

# NAVIGATING PRIVACY PROTECTION IN THE ERA OF DIGITAL PUBLIC SPACES

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**Abstract:** The International Education College of Jiangxi Normal University's research on "protection of privacy rights in public spaces" cannot be divorced from the spatial context and examined in "privacy rights". With the advent of the digital age, public space is no longer just a concept of physical space, but deeply integrated with digital technology, forming an integrated unity of physical and virtual spaces. The widespread coverage of public digital devices is impacting the traditional privacy protection system, and the demand for protecting individual privacy rights in public spaces is becoming increasingly prominent. This study systematically analyzes the historical evolution of privacy rights and the digitalization of public spaces from the perspective of digital public spaces. Through classic cases, it reveals three core dilemmas in privacy protection within China's digital public spaces. Based on this, this paper proposes pathways for implementing privacy protection in digital public spaces, examining legislative, judicial, and social governance perspectives.

**Keywords:** Privacy protection; Digital public spaces; Data sharing; Privacy law

## 1 INTRODUCTION

Privacy, as a fundamental element of human dignity, plays a crucial and undeniable role in shaping individual identity and social recognition. At the end of the 19th century, American private law scholars Louis D. Brandeis and others first explicitly proposed in their article "On the Right to Privacy" that "an individual's person and property should be fully protected", and defined the right to privacy as "the right to be let alone", advocating that it should be strictly protected by law. Since then, the concept of privacy has gradually entered the public eye and developed into an important right widely applied in judicial practice. With the continuous advancement of science and technology and people's increasing attention to the spiritual world, the connotation of privacy rights has evolved from the traditional "right to solitude," through concerns about controlling the flow of intimate information, to the contemporary emphasis on the right to control personal information. The scope of privacy rights has expanded significantly, and its boundaries have become increasingly blurred.

Entering the digital age, the rapid development of intelligent technology and innovation in social connectivity are profoundly reshaping the definition and boundaries of public spaces. Public video surveillance systems are widely covered in public areas, and mobile phones and other smart devices have become essential tools for people's daily lives and important channels for information acquisition. The continuous development of social media has prompted people to break through the limitations of traditional social networks through information exchange and sharing. Public space is no longer solely a physical concept but is deeply integrated with digital technology, forming an integrated unity of physical and virtual spaces. In this context, privacy information that was originally strictly protected in private spaces inevitably enters the public domain and becomes a part of public information. In digital public spaces, individuals, as data subjects, struggle to anticipate the dissemination of their personal information and potential privacy violations using conventional means. This creates a dilemma where personal privacy becomes unexpectedly exposed within ostensibly public contexts. The imperative to safeguard personal privacy rights within public spaces has grown increasingly urgent.

The rise of digital public spaces has had a strong impact on traditional privacy theory, and once effective privacy protection measures are gradually becoming inadequate in the new era. Therefore, there is an urgent need to comprehensively understand the trends and characteristics of public space digitalization, to delve into the challenges confronting privacy protection within these digital public spaces, and to identify new pathways for privacy protection suited to contemporary developments.

This article is based on the perspective of digital public spaces, focusing on the protection of citizens' privacy rights, and analyzing the evolution of public space digitalization and conceptualizing it through the lens of privacy protection. It reveals the key dilemmas facing privacy protection in China's digital public spaces. Finally, returning to the core values and fundamental objectives of privacy protection, this article explores new paths to solve the problem of privacy protection in digital spaces from the perspectives of legislation, government, and industry, deepens theoretical research on legal protection of privacy rights, and provides practical guidance for privacy protection in digital public spaces in the era of intelligent media.

## 2 THE FORMATION OF PRIVACY PROTECTION IN DIGITAL PUBLIC SPACES

### 2.1 The Historical Evolution of Privacy Rights

Academic consensus often traces the origin of privacy rights to 1890 when American scholars Wallen and Brandeis first introduced the legal concept of “privacy right” in their article “On the Right to Privacy” and defined privacy as “the right to be let alone”[1]. Since then, the right to privacy has gradually received high attention from academia and the judicial field.

Wallen and Brandeis believe that the “right to privacy” is a product of the development of the times and a recognition of new rights based on political, economic, and social changes. This definition expresses people’s traditional and naive longing for “privacy”, but it was considered excessively broad and ambiguous, and there is still controversy in some fields[2]. Firstly, setting aside their subjective descriptions, the two legal scholars did not provide a clear explanation of the specific connotation and extension of privacy rights, and at that time, privacy rights were not yet formally recognized in US common law, which made it difficult for privacy rights to fulfill their intended functions in specific judicial practices. Secondly, in terms of the scope and practical carrier of privacy protection, the two legal scholars defined privacy as “a right to protect an individual’s solitary state from external interference” based on the reality of their own private lives being excessively exposed, without explicitly defining the scope of privacy protection. However, it is worth noting that the privacy rights of citizens are constantly expanding with the development of the times and the advancement of technology. The scope of protection has expanded from an initial focus on “peaceful living” within private domains like the home, to encompass a broad range of personal life secrets and identifiable personal information. The boundaries of privacy rights have become increasingly blurred.

In recent years, academia and the judicial field have gradually recognized the complex characteristics of privacy rights in contemporary society - not only possessing multidimensional rights attributes, but also exhibiting significant dynamic and diverse values due to differences in application scenarios. In digital public spaces, privacy rights take on a digital dimension, primarily concerned with personal information that is susceptible to recording, analysis, and dissemination[2]. Due to the close relationship between privacy data and subject rights, large-scale data collection and processing in public spaces can readily trigger direct or cascading effects on the property rights and personal dignity of data subjects. This strong correlation has led to a structural coupling between contemporary privacy rights, especially privacy rights in digital public spaces, and individuals’ digital identity, social credit, and other rights, rendering traditional models of compartmentalized rights protection inadequate [3].

With the popularization of artificial intelligence technology and the evolution of smart city strategies, privacy rights are poised to become a cornerstone of social order in the digital age, and their institutional construction needs to respond to the paradigm shift of rights brought about by spatial reconstruction [4]. Strengthening digital privacy protection is not only related to individual rights, but also a technical prerequisite for maintaining the effectiveness of public space governance. It can be foreseen that in a future society with more advanced science and technology, the importance of privacy will become more prominent.

### 2.2 The Evolution of Digitalization in Public Spaces

The concept of privacy is multifaceted and contested, significantly impacting how citizens’ demands for privacy protection are met. The meaning of privacy rights continues to evolve and expand with societal development, and one of the most critical reasons is that it always relies on the specific social environment. Therefore, research on privacy protection must be situated within the specific context of “digital public spaces,” acknowledging this as the primary arena for contemporary privacy concerns.

The term ‘public space’ is often used interchangeably with concepts such as the public sphere and public places, both in Chinese and Western usage. German sociologist J ü rgen Habermas systematically elucidated the concept of the “public sphere”. He defined the public sphere as a domain of social life that should, in principle, be open to all citizens. Charles Taylor provided a unique interpretation of the concept of the public sphere from a social ontological perspective. He constructed the public domain as an open interactive field. In this space, the general public connects through diverse media, including publications, electronic products, and face-to-face communication, and discusses matters involving common interests. Habermas believes that public spaces are closely related to citizens’ social life and have a distinct “openness”; Taylor believes that public spaces are sites for the free expression and exchange of ideas, possessing a shared nature; Professor Zhang Min’an added that public spaces have “accessibility”. It can be seen that public space is generally regarded as an open physical space where citizens can freely enter, exchange and express their opinions[5].

With the acceleration of the global digital industry revolution, digital and information technologies have penetrated into people’s lives in all aspects. Wachal pointed out that “digitalization” refers to the use of digital communication and media infrastructure to reshape diverse facets of social life. The digitization of public spaces began with the widespread adoption of circular closed-circuit television systems in public areas[6]. This type of monitoring technology has been deployed on a large scale in public areas such as streets, squares, and transportation hubs, signaling an initial shift in the management of public spaces towards data-driven approaches. With the development of technology, the system gradually transitions from analog signals to digital signals, and through network and intelligent upgrades, more complex digital application scenarios have emerged. With the help of facial recognition, behavior analysis algorithms, and big data platforms, public space surveillance systems can actively track targets, identify anomalies, and even predict risks,

moving far beyond passive image recording. The shift from “recording” to “parsing” effectively transforms public spaces into computable, and often interoperable, data environments.

In the wave of information technology innovation, big data and cloud computing, as foundational technologies, are driving the digital revolution with unprecedented synergistic effects. This technological shift enables the collection, integration, and analysis of personal information at unprecedented speed and scale. On the one hand, data collection behavior has penetrated into daily life scenarios, from digital devices in libraries to community convenience service terminals. Various networked devices continuously and often unobtrusively capture user behavior traces. This covert data collection mechanism poses systematic risks to personal privacy, and data subjects’ rights to know and control their information are increasingly eroded by technological capabilities. On the other hand, due to the re-identification characteristics of big data, even seemingly anonymized information shared on social media can be re-identified through data aggregation and cross-referencing with other datasets, reconstructing identifiable personal profiles. Anonymous information is thus revealed, and personal privacy is also exposed.

The impact of the digital wave has made public space no longer just a concept of physical environment, but a space where the virtual and physical are intricately intertwined with digital technology.

### 3 THE DILEMMA OF PRIVACY PROTECTION IN CHINA'S DIGITAL PUBLIC SPACES

#### 3.1 The Trade-off between Self Disclosure and Privacy Protection Interests

When an individual enters a public area, it inherently involves a limited disclosure of personal information. By using clothing, facial decoration, and verbal communication, individuals actively manage their self-presentation in public spaces, adjusting their external expressions and appearances according to the specific context. From this perspective, the disclosure of personal information in the public domain is increasingly functioning as a form of modern social currency, used strategically through subjective sharing to build and maintain interpersonal relationships. On the one hand, public spaces require a minimum level of information disclosure. This minimum level of information disclosure is not only a functional requirement for maintaining social order, but also a fundamental requirement for the efficient functioning of these spaces. For example, ride-hailing drivers are required to display license plates for identification, while passengers must disclose their location coordinates to facilitate the service. On the other hand, the disclosure of individual information not only promotes self-positioning, but also is a necessary prerequisite for building interpersonal networks. The essence of social interaction in public spaces can be attributed to the interdependence of individuals within social networks. The public disclosure of individual information can effectively suppress the spread of false information, clarify an individual's social roles and communication styles.

People need to disclose their personal information appropriately in public places, but it does not mean that the more personal information disclosed, the better. Among them, private information belongs to the content of personal information, and natural persons have both the personality right of privacy and the right to make independent decisions about personal information. In digital public spaces, personal information exhibits an inherent openness, and in the process of dissemination, the volume of associated data will continually expand. This goes against the pursuit of protecting privacy and personal interests, and the openness of information and data flow will undermine individuals' ability to exclusively control their private information. Therefore, there is a trade-off between the openness of self-disclosure and the privacy and exclusivity of privacy protection in digital public spaces.

#### 3.2 The Tension Between Public Interests and Privacy Rights

The digitization of public spaces began with the large-scale deployment of public video surveillance equipment by government agencies and public institutions in public places. The intelligent monitoring network has achieved full coverage and its technological capabilities are constantly being upgraded, integrating advanced technologies such as biometric recognition and infrared imaging, enabling these systems to adapt to diverse scenarios and meet the varying requirements of different implementing bodies. For example, in order to prevent and combat illegal and criminal activities, law enforcement agencies establish video surveillance networks in open spaces; Public service providers such as educational institutions, medical institutions, and financial institutions have also extensively set up monitoring terminals in their jurisdictions based on security management considerations. The core purpose of installing video surveillance equipment in public areas is to maintain social security and order.

With the large-scale deployment of digital devices such as public video surveillance systems in public spaces, incidents of privacy infringement have become increasingly frequent, fueling public concern and anxiety. On the one hand, the increasing number of digital devices has intensified the threat to individual privacy rights. The installation location of the video surveillance system is concealed, and its monitoring methods and techniques are not easy to detect. People's various behaviors will be recorded as data traces. Individuals are constantly aware that their actions and daily lives may be recorded, stored, and potentially disseminated by ubiquitous surveillance systems. On the other hand, the increase in the number of digital devices will deepen the degree of privacy infringement[7]. For a specific individual, the real-time and interconnected nature of digital networks makes the consequences of privacy breaches difficult to predict and the scope of dissemination hard to contain. Consequently, the challenge of protection intensifies. Once personal privacy content is leaked, it is easy to have a huge impact on society, not only causing significant physical and mental distress to the affected individuals, but also arousing public questioning and resistance to surveillance governance. The deployment of digital devices is to safeguard public interests, but in balancing public interests and private rights, certain

principles and standards need to be followed. Privacy protections should only be overridden for reasons of public safety when an individual's actions within that public space themselves pose a genuine and imminent threat to public safety. The innovation of digital device technology has made personal privacy increasingly vulnerable, and the balance and contradiction between public interest and privacy protection rights are increasingly prominent in the trend of digitalization of public spaces.

### 3.3 The Conflict between Data Sharing and Privacy Protection Value Goals

Digital technology development offers significant opportunities for enhancing public safety, improving governance efficiency, and advancing the digital economy. However, it simultaneously poses substantial challenges to individual privacy rights in public spaces. Central to this tension is data sharing, a core driver of digital progress aimed at dismantling barriers to the open exchange, access, and utilization of data throughout its lifecycle. Conversely, privacy protection fundamentally seeks to safeguard personal space from unauthorized knowledge, interference, or infringement. This inherent conflict is intensified as the digital revolution reshapes societal operations and consumption patterns. As digitalization advances, personal activities and information become increasingly digitized, archived, and traceable by producers and distributors. Data mining techniques can exploit intimate details—such as family circumstances and consumer behavior—to construct comprehensive consumer profiles. While digital technology facilitates daily life, it also generates an autonomous force that operates independently of human control. This force elevates data security risks, amplifies the threat of privacy breaches, and presents unprecedented challenges for privacy protection in the digital age. The pervasive implementation of data sharing undermines traditional privacy protection paradigms. Historically, physical space served as the primary boundary for privacy, with legal safeguards focused on prohibiting unlawful intrusion into private domains. Digital technology, however, erodes the distinction between private and public spheres. The widespread deployment of digital surveillance and facial recognition technologies invalidates the “reasonable expectation of privacy” doctrine predicated on spatial divisions. Consequently, the boundaries delimiting public authority intervention in private life become increasingly ambiguous.

Privacy infringements resulting from digital surveillance are often irreversible. Personal information exists in a state of near-transparency within borderless digital spaces. Although contemporary legislation (e.g., China's Personal Information Protection Law) mandates conspicuous notice for data collection in public areas, it lacks detailed regulations governing subsequent data reuse and aggregation analysis. This regulatory gap inadvertently heightens the risk of personal privacy leakage. This specificity underscores the fundamental conflict between the imperatives of data sharing and the core values of privacy protection.

## 4 THE FORMATION OF PRIVACY PROTECTION IN DIGITAL PUBLIC SPACES

### 4.1 Recognizing the Privacy of Public Spaces and Improving the Legal System for Privacy Protection

The current Civil Code of China stipulates the protection of privacy rights, but lacks explicit provisions recognizing privacy rights in public places. With the continuous development of technology and society, personality rights are receiving heightened societal attention. With the continuous expansion of the connotation of privacy rights, the maintenance of privacy rights in public spaces is crucial. The privacy rights in public spaces have been legally recognized through case law in the United States, shifting the focus from the nature of the space itself to the protection of individual rights within that space. British law has not yet explicitly stipulated the privacy rights in public spaces at the textual level, but in practice, it acknowledges this citizen right. The approaches in both the UK and the US reflect a significant legal emphasis on individual privacy rights.

Based on the current status of privacy protection legislation in China and drawing on the experience of the United States and the United Kingdom, China can strengthen the legal provisions on privacy rights in public places. By clarifying the definition, scope, and measures of privacy rights in public places, China can provide citizens with a clear legal basis for exercising their privacy rights[8]. Firstly, the scope of privacy protection should be extended to public spaces based on practical necessity. Define the concept and protection scope of the right to privacy in public spaces, formally incorporate the right to privacy in public spaces within the scope of civil law protection. This would provide citizens with explicit legal safeguards and establish a clear basis for independent legal action within the civil law framework. Secondly, it is necessary to clarify the protection boundaries of citizens' privacy rights, calibrate compensation amounts, fines, and criminal penalties according to the severity of the infringement, and formulate a comprehensive regulatory plan to provide legal basis for law enforcement agencies to investigate and punish illegal acts that harm public privacy rights.

### 4.2 Improving the Privacy Rights Remedy Mechanism and Promoting Citizen Awareness and Education

The construction of a comprehensive mechanism for the relief of citizens' privacy rights constitutes a crucial safeguard for citizens' privacy rights, which can effectively prevent the occurrence of serious violations of citizens' privacy rights. It is an important content that cannot be ignored in the protection of citizens' privacy rights in the digital public space. The first thing to do is to allocate the burden of proof reasonably. Given that information service providers control vast amounts of public space data, a certain burden of proof could be allocated to them. Secondly, a punitive damages mechanism can be introduced. Diversified forms of responsibility and sanctions can be used, and the severity and

amount of punishment can incentive infringers to effectively fulfill their liability. Specifically, sanctions could include revoking the infringer's data collection licenses, listing them in credit reporting systems, and restricting their data collection permissions. If the infringement has caused serious consequences, the criminal responsibility of the infringing party should also be pursued in accordance with the law. Finally, it is necessary to clarify the direct and comprehensive relief standards. From the current privacy rights relief mechanism, there is a lack of mandatory procedures and clear compensation standards for remedies. Therefore, procedural provisions for privacy remedies and compensation standards should be improved.

The strengthened protection of personal rights and interests in China's Civil Code, complemented by the Personal Information Protection Law's specific regulation of data processing activities, marks the initial establishment of a privacy protection framework. This legislative process clarifies the legal privacy protection obligations that information processors should undertake in the digital age, as well as the supervisory and management responsibilities that relevant government departments should fulfill. In today's society, the continuous improvement of legal texts is only a basic requirement for the operation of the system. To effectively protect citizens' privacy in digital public spaces, it is essential to leverage awareness-raising and education channels to enhance individuals' awareness, promote the transformation of personal cognitive models, improve the level of control over their own information, and empower citizens to proactively protect their rights through legal channels when facing privacy infringement. Only in this way can the role of the privacy protection system be fully demonstrated, in order to repeatedly verify and improve existing privacy protection models in practical applications.

### 4.3 Developing Self-Regulatory Standards and Promoting Industry Self-Discipline Models

The industry self-regulation model in US law can effectively incentive market participants. Market participants can collaboratively develop enhanced privacy protection standards that build upon national legal requirements. Driven by market competition mechanisms, they can continuously enhance their own information protection level to attract more users. This model has shown outstanding positive effects.

Based on this model, combined with the characteristics of China's current legislative framework, it is not appropriate to grant information controllers excessive autonomy at this stage. In this context, piloting the establishment of network privacy protection certification bodies holds considerable innovative promise. Network privacy certification agencies carry out privacy and security certifications with social credibility, thereby enhancing user trust in compliant enterprises. At the same time, such organizations will conduct full process information security checks on certification subjects and strictly supervise the information processing of certification enterprises[9].

Balancing privacy protection and information flow in digital public spaces fundamentally involves adapting evolving information norms to the realities of technological innovation. During the construction of a self-discipline system, information management entities should also actively participate in the formulation of industry self-discipline conventions, enhance their compliance and legal awareness, and ensuring that industry practitioners fully understand the critical importance of protecting user information. The industry needs to build a communication bridge between information controllers and information subjects, safeguard data subjects' right to access their information, thereby helping to resolve tensions and build trust between the parties[10].

## 5 CONCLUSION

This study has systematically explored the theoretical foundations, practical challenges, and pathways for institutional optimization regarding personal privacy protection in digital public spaces. It has identified core tensions within digital public spaces: the trade-off between self-disclosure and privacy protection, the tension between public interests and individual rights, and the conflict between data sharing and privacy security. The essence of these tensions lies in the ongoing negotiation between the capabilities of digital technology and the boundaries of privacy during the process of digitization.

In response to the above difficulties, this article proposes one: advocate for specific legislation to formally recognize privacy rights in public spaces and establish a tiered protection framework; Secondly, promote the responsible deployment of privacy-enhancing technologies and establish comprehensive oversight and remedy mechanisms; Thirdly, by fostering industry self-regulation through certification and enhancing citizen digital literacy education, a multi-party collaborative governance pattern will be formed. This research creatively integrates the concepts of "privacy rights" and the "digitalization of public spaces," moving beyond traditional frameworks focused solely on physical spaces, and exploring feasible paths for privacy protection in public spaces in the digital age.

## COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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