The Construction of Smart Party Building Platform and the Intelligent Transformation of Party Affairs Management

Li Chen[1], Shaobo Liu[1], Hao Yang[1], Fupeng Li[1], Juntai Shi[2]

[1]Information and Communication Company of State Grid Gansu Electric Power Company, Lanzhou, 730050, Gansu, China

[2]State Grid Baiyin Power Supply Company, Baiyin, 730900, Gansu, China

Keywords: Wisdom Party Building; Party Affairs Management; Intelligent Transformation; Technical Ethics; Institutional Supply

Abstract: In the new era, the traditional party affairs management is faced with problems such as lagging information and inefficient resources, so it is imperative to promote the modernization of governance through technical empowerment. Based on the framework of "technology-organization-system" collaboration, this article explores the construction path of smart party building platform. Firstly, a four-level architecture model is constructed based on multidisciplinary theory, covering the basic, supporting, application and interaction layers, highlighting the characteristics of data-driven and scene awareness. Secondly, the transformation path is put forward from three dimensions: process reengineering, model innovation and ecological reconstruction, emphasizing the balance mechanism of "rigid management and elastic blank" and "one-way management and two-way interaction". Finally, in view of the challenges of technical ethics, organizational adaptation and institutional lag, some countermeasures are put forward, such as hierarchical data protection, digital navigator plan and "1+N" system. It is found that the effectiveness of smart party building depends on the dynamic matching of technical adaptability and organizational resilience, and the formalistic tendency of "digitalization for digitalization's sake" needs to be avoided. This article provides a Chinese scheme of "technical empowerment+institutional norms+cultural adaptation" for the digital transformation of global political parties, which has important practical value for improving the party's long-term ruling ability.

1. Introduction

Under the background of the new era, the ruling environment and mission faced by the Communist Party of China (CPC) have undergone profound changes. The impact of the global digital wave, the diversified transformation of social structure and the improvement of the demand for modernization of inner-party governance together constitute the core challenge of the traditional party management model [1]. On the one hand, grassroots party organizations still rely on offline processes in party member's education, organization and mobilization, and service to the masses, and there are problems such as lagging information transmission, inefficient resource integration, and rigid response mechanism; On the other hand, the accuracy of inner-party supervision and the scientificity of decision-making are limited by data islands and empiricism, which makes it difficult to meet the needs of complex governance scenarios [2]. In this context, how to reconstruct the party building ecology through technical empowerment has become an important proposition to enhance the party's long-term ruling ability.

The proposal of intelligent party building marks the paradigm transition of party building work from "informationization" to "intelligence". Its essence is to deeply integrate into the political life of the party through digital technology, and realize the systematic reconstruction of organizational form, operating mechanism and service model [3]. This transformation is not only related to the application of technical tools, but also involves the deep transformation of power allocation logic, organizational culture genes and governance philosophy paradigm [4]. For example, blockchain

Copyright © (2025) Francis Academic Press, UK DOI: 10.25236/etmhs.2025.048

technology can build an unbreakable inner-party discipline supervision chain, artificial intelligence algorithm can optimize the personalized push of educational resources in party member, and big data analysis can provide dynamic basis for scientific decision-making [5]. However, the "double-edged sword" effect of technology empowerment can not be ignored: data security risks may threaten the core information within the party, the algorithm may be black-box or weaken the organizational democratic process, and technology dependence may even alienate party member's subjectivity [6]. How to balance technological innovation and institutional constraints has become a key contradiction in the practice of smart party building.

The existing research mostly focuses on specific technology application or local process optimization, and lacks the construction of the theoretical framework for the integrity of smart party building. This study attempts to break through this limitation and build a theoretical model for the construction of a smart party building platform with the coordinated evolution of "technology-organization-system" as the main line of analysis. By integrating organizational behavior, information ecology and digital governance theory, this article reveals the internal mechanism of the intelligent transformation of party affairs management, which not only responds to the technical proposition of "how to build", but also answers the value inquiry of "why to turn".

2. The core concept of the smart party building platform

Smart party building is a brand-new paradigm formed by the deep embedding of digital technology into inner-party governance. Its core lies in reconstructing the temporal and spatial boundaries and interactive ways of party building work through technology groups such as the Internet of Things, big data and artificial intelligence [7]. Compared with the traditional informatization of party building, the intelligent party building emphasizes three characteristics: data-driven decision-making, scene-aware service and ecological collaborative governance, aiming at realizing the transformation from "rule by man" to "rule by numbers", from "closed" to "open" and from "passive response" to "active prevention" [8]. This concept includes not only the technical platform construction, but also the institutional and cultural changes such as flat organizational structure, transparent power operation and accurate service supply.

Its theoretical construction relies on three pillars: First, organizational behavior provides an analytical framework for understanding party member's behavioral logic. By constructing the model of "technology acceptance-organizational identity-behavior transformation", it can be explained how the smart party building platform can enhance party member's participation enthusiasm by enhancing interactivity, immediacy and interest [9]. Secondly, information ecology reveals the dynamic balance between technology, subject and environment. The smart party building platform needs to build an information ecology of "data-algorithm-scenario" to avoid system disorder caused by technology monopoly or information overload. Third, digital governance theory provides methodology for system design. It emphasizes the automation and standardization of inner-party supervision through coded rules, and at the same time, it is needed to guard against the erosion of democratic centralism by algorithmic power. Together, the three forms a theoretical closed loop from technical tools to governance philosophy, which provides theoretical support from multiple perspectives for the intelligent transformation of party affairs management.

3. Architecture design and functional logic of smart Party building platform

The architecture design of the smart party building platform should follow the principle of "technical adaptation organization, functional service demand and data-driven decision-making" and build a four-level system of "basic layer-support layer-application layer-interaction layer" (see Figure 1). This hierarchical model not only ensures the expansibility of the technical system, but also strengthens the adaptability with the inner-party governance structure and avoids organizational alienation caused by the dominance of technical logic.

The foundation layer is the "digital base" of the platform, which needs to give consideration to stability and elasticity. For example, the hybrid cloud architecture can balance the requirements of

data security and computing power, while the blockchain technology is applied to the development of archives storage in party member to ensure that the process can not be tampered with. The core of the support layer is to break the "data island" and realize cross-departmental business collaboration through workflow engine. The functional design of application layer should be closely related to the pain point of party affairs management. Party member education module can build a closed loop of "demand perception-resource push-effect feedback": by analyzing the data of party member's study duration and test scores, collaborative filtering algorithm is used to recommend personalized courses; The organization management module needs to support the multi-level linkage of "branch-party committee-party group", such as automatically generating an electronic organization life certificate, recording party member's participation and including it in the assessment; The supervision and assessment module should embed the "red, yellow and blue" three-color early warning mechanism to check the real-time compliance of the "three majors and one big" decision-making process; The service collaboration module needs to open the "12371" party member service hotline and the grass-roots governance platform, so as to realize the people's demands of "one-click transfer and whole-process tracking". The design of interactive layer needs to balance technological advancement and user habits. The mobile terminal should keep the simple interface of "learning from a powerful country" to avoid excessive function stacking. VR technology can be applied to the reconstruction of red education scenes, but it is needed to evaluate the equipment penetration rate of grass-roots party organizations. Intelligent customer service needs to preset scripts for high-frequency questions such as "party membership fee calculation" and "organizational relationship transfer" to prevent the trust crisis caused by incorrect answer of the algorithm.

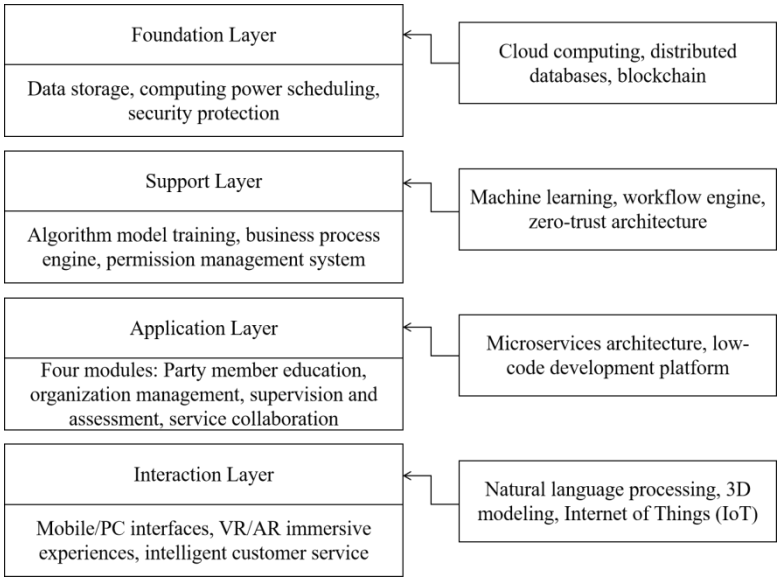

Figure 1 Four-level architecture model of smart party building platform

The logical consistency of this architecture lies in that the basic layer provides security, the support layer realizes data interoperability, the application layer solves specific problems, and the interaction layer enhances user experience, which form a closed loop of "technology-organization-service". It should be noted that excessive pursuit of technical dazzle may lead to "platform idling". Therefore, architecture design should always take "practicality, effectiveness and ease of use" as the evaluation standard.

4. Path and mechanism of intelligent transformation of party affairs management

The intelligent transformation of party affairs management is not a simple technical superposition, but a systematic path needs to be constructed from three dimensions: process reengineering, model innovation and ecological reconstruction (see Table 1). This process not only needs to break through the path dependence of traditional party work, but also needs to prevent the

erosion of organizational value by technical rationality. Its core lies in establishing a dynamic balance mechanism of "technical empowerment-institutional norms-cultural adaptation".

Table 1 Three-Dimensional Path Model for Intelligent Transformation of Party Affairs Management

Dimension	Transformation Focus	Key Challenges
Process Reengineering	From "manual approval" to "intelligent verification"; from "offline meetings" to "cloud collaboration"	Adjustment of existing interest patterns; changes in habitual behaviors
Model Innovation	From "experience-based decision-making" to "data-driven decision-making"; from "one-way management" to "two-way interaction"	Data quality assurance; algorithm transparency
Ecosystem Reconstruction	From "departmental segmentation" to "platform-based co-governance"; from "internal circulation" to "open integration"	Cross-departmental collaboration mechanisms; security risk control

Process Reengineering: Standardized Reconstruction from "Experience Driven" to "Data Driven"

There are some drawbacks in the traditional party affairs process, such as "emphasizing the form but neglecting the actual effect". For example, 12 forms of 7 categories need to be filled out repeatedly in the development of party member, and logical errors such as "time conflict" and "identical content" often appear in the records of organizational life. Intelligent transformation needs to realize the rigid constraint and flexible optimization of the process through technical means. Therefore, the process design should follow the principle of "rigid control of core links and flexible blank of non-key links".

Mode innovation: service-oriented transformation from "one-way management" to "two-way interaction"

Intelligent transformation needs to reconstruct the power relationship and service logic of party affairs management. On the one hand, accurate service is achieved through the "party member Portrait" technology: the organization department of a certain place integrates the data of party member's study, activities and voluntary service, constructs a dynamic portrait with dimensions such as political literacy, ability specialty and service preference, pushes the employment information nearby for mobile party member, and customizes the health management plan for old party member, so that the service satisfaction is increased from 72% to 89% (theoretical deduction data). On the other hand, it is needed to establish an intelligent channel of "uploading information": develop a small program of "public opinion through train", automatically classify people's demands by using natural language processing technology, and trigger an early warning mechanism for high-frequency problems.

Ecological Reconstruction: Collaborative Upgrading from "Internal Circulation" to "Open Integration"

Intelligent transformation needs to break the "departmental wall" and "data wall" of party affairs management. At the horizontal level, the data of "Party Building+Business" is promoted: a city connects the participation rate of "three meetings and one lesson" with the performance appraisal system, and automatically deducts the annual evaluation score for party member who has been absent for three consecutive times; On the vertical level, a five-level linkage platform of "central-provincial-city-county-branch" will be built: through blockchain technology, cross-level real-time inspection of party member archives will be realized, and problems such as "material fraud" and "repeated joining the Party" will be avoided. However, we should be alert to the risk of "technological colonization", and ecological reconstruction should adhere to the principle of "unified construction of core systems and independent development of characteristic applications".

5. Challenges and countermeasures of building a smart Party building platform

The construction of smart party building platform is not smooth sailing, and its technical complexity, organizational inertia and institutional lag are intertwined, forming multiple challenges.

These challenges not only include the hidden worries of technical ethics, but also involve the resistance in organizational change, and more importantly, they need to deal with the realistic dilemma of insufficient system supply (see Table 2). Only through systematic countermeasure design can the dynamic balance between "technical empowerment" and "organizational stability" be realized.

Table 2 Framework of Main Challenges and Countermeasures for the Construction of Smart Party Building Platforms

Type of Challenge	Specific Manifestations	Direction of Countermeasures
Technical and Ethical Risks	Data leakage, algorithmic discrimination, and organizational disability caused by technological dependence	Establish a "technology-institution" dual-control system
Organizational Adaptation Dilemmas	Insufficient digital literacy of Party members and cadres, weak technical operation and maintenance capabilities of grassroots organizations	Implement a "stratified and classified" capacity improvement project
Lag in Institutional Supply	Ambiguity in data ownership, lack of cross-departmental collaboration mechanisms, and non-unified technical standards	Promote a three-level linkage of "legislation - regulation revision - standard setting"

Data security is the "lifeline" of smart party building. Once the core data such as party member's archives and organizational decisions are leaked, it may lead to systemic political risks. In a certain place, more than 3,000 party member information was illegally obtained due to a platform loophole, which did not cause substantial losses, but seriously damaged the credibility of the organization. In terms of countermeasures, it is needed to establish a "hierarchical classification" data protection mechanism: encrypt and store general data such as "three sessions and one lesson" records, and implement "blockchain+private cloud" dual protection for developing sensitive data such as party member archives. Algorithm bias may erode organizational fairness, so we need to be vigilant.

The technical application ability of grass-roots party organizations is uneven. The survey found that 35% of rural branches were short of full-time operation and maintenance personnel, which led to the average repair time of platform failure exceeding 72 hours. In this regard, we can implement the "Digital Navigator" plan: provide full-time technicians at the township level, and cultivate "party member technical backbone" at the village level to form a support network of "one professional +N backbone". In addition, the formalism of "digitalization for digitalization's sake" should be avoided. For example, in a certain place, all meetings must be signed online, which led to the absence of organizing life due to operational difficulties. Later, it was changed to the "online+offline" dual-track system, which not only retained the traditional way, but also provided technical assistance.

At present, there is no national technical standard in the field of smart party building, and the problems of incompatible platform interfaces and inconsistent data formats are prominent. In terms of countermeasures, it is needed to speed up the construction of the "1+N" system: "1" is to formulate the Regulations on the Construction and Management of Smart Party Building Platforms, and clarify the fundamental issues such as data ownership and security responsibility; "N" issued supporting documents such as "party member Digital Identity Authentication Standard" and "Operational Guidelines for Inter-departmental Data Sharing" to provide institutional guarantee for platform interconnection.

6. Conclusions

The construction of a smart party building platform is a complex system engineering with deep integration of technological revolution and organizational change. Its essence is to reconstruct the power allocation, operation mechanism and service mode of political life within the party through digital technology. This study shows that this transformation not only contains great potential to improve governance efficiency, but also faces multiple risks such as technical ethics anomie, organizational inertia resistance, and lagging system supply. The core conclusion can be

summarized as three points:

First, technology empowerment needs to be anchored by organizational value. Smart party building is not a "technical pile-up", but to break down departmental barriers through data flow and improve the scientific decision-making through algorithm optimization, but we must adhere to the fundamental organizational principle of "democratic centralism". Second, institutional innovation is the key guarantee for the success of the transformation. At present, the system blank and lack of standards in the field of intelligent party building have become the main bottleneck restricting development. It is needed to speed up the construction of an institutional system covering key areas such as data ownership, algorithm auditing, and inter-departmental collaboration. In particular, it is needed to establish a "fault-tolerant-rectification" mechanism to allow grassroots units to explore the integration path of "technology+system" in the pilot to avoid stifling innovation vitality due to excessive supervision. Third, cultural adaptation determines the sustainability of transformation. The ultimate goal of smart party building is to enhance the cohesion and combat effectiveness of the organization, rather than creating a new "digital divide." It is needed to improve the digital literacy of party member cadres through hierarchical and classified training, protect the rights and interests of the technologically disadvantaged groups through the "online+offline" dual-track system, and be wary of alienating the indicators such as "platform click rate" and "online learning duration" into a new formalistic burden.

With the penetration of new technologies such as quantum computing and generative AI, the platform will have stronger real-time perception and independent decision-making ability, but no matter how it evolves, its core is always "serving party member, serving the masses and serving decision-making". Only by adhering to the value orientation of "technology is good" can intelligent party building truly become an important support for the new great project of party building in the new era.

References

[1] Yang Lei, Ding Jianfeng. Intelligent Exploration of Ideological and Political Construction in College News Writing Courses[J]. News Front, 2024(14):69-71.

[2] Xu Wenwen. Basis and Innovation of Network Information Technology Empowering Ideological and Political Theory Course Teaching[J]. Theory and Practice of Education, 2024, 44(6):27-31.

[3] Wei Hua. Realization Path of In-depth Integration of Artificial Intelligence and Ideological and Political Education[J]. Theoretical Horizon, 2021(12):70-75.

[4] Zhong Fengyun, Chang Liyan. Analysis on the Application of Metaverse Technology in the Field of Ideological and Political Education in Colleges and Universities[J]. Journal of Theoretical Guide, 2023(3):125-129.

[5] Tang Lianghu, Wu Manyi. Analysis on the Basic Connotation and Value Implication of Digital Ideological and Political Space[J]. Journal of Yunnan University (Social Sciences Edition), 2024, 23(4):136-144.

[6] Liu Lijuan, Wang Bin. Risk Concerns and Value Construction of College Students' Ideological and Political Education in the Intelligent Era[J]. Reference for Middle School Political Teaching, 2024(32):38-41.

[7] Xiao Li, Liu Yongcun. Innovation Path for Constructing the Pattern of Differentiated Content Supply in Curriculum-based Ideological and Political Education[J]. Ideological and Political Course Teaching, 2023(12):30-33.

[8] Lu Wenzhong. Exploration on the Concept, Technology and Application of Smart Teaching in College Ideological and Political Theory Courses under the Background of Big Data[J]. Education Exploration, 2024(10):32-36.

[9] Wang Xuejian, Zhao Wenrui. Analysis on the Concept, Composition and Operation Mechanism of Curriculum-based Ideological and Political Education, Precision Ideological and Political Education and Micro Ideological and Political Education[J]. Journal of Xinjiang Normal University: Philosophy and Social Sciences Edition, 2023, 44(1):125-135.