwhile, due to long-term cultural habits and increased public mastery of media, people can still participate relatively easily in real-world communication. Thus, there is no need to establish specific rights regarding participation in communication, such as the “right to participate in print communication,” for these media revolutions.⁴⁴

In the context of Social System Theory and media revolutions, digital media in the digital revolution exhibits characteristics distinct from previous communication media. Digital media are a medium for communication and a creator of digital communication. Digital media transcend previous communication media in scope and speed of dissemination, exacerbate and generate the self-reproductive proliferation of digital communication, and facilitate the decentralization and de-authorization of social communication (including both real and digital communication) as well as the de-meaning process of digital communication.⁴⁵ The internet, composed of technical infrastructure and human actors participating in communication, forms a socio-technical system. This technical structure functions as a structural mass medium that continuously produces networked communication and is itself produced and reproduced by communication. The technical structure mediates and results from human agency, both facilitating and constraining human activities and thoughts. The Internet’s essential qualities as a socio-technical system include open source, virtual reality, globalization, and many-to-many communication. The emergence of digital technologies such as the internet, big data, cloud computing, the internet of things (IoT), artificial intelligence (AI) (particularly generative AI such as ChatGPT), and the metaverse has revolutionized the three elements of digital communication: “information,” “informing,” and “understanding.”⁴⁶

Specifically, “information” is derived from machine learning algorithms analyzing data of various scales in digital communication. The content of the produced information is not directly provided by human consciousness but generated by algorithms based on their operational logic, which is often opaque to humans and prone to data biases and even discrimination. For example, ChatGPT, utilizing structures such as Long Short-Term Memory (LSTM) or Gated Recurrent Units (GRU), undergoes pre-training and fine-tuning on vast amounts of textual data to learn language probability distribution models, enabling it to generate human-like text responses. However, these responses can

⁴⁴ Dirk Baecker, “Niklas Luhmann in the Society of the Computer”, 13 *Cybernetics & Human Knowing* 2 (2006): 25-45.

⁴⁵ Margot Berghaus, *Luhmann leicht gemacht: Eine Einführung in die Systemtheorie*, translated by Zhang Jinhui (Taipei: Nuannuan Bookstore, 2016), 234-253.

⁴⁶ Christian Fuchs, “The Internet as a Self-Organizing Socio-Technological System,” 12 *Cybernetics & Human Knowing* 3 (2005): 37-81.

include false information and discriminatory content, which human communication partners may trust.

In digital communication, “informing” relies on algorithmically designed modes of information expression by artificial intelligence, necessitating the use of algorithmic language distinct from everyday language. In training AI, humans must also engage in necessary knowledge translation. This “informing” in digital communication vastly surpasses the limitations of in-person, oral, and written informing, profoundly shaping the content of “information,” marking a significant departure from traditional informing methods.⁴⁷ For instance, ChatGPT selects the most semantically connected response within a high-dimensional vector space based on the highest probability when a user asks a question. Its informing relies on the scale and mode of its prior training data and is continually adjusted based on the user’s input. Thus, digital communication is dynamically linked through user queries (informing) and ChatGPT’s responses, which are continuously optimized and adjusted.

“Understanding” in digital communication involves how AI observes human communicative partners. This observation of “information” and “informing” is different from that of human observers. It is not based on the human way of understanding meaning, but is based on its own “black box” operation to provide its own “understanding” conclusions to complete the communication. It does not care whether this conclusion is also understood by the human observers who are its communication partners.⁴⁸ For instance, the publicly available versions of the ChatGPT model may exhibit a degree of uncertainty because they are based on sampling from a probability distribution. After a human user poses a question, ChatGPT formulates a response based on the patterns and knowledge it has learned from its training data. However, ChatGPT struggles to perform advanced cognitive tasks such as reasoning, memory, or emotions, and it lacks true understanding or consciousness, and cannot comprehend the content of its responses like humans do.

It can be seen that compared to traditional media such as text, printing, and wireless broadcasting, which aim to increase the probability of success of social communication, digital media technologies represented by the internet (especially generative AI such as ChatGPT) possess higher technical complexity. While performing the same functions, these technologies indirectly raise the technical threshold for the public to participate in both real and digital social communication, with a tendency to exclude the public from digital communication. Additionally, digital media technologies expand the scope of communication from real to digital (or virtual) communication, leading to

⁴⁷ Dirk Baecker, “Communication with Computers, or How Next Society calls for an Understanding of Temporal Form,” 13 *Soziale Systeme* 1-2 (2007): 409-420.

⁴⁸ Elena Esposito, *Artificial Communication: How Algorithms Produce Social Intelligence* (Cambridge: The MIT Press, 2022), Chapter 1: Artificial Communication? Algorithms as Interaction Partners.

exponential growth in the scale of communication, significant improvement in communication efficiency, and the blending of real and false content, presenting a trend of self-communication in the era of generative AI. More worryingly, the mutual embedding of existing social system technologies and digital technologies further exacerbates the closure and black-box nature of the digital operations of social systems. Therefore, it is necessary to transform “digital human rights” into constitutional fundamental rights to ensure that citizens receive institutional guarantees and support for participating in real and digital communication in political, economic, legal, and other fields, lowering the barriers to social communication participation.

B. Constraining the excessive expansion of digital social system

Besides increasing the complexity of digital communication, the proliferation of complex digital technologies also raises the complexity of social systems and social communication, thus elevating the technical threshold for people to participate in digital communication. If people fail to adapt to and master these changes in time to surpass the technical threshold, they may be excluded from digital communication. Once digital technologies are associated with social systems, they create a mutual embedding of social system technologies and digital technologies. Different social systems may gain unequal digital empowerment, which tends to expand their boundaries, disrupting the original balance between social systems. Meanwhile, digital technologies may find new applications through social systems, further interfering with the original balance between social system boundaries. The stability of social system boundaries is affected during the dual empowerment process between social systems and digital technologies. As the boundaries of different social systems expand, the difficulty for people to participate in digital communication also increases, potentially excluding them from digital communication and turning them into a “digitally useless class.”

In terms of the mutual empowerment between social systems and digital technologies, the political, economic, legal, educational, and art systems, as social hubs, are all reshaping their boundaries with their environments through interaction with digital technologies. Specifically, (1) with the help of digital technologies, the political system has evolved new modes of automated administration (e.g., automated administrative penalties, automated administrative permits). Digital technologies, in turn, embed themselves in the operation of power through the political system (e.g., e-government), achieving mutual empowerment between politics and technology. (2) The economic system leverages digital technologies to develop new modes of automated business decision-making (e.g., smart connected vehicles, intelligent investment advisors, algorithmic credit ratings). Digital technologies integrate into the circulation of currency, goods, and services through the economic system (e.g., digital RMB, Bitcoin, smart contracts), realizing the mutual empowerment of

the economy and technology. (3) The legal system utilizes digital technologies to create new modes of automated judicial services (e.g., AI-assisted legal judgment systems). Digital technologies embed themselves in the operation of legal norms through the legal system (e.g., technical due process), achieving mutual empowerment between the law and technology. (4) The education system employs digital technologies to develop new modes of educational resources allocation (e.g., remote online education). Digital technologies profoundly shape knowledge transfer through the education system (e.g., the distribution and operation of educational content), achieving mutual empowerment between education and technology. (5) The art system uses digital technologies to evolve new forms of art (e.g., NFT artworks). Digital technologies integrate into artistic creation through the art system (e.g., AI painting), realizing the mutual empowerment of art and technology.

Regarding the conflicts arising from the boundary expansion of different social systems, the binary codes used by originally distinct social systems vary, and their systemic energies are different. The digital empowerment they receive also differs, exacerbating the power disparities between different social systems.⁴⁹ The political system, which operates on the code of power, leverages digital technologies to extend the boundaries of power utilization, significantly enhancing its capacity to make collectively binding decisions. This, in turn, dramatically strengthens its ability to constrain other social systems. The economic system, which operates on the code of currency, uses digital technologies to expand the boundaries of monetary transactions, diversifying its function of managing societal resource scarcity and enhancing self-propagation capabilities. This allows it to influence other social systems through economic logic. With the help of digital technologies, the legal system extends the applicability of legal norms, thereby expanding its function of stabilizing societal normative expectations. However, due to its inherently conservative nature, digital technologies currently serve only as an auxiliary tool for legal adjudication and have not fundamentally changed the operational logic of the legal system. The educational system uses digital technologies to expand the range of knowledge transmission, breaking the spatiotemporal boundaries of this function. Nevertheless, the inherent energy of the educational system is limited,

⁴⁹ Luhmann believes that modern society is composed of different functional systems such as politics, the economy, law, science, religion, and education. During the 1980s and 1990s, Luhmann wrote extensively on these subsystems of society, publishing works with titles like *Die Wirtschaft der Gesellschaft* and *Das Recht der Gesellschaft* which are part of his series “*XX der Gesellschaft (system)*”. Each of these subsystems has its own language and uses different binary codes to process information within the system. For example, the binary code for the political system is “governing/opposition,” for the economic system it is “payment/non-payment,” for the scientific system it is “true/false,” for the legal system it is “legal/illegal,” for the art system it is “beautiful/ugly,” and for the religious system it is “transcendent/immanent.” For a fuller explanation, see details in Niklas Luhmann, *Ökologische Kommunikation Kann die moderne Gesellschaft sich auf ökologische Gefährdungen einstellen*, VS Verlag für Sozialwissenschaften, 2004.

and educational communication heavily relies on political decision-making and economic support. The art system uses digital technologies to expand the forms of artistic manifestation, enriching its modes of aesthetic expression. However, for most people, the art system remains relatively marginal compared to the political, economic, and legal systems, and its inherent energy is also very limited.

Furthermore, different social systems may simultaneously interact with digital technologies, leading to conflicts arising from the expansion of social system boundaries. When the subsequent societal impacts of digital technologies are unclear, organizations within different systems are likely to respond differently to the same event.⁵⁰ For example, the emergence of Bitcoin and NFT challenges the status of national fiat currencies. Without appropriate institutional regulation and issuance constraints, digital transactions conducted using these mediums can threaten national economic and financial security, ultimately jeopardizing the stability of the political system. Consequently, the political system tends to adopt a negative stance towards these developments. By making collectively binding decisions, the political system often suppresses the boundary aspirations of other social systems, posing the risk of political system re-centralization. However, excessively stifling financial innovation may limit the vitality of the economic system's development and potentially constrain the necessary digital expansion of the economic system. Therefore, it is necessary for the legal system to construct and regulate digital technologies in a balanced manner, ensuring the stability of the political system while addressing the development needs of the economic system. Whether it is the emergence of new economic phenomena, governance trends within the legal system, or powerful interventions by the political system, all these, to varying degrees, exhibit the trend of social systems expanding their digital boundaries. This could force citizens to either enter or abandon participation in specific types of digital communication, ultimately affecting their material and spiritual cultural lives (e.g., restrictions imposed by the political system on forms of expression within the artistic system). To ensure that citizens can enjoy the right to participate in digital communication without exclusion, it is necessary for the legal system to establish digital human rights as a means of delineating boundaries between different systems when conflicts arise over their digital boundaries. Therefore, it is imperative to enshrine "digital human rights" as fundamental digital rights through the constitution, thereby fulfilling their social function of limiting the excessive expansion of digitized social systems.

C. Facilitating the free and complete expression of citizens' bodies and minds

⁵⁰ Armin Nassehi, "Organizations as Decision Machines: Niklas Luhmann's Theory of Organized Social Systems," 53 *The Sociological Review* 1 (2005): 178-191.

As mentioned, Luhmann adopted a strategy isolated from humanism, focusing on observing the social function of fundamental rights on the social structure. In different political, economic, legal, educational, religious, and other functional systems, the “individual” is abstracted into different role positions, which allows social communication to enhance its probability of success.⁵¹ The constitution is not a one-sided planning outline of the political system, nor is it a benchmark blueprint for social development, but rather a structural condition for maintaining the differentiation of the social system.⁵² The social function of fundamental rights is to delineate the boundaries between various social systems, maintain the institutional framework of social functional differentiation, and protect other social subsystems from the expansionist tendencies of the political subsystems.⁵³ The renowned German jurist Gunther Teubner, building upon Luhmann’s theoretical foundation, emphasizes in the context of global constitutional governance that fundamental rights maintain the functional differentiation of various subsystems within society. This ensures that individuals in the public can freely express their physical and mental freedom within the anonymous matrix of social systems, autonomously decide to enter or exit roles associated with the aforementioned functional subsystems, and ultimately safeguard the integrity of a person’s body and mind, thereby achieving the protection of human dignity and human rights. When digital technologies become associated with social systems, social systems that operate with digital communication as the unit of operation may restrict the free and complete expression of the physical and mental freedom of the people, excluding them from digital communication.⁵⁴

Social systems incorporate digital technologies into their construction processes, making digital technology a tool and means of communication within social systems, thus extending the boundaries of these social systems in the digital domain. As the boundaries of social systems expand digitally, the technical barriers to public participation in this new form of communication also

⁵¹ Vgl. Niklas Luhmann, *Die Funktion des Rechts: Erwartungssicherung oder Verhaltenssteuerung?* In: ders., *Ausdifferenzierung des Rechts, Beiträge zur Rechtssoziologie und Rechtstheorie*, Suhrkamp, 1999, S.73ff.

⁵² Vgl. Niklas Luhmann, “Politische Verfassungen im Kontext des Gesellschaftssystems”, 12 *Der Staat*, 1973 (1), S.77f.

⁵³ Niklas Luhmann, *Das Recht der Gesellschaft*, translated by Li Juntao (Taipei: Wu-Nan Book Inc., 2015), 12. Regarding Luhmann’s detailed discussions on the social function of fundamental rights, see Niklas Luhmann, *Grundrechte als Institution: Ein Beitrag zur politischen Soziologie*, Duncker & Humblot, Berlin, 1974.

⁵⁴ Gunther Teubner, “The Anonymous Matrix: Human Rights Violations by ‘Private’ Transnational Actors,” 69 *The Modern Law Review* 3 (2006): 327-346. In addition to this, Teubner has also criticized the effect of fundamental rights on third parties under the national centrism, using the example of publication bias, and advocated for the direct effect theory. Vgl. Isabell Hensel & Gunther Teubner, “Matrix Reloaded: Kritik der staatszentrierten Drittwirkung der Grundrechte am Beispiel des Publication Bias”, 47 *Kritische Justiz* 2 (2014): S.152170.

rise accordingly. This condition is primarily manifested in the public's unfamiliarity and discomfort with the new social technical models derived from digital technologies, subsequently restricting their ability to freely and fully express themselves. Given the critical functions of political and economic systems in the entire society, these restrictions on the public's freedom of physical and mental expression are particularly evident in the political system's automated administration and the economic system's automated commercial decision-making. Therefore, it is essential to enshrine "digital human rights" as fundamental digital rights through the constitution, to promote the social functions of enabling free and complete expression of the public's body and mind.

Taking the example of the political system's automated administration restricting the free and complete expression of the public's body and mind, the political system, through automated administration, can relax or even evade the constraints of legal procedures on administrative actions by public authorities. Without the constraints of technical due process, automated approval in beneficial administrative actions, represented by automated administrative permits, can hinder citizens (as administrative counterparts) from obtaining corresponding administrative permits promptly in cases of unlawful or unreasonable approvals. Similarly, without the constraints of technical due process, burdensome administrative actions, represented by automated administrative penalties, can hinder citizens (also as administrative counterparts) from promptly exercising their procedural rights, such as the right to be informed, the right to present statements, and the right to defend themselves, under unlawful or unreasonable automated reviews. Furthermore, without the constraints of technical due process and without institutional checks such as the right to algorithmic explanation, the discretionary power exercised in automated administration becomes a black-box operation. Citizens will find it difficult to know the reasons behind automated administrative decisions made by administrative bodies, making it challenging to supervise the legality and reasonableness of such decision-making behaviors.⁵⁵ Even neutral administrative actions, such as e-government represented by automated office administration, carry the risk of further abstracting already cumbersome administrative processes through technological means. This can exclude "digitally vulnerable groups" who are not adept at using technological tools from digital political communication.⁵⁶ Hence, digital communication within the political system poses a risk to the free and complete expression of the public's body and mind, making it necessary to enshrine "digital human rights" as

⁵⁵ Ji Weidong, "Data, Privacy, and Constitutional Innovation in the Era of Artificial Intelligence," *Nanjing University Law Journal* 1 (2020): 5-9.

⁵⁶ Song Baozhen, "The Rights of the 'Digitally Vulnerable Groups' and Their Legal Protection," *Science of Law (Journal of Northwest University of Political Science and Law)* 6 (2020): 58.

fundamental digital rights in the constitution.

We take as an example the economic system’s automated commercial decision-making restricting the free and complete expression of the public. The economic system has significantly enhanced corporate economic efficiency through automated commercial decisions. By means of algorithmic recommendations, credit ratings, reputation rankings, and inventory lists (e.g., food ratings and rankings on the “Dianping” app), the economic system’s automated decision-making, targeting the public as consumers, has generated massive consumption demand. However, during the process of automated commercial decision-making, issues such as algorithmic black boxes, algorithmic discrimination, big data price discrimination, attention capture, time squeezing, and wrongful account bans on social media have emerged as significant social concerns. Due to digital choice architectures, these issues have greatly restricted the public’s freedom of body and mind in economic activities and speech. While digital choice architectures provide convenience for citizens (as consumers), they also increase the workload for citizens (as laborers) and seek to profoundly regulate the public’s free expression choices. In the absence of constraints from technical due process and the corresponding fundamental digital rights provided by the legal system, the public, relatively weaker compared to platform enterprises controlling data resources and technological power, will find it challenging to achieve full and complete expression of their bodies and minds in digital communication. Consequently, digital communication within the economic system also restricts the free and complete expression of the public’s body and mind, making it essential to enshrine “digital human rights” as fundamental digital rights in the constitution.

III. Examination on Feasibility: The Constitutional Basis of Digital Human Rights

Despite the possibility of defining the concept of digital human rights and the necessity of enshrining digital human rights in the constitution due to its social functions, the feasibility of transforming digital human rights into fundamental digital rights still requires an examination of the constitutional basis of digital human rights. There are limitations to the two existing approaches to incorporating digital human rights into the constitution. A new approach based on System Theory of Law can achieve a typological interpretation of the digital human rights system and demonstrate the feasibility of digital human rights on a constitutional basis.

A. Limitations of the two existing approaches to “constitutionalization”

The two existing approaches to substantiate fundamental digital rights from the perspective of positive legal norms include: (1) Applying human rights clauses in the constitution and expansively interpreting the concept of human rights to include “digital human rights”. (2) Listing digital rights in branches of

law and elevating them to fundamental digital rights in the constitution to prove the existence of digital human rights. However, both of these existing approaches have certain limitations.

1. **The arbitrary nature of applying human rights clauses**

This approach treats the “personal dignity” clause in Article 38 of Chinese *Constitution* as the meta-norm for digital human rights in the constitution. It also relies on the general “human rights clause” in Article 33.3, which states, “The state shall respect and protect human rights,” equating the interpretation of digital human rights with fundamental rights such as equality, freedom of religious belief, personal freedom, and freedom of speech and publication. This creates a potential institutional space for the “inclusion” of digital human rights in the constitution. Within this space, the normative structure of digital human rights is defined as follows: the state is the obligor of digital human rights, bearing both the negative obligation not to infringe digital human rights and the positive obligation to protect them actively. This approach presupposes that “human rights” in the constitution should include digital human rights.⁵⁷

Despite rooting digital human rights in the constitutional clauses of “personal dignity” and “human rights,” this approach is arbitrary when using the human rights clauses due to the highly declarative nature of these two clauses, which have substantial interpretive flexibility. The arbitrary application of the “personal dignity” and “human rights protection” clauses to incorporate “digital human rights” in the constitution is problematic for several reasons. Firstly, this approach of interpretation, without sophisticated consideration of other constitutional norms, does not effectively reference other constitutional norms for systemic support, making the constitutional basis for digital human rights relatively weak and delaying the systematic integration of digital human rights. Second, this approach can easily lead to the concept of “human rights” becoming too broad, undermining the stability, seriousness, and authority of fundamental rights in the constitution.

2. **The listed branches of law are not comprehensive**

This approach relies on the provisions of the *Civil Code*, the *Personal Information Protection Law* and other related branches of law. It defines the normative boundaries of personal information through Article 1034 of the *Civil Code*.⁵⁸ Then, it lists digital rights in the *Personal Information Protection Law* and other branches of law, such as the rights of individuals in personal

⁵⁷ Related representative works: See Zheng Zhihang, ‘The Theoretical Justification and the Connotation of Autonomy in ‘Digital Human Rights’,’ *ECUPL Journal* 1 (2023): 35-47.

⁵⁸ Article 1034 of the *Civil Code* of People’s Republic of China stipulates: “A natural person’s personal information is protected by law. Personal information is the information recorded electronically or in other ways that can be used, by itself or in combination with other information, to identify a natural person, including the name, date of birth, identification number, biometric information, residential address, telephone number, email address, health information, whereabouts, and the like, of the person.”

information processing activities, including the right to inquire and copy, the right to portability, the right to rectification and supplementation, the right to deletion, and the right to explanation, among other rights. By listing a series of digital rights in the branches of law, it deduces the constitutional systematization of personal data rights in reverse, and fills in the connotation and characteristics that “digital human rights” should have in the constitution with the connotation and characteristics of the digital rights in the aforementioned branches of law. Accordingly, this approach believes that digital human rights have a constitutional basis.⁵⁹

While this approach provides ample material from branches of law for “digital human rights,” it appears to undermine the supremacy of the constitution. In the national legal order, the constitution provides value guidance and creates legislative space for branches of law. The concretization of branches of law must adhere to the pre-established framework set by the constitution. If digital rights at the constitutional level are inferred from sectoral digital rights, there is a risk of branches of law creating digital rights norms first and then “forcing” the constitution to acknowledge these pre-existing digital norms. This could be seen as undermining the constitution’s exclusive authority to establish fundamental rights. Furthermore, citizens’ digital rights are not limited to personal data rights in personal information processing activities. It is difficult to comprehensively enumerate digital rights at the branches-of-law level, which leads to an incomplete induction of digital human rights at the constitutional level.

B. A new way of thinking with system theory of law as the basis

From the perspective of System Theory, systems exist in a specific contradictory relationship with their environments. Because the existence of a system is aimed at expanding itself to ensure it encodes as much information as possible, it often tends to consume its environment. The environment, in turn, provides the necessary nourishment for the system’s continuous operation while serving as the boundary that the system constantly attempts to surpass. From this angle, the environment acts as fuel and resistance for the system, and the system needs the motivation to encompass and construct information. Unlike other social systems, the legal system maintains autonomy through its legal content, institutions, methodologies, and professional autonomy while also acquiring a level of conservatism relative to its environment.⁶⁰

Therefore, for the highly positivized legal system, “digital human rights” in the broad sense are merely political, moral, or academic claims. Even with urgent demands from the political system, strong calls from the moral system, or rigorous arguments from the scientific system, such “digital human rights” in

⁵⁹ Related representative works: See Zhou Weidong, *The Constitutional Systematization of Personal Data Rights*, *Law Science* 1 (2023): 32-48.

⁶⁰ Weng Zhuangzhuang, “The Autonomy of Law and Its Significance for the Rule of Law,” *Legal Method* 1 (2020): 99.

broad sense remain within the environment of the legal system and cannot directly interfere with its operations. Only when the claims related to such “digital human rights” in a broad sense sufficiently perturb the legal system can it internally construct information regarding “digital human rights” in a narrow sense in a thematic manner, thereby allowing the legal system to be astonished by “digital human rights.”⁶¹ If the legal system categorizes information about “digital human rights” in a narrow sense as “redundant information,” then it will incorporate such “digital human rights” into the existing system of fundamental rights within the constitution, rather than treating it as a new type of human right. If the legal system categorizes information about “digital human rights” in a narrow sense as “astonishing information,” then it will construct these “digital human rights” as an emerging type of right outside the existing system of fundamental rights in the constitution.

The structural complexity of the legal system requires it to defend against noise generated within its own system. Therefore, unless necessary, there is no need to construct new human rights; it is sufficient to extend within the existing framework of human rights.⁶² The function of redundancy is the ability to select information. On the basis of maintaining its stability, the legal system reduces its “astonishment” to a tolerable quantity and allows information to add a small number of discrepancies to the system.⁶³ Therefore, the key issue here is the criteria by which the legal system categorizes information about “digital human rights” in a narrow sense as either “redundant information” or “astonishing information.” From the perspective of System Theory, the standard for the legal system to judge “astonishing information” is whether the information implies that the functions of the constitution and the legal system for society as a whole are unsustainable, thus necessitating the construction of new types of constitutional and legal rights.

Based on such standards, “digital human rights” in a narrow sense should be included in the constitution as a new type of right. Specifically, the function of the modern constitution is to maintain boundaries between different social systems, preventing them from expanding disorderly or excessively and thereby avoiding the domination of citizens’ physical and mental systems by different social systems, or even arbitrarily excluding citizens from specific social communications. The function of the legal system is the “generalization of the consistency of normative behavioral expectations,” which means ensuring the stability of normative behavioral expectations when individuals participate in

⁶¹ Regarding the explanation on systems categorizing information in environments as redundancy or astonishment, see Niklas Luhmann, *Soziale Systeme. Grundriß einer allgemeinen Theorie*, translated by Lu Guixian, et al. (Taipei: Nuannuan Bookstore, 2021), 105-108 and 354-355.

⁶² Niklas Luhmann, *Law as a Social System* (Oxford: Oxford University Press, 2004), 316-317.

⁶³ Michael King and Chris Thornhill, *Niklas Luhmann's Theory of Politics and Law* (London: Palgrave Macmillan, 2003), 50.

social communication. As discussed in the “Examination on Necessity” section, the digitization of social systems leads to the digitization of social communication, creating digital communication that is markedly different from real-world communication. This includes the digitization of real-world communication and the self-propagation of digital communication. Meanwhile, digital social systems tend to over-expand, and as the threshold for individuals to participate in digital communication rises, it becomes easier to restrict the free and complete expression of a person’s body and mind. This challenges the functions of the modern constitution and impacts the functions of the legal system. Therefore, it is necessary to construct digital rights at the branches-of-law level within the legal system and establish constitutional-level fundamental digital rights.

Constructing constitutional-level digital rights can be summarized into two approaches. First, amending the constitution to include “digital human rights explicitly.” Amending the constitution relies on decisions, or even determinations, by the political system. To maintain the authority and stability of the constitution, we must approach such amendments with caution. This approach does not build on the existing constitutional text but rather hopes for a decisive future amendment to the constitution, which may involve an over-reliance on the political system. Therefore, the idea of amending the constitution to include “digital human rights explicitly” is neither realistic, advisable, nor necessary at this time. Second, constructing a fundamental rights system for “digital human rights” based on systematic interpretation of the existing constitutional text. This approach respects the authority and stability of the existing constitution and attempts to construct a fundamental rights system for “digital human rights” based on the existing constitutional text. It respects the autonomy of the legal system and aligns more closely with the operational logic of maintaining stable normative expectations within the legal system. Hence, the latter is the more appropriate approach.

From the perspective of System Theory, constitutional interpretation is fundamentally different from the normative constitutional interpretation. The former is a functionalist sociological interpretation based on the relationship between different social systems and the living system and psychic system of the populace, revolving around the existing constitutional text. This is essentially an external perspective describing the legal system. The latter is a semantic interpretation strictly revolving around the existing constitutional text, essentially an internal perspective providing a normative interpretation of the legal system. Thus, the former requires translation to be incorporated into the internal operations of the legal system. In this context, sociological interpretation methods in constitutional interpretation can serve as a translation tool, gaining institutional opportunities through authorized interpretations by

state organs.⁶⁴ Functionalist sociological interpretation is a type of sociological interpretation, but it aims for the positive interaction between social structures and semantics. It integrates various methods of normative constitutional interpretation, aiming to address constitutional changes in the context of social transformation without altering the existing normative statements of the constitution. It is important to note that sociological interpretation as a method of constitutional interpretation is only used when methods such as literal interpretation, historical interpretation, systematic interpretation, and teleological interpretation are insufficient to elucidate the connotation of constitutional norms.⁶⁵

As previously mentioned, the transformation of digital communication driven by digital media technology in a digital society is undoubtedly an emerging phenomenon in human society. At the level of the social structure, it makes it difficult for the existing social communication participation rights of citizens to be fully and unchangedly extended to the realm of digital communication. At the semantic level, it leads to the application of various interpretative methods, such as literal interpretation, historical interpretation, systemic interpretation, and teleological interpretation, making it challenging to directly and comprehensively explain fundamental digital rights within the semantic scope of the existing fundamental rights system in the way of “new wine in old bottles.” Therefore, it is indeed necessary to, at the theoretical level, preemptively use the functionalist sociological interpretation of System Theory in combination with the national conditions of China as well as the different social fields of various social systems. This should be based on the constitutional norms related to digital communication in the constitution, and an attempt should be made to typify digital human rights as the right to participate in digital communication without exclusion, providing theoretical references for authorized interpretation.

C. Interpretation of typification to the digital human rights system

To overcome the drawbacks of the two aforementioned approaches, we need to explore the interpretation of fundamental digital rights within the context of System Theory constitutional law based on the text of the Chinese *Constitution*. The provisions regarding citizens’ fundamental rights are concentrated in Chapter II of the Chinese *Constitution*, “The Fundamental Rights and Duties of Citizens.” Therefore, it is essential to analyze the articles related to citizens’ fundamental rights in the Chinese *Constitution* to provide a comprehensive constitutional typification of the digital human rights system.

1. Meta-norms of the right to participate in digital communication

⁶⁴ Regarding the introduction to sociological interpretation as a method of constitutional interpretation, see Yang Zhiwen, “The Judicial Application and Limits of Sociological Interpretation Method,” *Studies in Law and Business* 3 (2017): 48-57.

⁶⁵ Wang Liming, *Legal Hermeneutics* (Beijing: Renmin University of China Press, 2011), 153-162.

The constitutional value basis of “the right to participate in digital communication” is “human dignity,” which encompasses the dignity of the human mind and body systems. Specifically, Article 38 of the *Constitution*, which addresses “personal dignity,” stipulates that citizens’ living and psychic systems should enjoy the right to participate in digital communication in a dignified manner. This article serves as a fundamental provision for the entire concept of digital human rights. Article 33 of the *Constitution* defines the subjects of digital human rights, that is, participants in digital communication, as citizens of the People’s Republic of China, and it abstractly establishes their constitutional status for equal participation in digital communication in front of the law. The “state,” as the political system, is the obligated entity of digital human rights, bearing the negative obligation not to infringe upon citizens’ rights to participate in digital communication and the positive obligation to protect this right actively. Article 48 of the *Constitution*, “equality between men and women,” has refined the provisions of Article 33 on the subject of digital communication participants, clarifying that all citizens, regardless of gender, equally enjoy the right to participate in digital communication. Article 14.4 further specifies the state’s social security obligations to digitally vulnerable groups to prevent the digital divide from hindering their right to participate in digital communication.

The core connotation of the right to participate in digital communication is the fundamental right of citizens’ psychic and living systems to engage in digital communication. Specifically, the provisions on “freedom of speech” and “freedom and privacy of correspondence” in Articles 35 and 40 of the *Constitution* implicitly include citizens’ freedom to seek, receive, and express information in private domains in any manner in digital subsistence. This means that the spiritual freedom of the citizens’ psychic system is inviolable and is subject to rightful limitations only when it extends from the purely mental realm into the social realm. This provides a constitutional foundation for exercising the right to participate in digital communication by the citizens’ psychic system.⁶⁶ Articles 37 and 39 of the *Constitution* emphasize that without the authorization of statutory organs and compliance with legal procedures, the personal freedom of the citizens’ living system shall not be violated. This lays the constitutional foundation for the citizens’ living system to exercise the right to participate in digital communication.⁶⁷ Article 51 clarifies that citizens’ enjoyment of digital

⁶⁶ Yang Hongbin, “On the Human in Modern State and Constitution — Conscious Freedom, Human Dignity, and Modern Constitution,” *Academic Exchange* 7 (2017): 106.

⁶⁷ However, it is noteworthy that the Chinese Constitution does not explicitly establish the body rights as fundamental rights in the field of criminal proceedings. Chinese scholar Shi Pengpeng argues: “This is undoubtedly a major oversight by the Constitution drafters. If people’s body rights can be arbitrarily violated, then any further discussion of fundamental rights and freedoms is meaningless.” See Shi Pengpeng, “Physical Examination in Criminal Proceedings and the Protection of the Body Rights,” *Journal of Comparative Law* 6 (2022): 58.

human rights must be simultaneous with their obligations prescribed by the constitution and the law. This is to prevent the over-expansion of an individual's living system and psychic system from encroaching upon other citizens' digital subsistence and development space. It ensures that citizens' highly individualized psychic and living systems can function harmoniously and appropriately within their respective boundaries.

2. The right to participate in digital communication in the political field

The right to participate in digital communication in the political field means that citizens have the right to engage in digital political communication and legally cultivate their political literacy. Specifically, Article 34 of the *Constitution* stipulates that citizens who have reached the age of 18 and have not been deprived of their political rights equally enjoy the right to vote and stand for election in digital political communication systems. The state should actively guarantee citizens' rights to vote and stand for election through official online channels and create the necessary material and institutional conditions as a supplementary form of delegated elections.⁶⁸ Article 35 of the *Constitution* stipulates that citizens have the freedom to exercise speech, publication, assembly, association, procession, and demonstration in digital communication. Within the legal limits of these freedoms, the state and other quasi-public power entities must not deprive citizens of their freedom to express opinions and publish works online. However, due to the widespread dissemination of digital communication, the exercise of such rights must comply with specific legal system provisions and must not infringe upon the rights of other citizens.⁶⁹ Article 41 requires the state to ensure citizens' rights to criticize, make suggestions, file complaints, accusations, and reports against state organs and state officials in a lawful and legitimate digital manner, and must not restrict or reduce the channels and means through which these rights are exercised.

3. The right to participate in digital communication in the economic field

The right to participate in digital communication in the field of the economy means that citizens have the right to engage in digital economic communication and legally obtain the material foundation necessary for digital subsistence and development. Specifically, Article 13 of the *Constitution*, by protecting citizens' property rights, ensures that their digital assets obtained in the digital economy

⁶⁸ Liao Weixiao and Wang Qi, "The Evolution of Democratic Technology — From Debates, Voting, Elections, Media to the Internet," *Socialism Studies* 2 (2011): 115. However, it is also necessary to be vigilant about the potential instability that such online election rights may cause to the political system. See Li Lei, "WEB2.0 and the Structural Transformation of American Presidential Election Politics — A Political Analysis of Obama's Internet Strategy," *Chinese Journal of Journalism & Communication* 12 (2008): 40.

⁶⁹ Such as regulations for internet rumors. See Jiang Tao, "The Criminal Law Governance of Online Rumors: From a Constitutional Perspective," *China Legal Science* 3 (2021): 208-228.

era are protected, and that they can use these assets as a medium to participate in digital economic communication. Article 42 of the *Constitution* stipulates the right of workers in the economic domain to participate in digital communication. Through various channels, the state creates employment conditions, strengthens labor protection, improves working conditions, and increases remuneration and welfare on the basis of developing production, thus providing the material foundation and necessary conditions for citizens as workers to participate in digital economic communication. This also means that laborers’ should not be deprived of their fundamental right to participate in the digital economy and this should be adequately guaranteed, ensuring their ability to engage in digital economic communication.⁷⁰ Article 43 of the *Constitution* stipulates the fundamental rights of laborers to combine work and rest while participating in digital economic communication, which includes the right to be disconnected after work and other necessary rights.⁷¹ Articles 44 and 45 provide the fundamental rights for retired laborers and special digitally vulnerable groups to obtain the necessary economic conditions to participate in the digital economic system’s communication.

4. The right to participate in digital communication in the fields of religion, science, art, and education, and others

The right to participate in digital communication in the fields of religion, science, art, and education means the public’s right to engage in digital communication in these areas and to legally obtain the spiritual and cultural foundation necessary for digital subsistence and development. Specifically, Article 36 of the *Constitution* stipulates that citizens have the right to participate in digital communication in the religious field, and enjoy the freedom of religious belief or non-belief in the digital domain, and this kind of freedom is constitutionally protected from illegal infringement in the digital realm. However, the right to participate in digital communication in the religious field must not disrupt social order, harm citizens’ health, or interfere with the national education system, and it must not be manipulated or controlled by foreign political organizations. This article also establishes strict boundaries between the religious system and the political and educational systems to maintain the functional differentiation of various social systems. Articles 46 and 47 of the *Constitution* stipulate that citizens have the right to participate in digital communication in the educational field, and the state has the obligation to

⁷⁰ Yu Hui, “The Dilemma and Improvement Path of Labor Rights and Interests Protection for Platform Workers in China,” *Journal of Chinese Youth Social Science* 4 (2022): 117.

⁷¹ From a comparative law perspective, countries such as France, Italy, the United Kingdom, and Spain have proposed the “right to disconnect,” granting workers the right to refuse work-related emails and other electronic communications during non-working hours, ensuring respect for rest and vacation time as well as personal and family life. See Han Xuzhi, “Taking the Right to Refuse in the Digital Society Seriously,” *ECUPL Journal* 1 (2023): 24.

provide the necessary digital infrastructure to develop digital education. This article ensures that citizens of different age groups have appropriate access to educational resources suitable for their age characteristics, thereby cultivating digital citizens with qualified digital literacy.⁷² Article 47 also states that citizens have the right to participate in digital communication in the fields of science, art, and other areas, and the state is obligated to provide the necessary support for citizens to engage in scientific and artistic research.

5. Summary

Through the typological interpretation of the digital human rights system mentioned above, it can be found that categorizing digital human rights as the right to participate in digital communication is more in line with the overall spirit of the text of the Chinese *Constitution*. As the right to participate in digital communication, digital human rights can consist of different fields, such as politics, the economy, religion, science, art, and education, according to the digital communication that occurs between individual citizens and different social systems. Drawing on the System Theory of Law for the typological interpretation of the digital human rights system, digital human rights as the right to participate in digital communication have gained a more solid constitutional basis, and have also proved the feasibility of such digital human rights at the constitutional foundation level.

Conclusion

By introducing the perspective of Luhmann's System Theory, we can uncover the value of "digital human rights" for individuals at the semantic level while also addressing their significance for the entire society and its various subsystems at the social structural level. Within the scope of Luhmann's System Theory, "digital human rights" are defined as the constitutional right of a "person" to not be excluded from participating in digital communication. Therefore, "digital human rights" are not merely moral concepts, political claims, or academic appeals; they are concretely situated within the legal system of the constitution. By categorizing the constitutional-level framework of digital human rights, it can be seen that the right to participate in digital communication in the political realm corresponds to first-generation human rights (i.e., negative rights), while the right to participate in digital communication in the economic realm and in the fields of religion, science, art, and education corresponds to second-generation human rights (i.e., positive rights). However, compared to traditional social communication, digital communication in the fields of politics, economy, religion, science, art, and education is more complex and cannot be fully encompassed by the existing human rights framework. The mutual empowerment between social systems and digital technologies will reshape the

⁷² Zhang Hong and Chen Enlun, "The Development Dilemma and Protection of Students' Right to Education in the Internet Era," *Jiangsu Higher Education* 3 (2018): 77.

differentiation pattern of social systems. Because the threshold for participating in digital communication is much higher than for traditional communication, social systems that integrate digital technologies will restrict the free and complete expression of individuals’ minds and bodies. Consequently, the right to participate in digital communication, which corresponds to the digital communication domain, cannot be subsumed within the traditional human rights framework that corresponds to the realm of traditional communication. It possesses unique value independent of the three generations of human rights. Through the aforementioned threefold examination, it becomes clear that “digital human rights” from the perspective of System Theory are conceptually possible, socially functional, and constitutionally feasible.

(Translated by *LI Donglin*)