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The Legal Path of Digital Technology Driving the Modernization of Border Ethnic Affairs Governance

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Abstract. The modernization of border ethnic affairs governance driven by digital technology is an inevitable requirement arising from the overlapping strategies of national governance modernization and Digital China construction. Based on the three-dimensional analytical framework of "technology-institution-value", this paper systematically interprets the legal basis and practical landscape of digital empowerment for border ethnic affairs governance, analyzes the in-depth legal dilemmas faced by the current governance transformation, and constructs a systematic optimized legal path. The research finds that digital technology has been deeply embedded in core fields such as border ethnic affairs decision-making, public service supply, ethnic unity cultivation, and border security governance, significantly improving the refinement and modernization of governance. However, practical governance is confronted with prominent problems, including the formalization of ethnic equality caused by the reproduction of the digital divide, lagging institutional supply and normative conflicts, the predominance of instrumental rationality over value rationality, and deviation from the core essence of ethnic unity. Accordingly, this paper constructs an optimization path from three dimensions: the legal realization of digital justice, the legal improvement of governance institutions, and the legal reshaping of governance values, providing legal support for the digital sound governance of border ethnic affairs and the consolidation of the sense of community for the Chinese nation in the new era.

Keywords: Digital Technology; Border Ethnic Affairs; Governance Modernization; Legal Path.

1. Research Background

The report to the 20th National Congress of the Communist Party of China put forward major strategic deployments including building a "Digital China", strengthening the construction of border areas, and promoting prosperity, stability and security in border regions, pointing out the direction for the transformation of border ethnic affairs governance in the new era. The modernization of border ethnic affairs governance empowered by digital technology is a product of the in-depth integration of the two major strategies of digital power construction and border governance modernization. It also serves as a key approach to breaking the geographical limitations of border governance, remedying the shortcomings of ethnic governance, and consolidating the security and stability barrier in border areas.

Border governance constitutes a core component of the national governance system. China's terrestrial border areas cover nine provincial-level regions including Inner Mongolia, Gansu, Xinjiang, Xizang, Yunnan, and Guangxi. The governance effect of digital borders fundamentally affects the modernization level of national governance. Nevertheless, restricted by weak infrastructure, prominent digital literacy gaps, lagging institutional supply, and the dissipation of value rationality, the digital transformation of border governance still faces multiple obstacles. It is plagued by practical dilemmas and legal hidden dangers, such as the reproduced digital divide and formalized ethnic equality, lagging and conflicting institutional norms, as well as the dissipation of value rationality and deviation from the essence of ethnic unity.

2. Legal Basis and Practical Landscape of Border Ethnic Affairs Governance Empowered by Digital Technology

2.1. Normative Analysis of Legal Basis

Article 4 of the Constitution of the People's Republic of China clearly stipulates that "all ethnic groups in the People's Republic of China are equal", which sets a bottom line for the application of digital technology in ethnic affairs governance: technological architecture shall not become a new form of ethnic discrimination, and algorithm design must promote substantive equality. The human rights protection provisions in Article 33 of the Constitution provide a normative basis for the confirmation of digital rights of ethnic minority citizens, from which emerging rights such as the right to digital access and the right to digital literacy can be derived. The Law on Regional Ethnic Autonomy faces interpretive dilemmas in the digital age: whether the autonomy power of autonomous organs includes the independent right to choose digital governance methods, and whether ethnic autonomous areas are entitled to exercise flexible legislative power in the digital field. The Cybersecurity Law of the People's Republic of China and the Personal Information Protection Law of the People's Republic of China formulate basic norms for data processing in ethnic affairs. Given that ethnic affairs data involves sensitive information such as ethnic identity, religious beliefs and cultural customs, more stringent processing rules shall be applied [1].

2.2. Core Fields of Technology Embedding

Data-based decision-making on ethnic affairs. Government authorities in border areas adopt big data, cloud computing and other digital technologies to build algorithm systems for analyzing historical and real-time dynamic data, so as to facilitate policy adjustment and scientific decision-making. In Ruoqiang County, Xinjiang, villagers supervise village and government affairs through a digital rural governance platform, ensuring the open and transparent operation of grassroots micro-power.

Intelligent public services in ethnic areas. Lhasa has developed mobile applications such as "Tibetan Translation Platform" and "Sadu Office", forming a "cloud-network-terminal" convenient public service system. Supported by remote identity authentication and other technologies, people in remote border areas can handle livelihood services such as social insurance registration, medical registration and payment without leaving home.

Digital promotion of ethnic unity. Digital government platforms break geographical barriers, enabling ethnic minority people in border areas to conveniently access multi-language intelligent services. The application of digital museums, intangible cultural heritage databases and other digital tools promotes the inheritance and sharing of fine traditional Chinese culture.

Smart border security governance. At Pulan Port in Xizang, UAV intelligent patrols cooperate with ground forces to form an "air-ground joint patrol" model and build a three-dimensional monitoring network. Machine learning and other technologies are adopted for data modeling to realize advanced risk early warning and improve the predictability and controllability of cross-border crimes and other emergencies.

3. Legal Dilemmas of Border Ethnic Affairs Governance Driven by Digital Technology

3.1. Reproduction of Digital Divide and Formalization of Ethnic Equality

Border areas feature complex terrain, resulting in long construction cycles and high costs for digital infrastructure, and digital coverage blind spots still exist in some remote areas. According to the 2024 National Digital Literacy and Skill Development Report, only 13.8% of adults aged 18 to 69 in western China have advanced digital literacy, lower than the 17.56% in eastern China. Training resources are highly concentrated in county and township core areas, with insufficient supply in remote agricultural and pastoral areas, forming a spatial digital divide. Some government personnel

hold a negative attitude towards advanced digital technologies, leading to the phenomenon of "digital suspension" in grassroots governance [2].

3.2. Lagging Institutional Supply and Normative Conflicts

The current Data Security Law and Personal Information Protection Law fail to fully respond to the special attributes of ethnic affairs data. Although ethnic autonomous areas enjoy flexible legislative power, the unified technical standard requirements in the digital field squeeze the space for local legislation. Border areas share ethnic ties and frequent economic exchanges with neighboring countries, generating objective demands for cross-border data flow, while the current safety assessment rules are inconsistent with the actual needs of border areas. In addition, existing laws lack categorized provisions on liability identification when algorithm errors damage the rights and interests of ethnic minority citizens, failing to clarify the liability boundaries of algorithm designers, platform operators and government decision-makers. The virtualization of legal liability weakens the accountability of technology-enabled governance.

3.3. Dissipation of Value Rationality and Deviation from the Essence of Ethnic Unity

Digital technology overemphasizes efficiency, quantifiable indicators and process control, leading to the predominance of instrumental rationality over value rationality. The mandatory promotion of unified government service APPs ignores the demands for ethnic minority language support and the insufficient network coverage in remote areas, which further widens the digital divide. Indicators such as "online participation rate" and "platform check-in rate" have become major evaluation criteria for ethnic unity work, resulting in excessive data packaging in grassroots implementation. The core dimensions of ethnic unity that are difficult to quantify, including emotional identity and cultural respect, are marginalized in the digital evaluation system, potentially leading to the hollowing of the intrinsic value of ethnic unity work [3].

4. Optimization Paths for the Rule of Law Governance of Digital-driven Border Ethnic Affairs

4.1. Legal Realization of Digital Justice

The digital access right shall be recognized as an important basic right of ethnic minority citizens, and a mandatory digital infrastructure guarantee mechanism shall be established in the fiscal transfer payment system. Phased and assessable mandatory construction targets shall be set for major projects such as the "Broadband Border Project" and the "East Data, West Computing" initiative, with the completion status included in the performance assessment of local governments. Governments shall bear the statutory obligation to provide alternative digital access solutions, and adopt satellite communication, mobile hotspots and other technologies in remote areas inaccessible to optical fiber or 5G networks. Improving the basic digital skills of all citizens shall be clarified as a mandatory public service duty of grassroots governments. Central and ethnic autonomous local governments shall be statutorily obligated to develop multi-language digital education resources, and targeted training systems shall be established for religious personnel, rural elites and women groups.

4.2. Legal Improvement of Institutional Supply

A classified and hierarchical management system for ethnic affairs data shall be established. Data involving ethnic identity, religious beliefs and cultural customs shall be categorized as core sensitive data under the strictest protection rules: data collection must be based on legal authorization or explicit individual consent, data use shall be limited to specific legitimate purposes, data sharing requires special approval and desensitization processing, and cross-border data transmission is subject to strict security assessment. A negative list system and accountability mechanism for cross-departmental data sharing shall be formulated, and a special approval channel for ethnic affairs data shall be set up under the framework of the Data Security Law. It shall be clarified that the flexible

provisions in the Legislation Law apply to the construction of digital infrastructure and the digital transformation of government services, and "ethnic region applicable guidelines" or "flexible implementation clauses" shall be added to national unified technical standards. The presumption of fault principle shall be introduced for algorithm governance. Where algorithm decisions produce systematic adverse impacts on ethnic groups, algorithm designers or users shall be presumed at fault, and the liabilities of platforms, governments and technical providers shall be classified and clarified.

4.3. Legal Reshaping of Value Rationality

A mandatory ethnic impact assessment shall be implemented for all major digital governance projects. Offline service channels shall be retained while promoting digital public services, and the prudent principle of "no mandatory digitalization where unnecessary" shall be adhered to. Algorithm models applied in border governance shall pass independent ethnic cultural adaptability review, and government procurement contracts shall incorporate public interest priority clauses to prioritize open-source and independently controllable digital technologies. Legislation shall standardize the functional design of digital platforms to facilitate exchanges, communication and integration among all ethnic groups. Digital tools shall be included in the evaluation system for ethnic unity and progress creation, with emphasis placed on substantive effectiveness rather than formal online performance. On the basis of full coverage of universal language digital resources, the development and application of digital resources for ethnic minority languages shall be legally guaranteed to realize diverse prosperity under the unified national community framework.

5. Conclusion

Digital technology reduces costs, improves efficiency and expands the governance boundary of border ethnic work, serving as an important tool for promoting border prosperity and people enrichment as well as safeguarding border security. However, technology itself cannot spontaneously balance the requirements of ethnic equality, cultural diversity and community construction. The contradictions of digital stratification, inadequate legal norms and deviated value orientation exposed in the digital transformation are essentially the adaptation conflicts between the operational logic of technology and the intrinsic values of ethnic rule of law and ethnic work.

Making up for the shortcomings of digital infrastructure and digital literacy, improving the ethnic characteristic data governance rules, and establishing algorithm cultural review and ethnic impact assessment mechanisms can resolve governance dilemmas from the dimensions of right guarantee, institutional construction and value guidance. Digital justice, institutional improvement and value reshaping complement and reinforce each other. Only by defining the boundary of technology application through the rule of law and balancing the unified national development and diverse development needs of all ethnic groups, can we continuously consolidate the sense of community for the Chinese nation in the digital space and realize long-term sound governance of border ethnic affairs.

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