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Optimizing Regulatory Pathways for Generative Artificial Intelligence in China: A Policy-Analytic Study

Xi Wang ^{1a}, Wei He ^{1b} and Jing Zhang ^{2*c}

1 School of Economics and Management, Beijing University of Posts and Telecommunications, Beijing 100876, China

2 School of Marxism, Beijing University of Posts and Telecommunications, Beijing 100876, China

* Correspondence: 2024111467@bupt.cn

Abstract

This paper takes China's regulatory policies for generative artificial intelligence (AI) as the research subject and develops a three-dimensional analytical framework titled "Policy Instrument–Policy Objective–Policy Effectiveness" by employing the policy instrument approach and content analysis methodology. Against the challenges prevailing in China's current generative AI regulation—including the uneven distribution of regulatory resources, the complexity of horizontal and vertical regulatory coordination, the regulatory system's over-reliance on coercive mechanisms, and the fragmentation tendency of regulatory policies—the study proposes four optimized pathways: first, establish a closed-loop mechanism of "piloting–evaluation–scaling"; second, build a government-led multi-center collaborative governance framework that integrates enterprise internal control, third-party evaluation, and industry self-regulation; third, advance model-based regulation for the "model–version–scenario" unit; fourth, implement controllable pilots via regulatory sandboxes to accumulate empirical experience.

Keywords: Generative Artificial Intelligence; Regulation; Optimization Pathways; Policy Texts; Content Analysis

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1. Introduction

In October 2025, the Fifteenth Five-Year Plan for National Economic and Social Development proposed to “strengthen artificial intelligence governance and improve relevant laws and regulations, policy systems, application norms, and ethical guidelines.” In recent years, the promulgation and implementation of major policy documents—such as the Interim Measures for the Administration of Generative Artificial Intelligence Services and the Measures for the Identification of AI-Generated Synthetic Content—have demonstrated China's ongoing exploration and institutional accumulation in the regulation of generative artificial intelligence (GenAI).

General Secretary Xi Jinping has emphasized the need to “coordinate development and security, uphold both development and security, and realize a virtuous interaction between high-quality development and high-level security: enhancing national security capacity through development, while also deepening innovation in national security thinking, institutions, and means, and creating a secure environment conducive to economic and social development; considering security factors

more fully in development, and striving to achieve a dynamic balance between development and security.” GenAI is a complex and technically demanding field with rapidly expanding application boundaries. In this context, a series of research questions becomes particularly salient: What structural and behavioral characteristics does China’s current GenAI regulatory policy system exhibit? When different policy instruments are deployed toward different policy objectives, how is policy efficacy manifested, and what patterns can be observed? Are policy instruments used in ways that are consistent with (or mismatched to) policy objectives? And how can quantitative and evidence-based analysis provide scientific guidance for optimizing and improving GenAI regulation? Answers to these questions can offer useful reference points for subsequent policy refinement and implementation.

2. Literature Review and Analytical Framework

2.1 Research Frontiers in Generative AI Regulatory Policy

Systematic regulatory demand for emerging technologies typically arises only after they enter large-scale socialized application. Compared with previous technological revolutions, digital technologies—and GenAI in particular—often have a much shorter cycle from technological breakthroughs to service diffusion. This compresses the time window for regulatory response and places stronger requirements on the timeliness of building regulatory and governance systems (Gao & Yan, 2025). Meanwhile, the transformative influence of GenAI and the novel policy challenges it generates have made GenAI an important agenda item for policy formulation and decision-making research across countries and regions (Lorenz et al., 2023).

Existing research can be broadly grouped into three pathways. The first adopts a macro-level global governance perspective and focuses on proposals for strengthening global-level governance arrangements. The second follows a meso-level cross-national comparative approach, conducting horizontal comparisons of regulatory experience in the United States, the European Union, the United Kingdom, Japan, Singapore, and other jurisdictions. The third pathway focuses on policy research within a single country or region, with most studies concentrating on China, the United States, and the European Union. In China-related studies, beyond reviewing national-level policies, scholars point out that the Interim Measures for the Administration of Generative Artificial Intelligence Services still has room for improvement in terms of the identification of obligated subjects and the allocation of obligations (Wan, 2024). Provincial policies show significant differences in policy actors, regulatory objects, policy content, and instrument selection, and they display self-reinforcing and path-locking features (Liu & Yang, 2025). Studies on the United States often combine content analysis with technology-policy paradigms, revealing the logics of problem definition and solution selection (Xing & Qi, 2024), and also discuss the structural influence of domestic political constraints and internationally adversarial thinking (Schiff, 2023). Studies on the European Union emphasize the horizontal, unified regulatory approach and spillover effects of the EU AI Act (Musthafa & Arundhati, 2025), and argue that, while balancing innovation incentives and value orientation, the EU shapes an “EU-style” regulatory paradigm through cooperation, standards export, and regulatory dialogue (Jorge-Ricart & Álvarez-Aragonés, 2023).

Overall, although existing studies commonly treat government policy texts as a key entry point, they are constrained by the staged and limited quantity/content of policies in any single jurisdiction. As a result, a systematic mapping and quantitative characterization of China’s GenAI regulatory policies remain relatively insufficient, calling for more comprehensive evidence-based descriptions and evaluations.

2.2 A Quantitative Framework for Analyzing GenAI Regulatory Policy

Government regulation may be understood as “a series of administrative management and supervisory behaviors adopted by a legally constituted, relatively independent government agency toward regulatees in accordance with certain laws and regulations.” (Wang, 2017). Policy, in turn,

refers to action guidelines formulated by state organs, party organizations, and other actors to achieve certain goals. In the context of GenAI, regulatory policy objectives refer to the effects and purposes that relevant departments seek to achieve—through the implementation of corresponding policies—to address public problems and risks related to GenAI (Wang et al., 2019).

On the one hand, the realization of policy objectives requires the scientific selection and design of appropriate policy instruments. In general, the higher the fit (or congruence) between policy instruments and policy objectives, the better the expected implementation effect. Based on frequency statistics, further evaluation of policy efficacy can provide a more comprehensive reflection of policy authority (policy hierarchy and normative force) and the intensity of issuance (policy strength and salience). On the other hand, policy implementation is also influenced by external attributes of policies. Typically, the higher the degree of coordination among issuing bodies, the broader the target scope, and the more formal the issuance form, the greater the policy’s influence—thus making effective implementation more likely.

With the development of tools and methods for quantitative policy analysis, some scholars have constructed two-dimensional or three-dimensional models to improve quantitative analysis methods and enhance coordination and systematicity (Deng et al., 2025; Deng & Wu, 2025; Tang & Lei, 2023). Drawing on these methodological frameworks, this study constructs a three-dimensional framework for the quantitative analysis of GenAI regulatory policy, integrating policy instruments, policy objectives, and policy efficacy as a unified analytic structure (Figure 1).

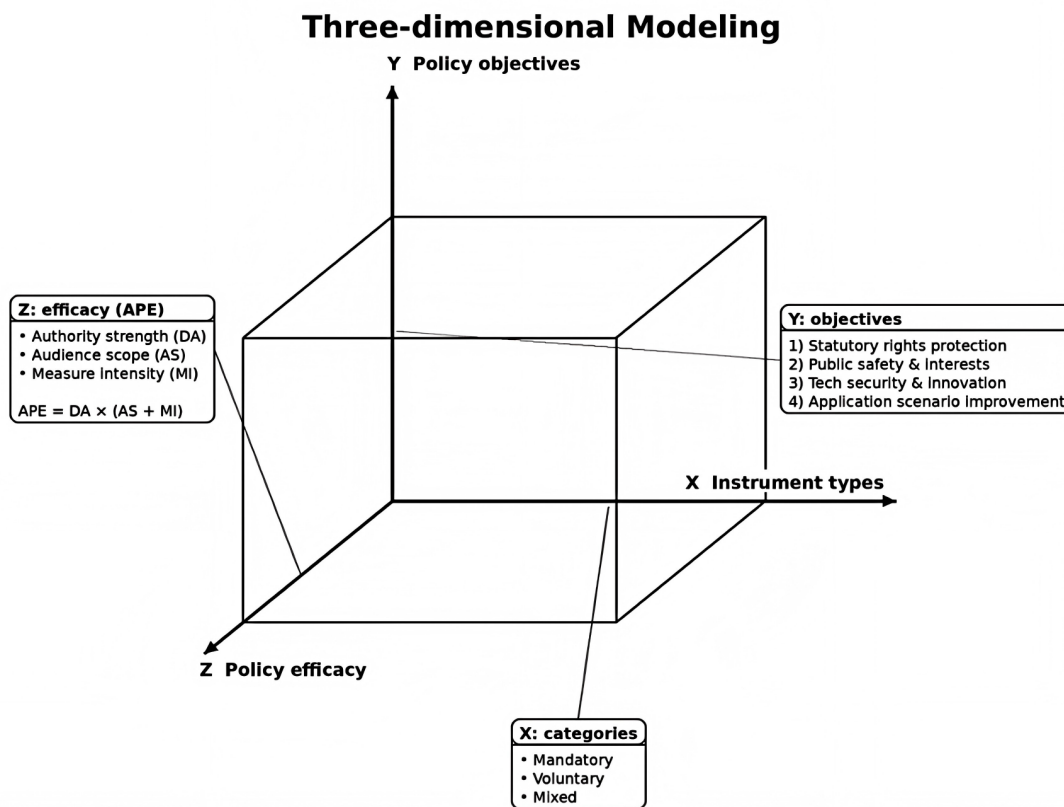


Figure 1. Three-dimensional framework for generative AI regulatory policy (policy instruments–policy objectives–policy efficacy).

3. Sample Selection and Coding

3.1 Sample Selection

Administrative regulation can serve a “deceleration and calibration” function for GenAI development: it may prevent disorderly outcomes caused by excessively rapid development, while at

the same time the literature suggests that existing administrative regulation is not yet fully developed and has not been able to give full play to its full effectiveness (Yuan, 2024). In this study, “generative AI regulation” is used as the core keyword; “AIGC,” “artificial intelligence,” and “regulation/supervision” are used as expanded keywords; and combinations of “AND,” “OR,” and “NOT” are used as logical conditions. Searches were conducted in the PKULaw database and on the websites of central and provincial governments and their departments to collect national-level and provincial-level policy texts (excluding prefecture-level cities).

The selection of policy texts followed these principles: (1) in terms of issuing bodies, only documents issued by national or provincial administrative organs and their constituent departments were included; (2) in terms of policy content, only documents containing information directly related to GenAI were included; (3) only formally and publicly released policies were included, excluding documents that are non-public or not retrievable; (4) policy types were restricted to formal forms such as initiatives, plans, reports, and norms; and (5) the issuance period covered July 2017 to June 2025. After reviewing each text and confirming the relevance of content, 63 policy documents were ultimately selected, including 27 national-level policies and 36 provincial-level policies.

3.2 Coding Rules

Based on the three-dimensional framework of policy instruments—objectives—efficacy for GenAI regulation, relevant policies were coded in the form of “policy text—specific chapter/section—specific clause.” First, with the policy instrument dimension as the reference, 670 clauses were extracted and coded. Next, these clauses were allocated into four categories of policy objectives. Finally, values were assigned and calculated to derive the policy efficacy of each clause. To ensure coding reliability, three researchers independently performed coding and categorization based on the above rules, repeatedly discussed disputed clauses, continuously revised the coding scheme, and ultimately reached consensus (Fan & Tan, 2017).

3.2.1 Policy Instruments

Howlett and Ramesh classify policy instruments into three categories—voluntary, mixed, and mandatory—using the extent of government intervention in policy management as the key criterion (Howlett & Ramesh, 1995). This framework not only highlights differences in instrument attributes (e.g., coerciveness, incentive structure, reliance on market or social forces), but also reflects interaction relationships among the government, market, and society. It is therefore particularly suitable for studying regulatory governance in emerging-technology domains such as GenAI.

Table 1. Coding rules for policy instruments in generative AI regulation.

Instrument Type	Instrument	Explanation
Mandatory	Standards and Norms	Using administrative authority to formulate unified rules and technical requirements that must be followed in the GenAI domain.
Mandatory	Development Planning	Deploying, at the macro level, development directions, goals, and key tasks for the GenAI industry.
Mandatory	Infrastructure	Hardware and software facilities led or regulated by government to support industry regulation and governance capacity.
Mandatory	Assessment and Supervision	Inspecting, evaluating, and constraining behaviors and outcomes of GenAI-related actors.
Mandatory	Organizational Guarantees	Institutional arrangements on organizational setup, division of responsibilities, and staffing to implement GenAI regulation.
Mixed	Fiscal and Tax Incentives	Funding support and tax reductions that incentivize enterprises and institutions to participate in compliant R&D and application.

Instrument Type	Instrument	Explanation
Mixed	Industry Organizations	Relying on industry/industrial organizations or platforms to form collective outputs with certain binding or constraining effects.
Mixed	Financial Support	Policy-guided finance: steering financial institutions to provide funds and financial services for GenAI compliance and governance.
Mixed	Talent Development	Government–university–research–industry collaboration to cultivate professional talent aligned with GenAI regulatory needs.
Mixed	Pilot and Demonstration	Implementing innovative regulatory measures within a specified scope, and promoting experience after evaluation.
Mixed	Information Support	Providing enterprises with information on technology trends, market demand, and other signals to guide behavioral choices.
Mixed	Publicity and Promotion	Public-oriented communication to promote the value, meaning, and compliance norms of GenAI regulation.
Voluntary	Product Development	Supporting enterprises’ autonomous R&D of regulatory products and increased compliance investment in production/engineering processes.
Voluntary	Service Operations	Supporting enterprises to provide operations and maintenance, technical support, and other services for post-deployment issues.
Voluntary	Exchange and Cooperation	Government facilitation of compliant cooperation among enterprises, research institutions, and industry organizations.
Voluntary	Market Improvement	Leveraging market mechanisms to encourage market actors to take spontaneous actions for healthy GenAI development.

3.2.2 Policy Objectives

Policy objectives refer to the policy effects that issuing bodies seek to achieve through the use of various policy instruments (Tan et al., 2022). Article 1 of the General Provisions of the Interim Measures for the Administration of Generative Artificial Intelligence Services (issued on 13 July 2023) explicitly states the policy objectives: “to promote the healthy development and regulated application of generative AI, safeguard national security and the public interest, and protect the lawful rights and interests of citizens, legal persons, and other organizations.” Based on this statement, this study develops the objective dimension into four categories, as shown below.

Table 2. Policy objectives of generative AI regulation.

Policy Objective	Explanation
Statutory Rights Protection	Including both the rights of natural persons and legal persons; reaffirming rights defined by law under new-technology contexts.
Public Safety and Interests	Involving collective-attribute content feeding (e.g., integrated data, public data), wide impacts in public governance, or national-security interests at the international level.
Technological Security and Innovation	Sustained and healthy development of GenAI technical factors such as data, computing power, algorithms, and models.
Application Scenario Improvement	Fit and adaptation of GenAI when integrated with specific industries and sectors.

3.2.3 Policy Efficacy

Policy efficacy is a comprehensive reflection of policy authority, audience scope, and the strength (or implementability) of measures. This study draws on prior work on policy quantification and the application of quantitative policy-efficacy assessment (Peng et al., 2008; Shi et al., 2025; Wang & Yu, 2022). In light of the characteristics of GenAI-related policies, a policy quantification standard is constructed. The three dimensions—authority strength (DA), audience scope (AS), and measure intensity (MI)—are each assigned values, as shown in Table 3.

Table 3. Quantification standards and scoring for policy efficacy in generative AI regulation.

Efficacy Dimension	Scoring Standard	Score
Authority Strength	Administrative regulations	5
Authority Strength	State Council normative documents	4
Authority Strength	Departmental rules	3
Authority Strength	Departmental normative documents / provincial normative documents	2
Authority Strength	Departmental or provincial working documents	1
Audience Scope	Oriented simultaneously toward all relevant GenAI departments, the overall field, or all application scenarios	5
Audience Scope	Oriented toward multiple departments, multiple fields, or multiple scenarios	3
Audience Scope	Oriented only toward a single department, a single field, or a single scenario	1
Measure Intensity	Measures are described in detail and are highly implementable	5
Measure Intensity	Measures are relatively clear and highly implementable	3
Measure Intensity	Measures are proposed only at a macro level without specific implementation strategies	1

Following established methods for constructing policy quantification models (Cheng et al., 2021; Zhao et al., 2018; Guo & Wang, 2022), we compute the policy efficacy of each coded clause. Let DA denote authority strength, AS denote audience scope, and MI denote measure intensity. The policy efficacy APE is computed as follows:

$$(APE = DA \times (AS + MI)) \quad (1)$$

4. Current State of Generative AI Regulatory Policy

4.1 Overall Characteristics of Policy Texts

At the central level, joint issuance is the dominant form of policy output. The Cyberspace Administration of China (CAC) is a core actor in issuing GenAI-related policies and serves as a connective hub linking multiple departments. Among the departments most frequently connected with others are the Ministry of Industry and Information Technology (MIIT) and the CAC. MIIT focuses more on technological innovation and industrialized application, while the CAC places greater emphasis on content security and the public-opinion and communication attributes of generative content. Together, these two departments embody a dual governance orientation that simultaneously faces technology development and application governance. Although MIIT is one of the collaborative regulators in the “1+6+X” governance mechanism, its policy-issuance activity is

particularly prominent. Given MIIT’s departmental mandate for technology innovation and industrialization, this prominence suggests that the “development” dimension has been explicitly embedded in GenAI regulatory considerations, rather than focusing solely on risk control.

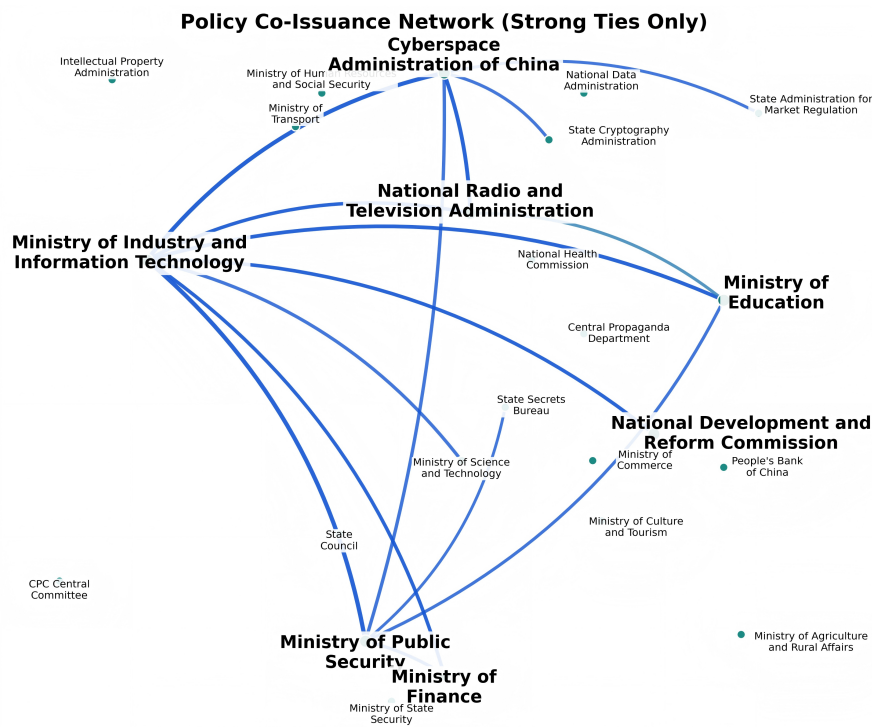


Figure 2. Network analysis of central-level departments involved in issuing generative AI policies.

At the provincial level, fewer than half of provinces/municipalities nationwide have issued documents oriented toward GenAI regulation. In terms of document form, the overall issuance pattern is dominated by working documents; content with high authority strength is extremely scarce, and such high-authority content is typically not devoted entirely to GenAI across the full text. From a regional perspective, Beijing, Shanghai, Zhejiang, and Jiangsu have issued significantly more policy documents than other regions. Anhui, Shandong, and Sichuan—among other central provinces—occupy a middle position in issuance volume. Other central and western regions tend to emphasize local alignment with national policy arrangements or conduct specialized deployments for locally distinctive scenarios. This indicates that the issuance of GenAI regulatory policy is closely linked to regional industrial development, technological resources, and economic foundations.

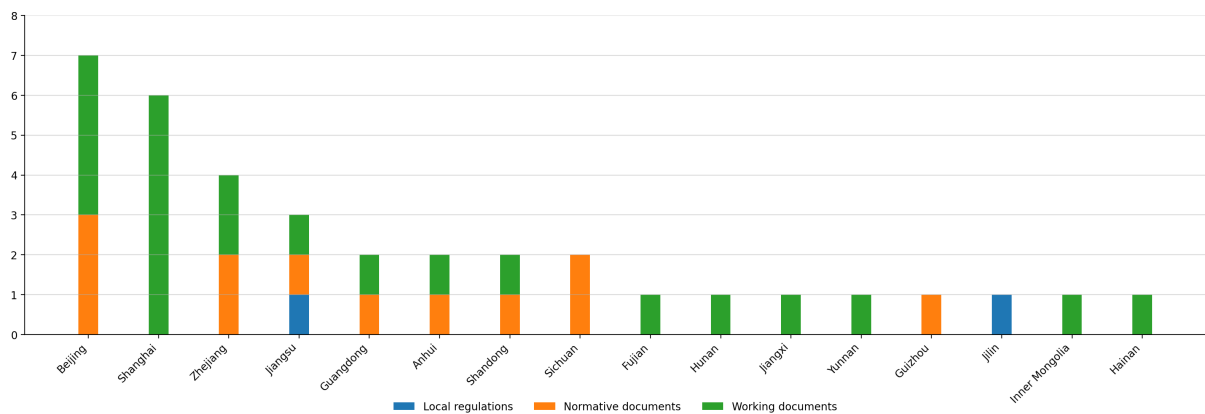


Figure 3. Authority-strength distribution of provincial generative AI policy documents (local regulations, normative documents, and working documents).

4.2 Fit Between Policy Instruments and Policy Objectives

4.2.1 Objective-Level Efficacy

Across different objective dimensions, the use of policy instruments varies substantially. Up to the present, in both the number of instruments deployed and their efficacy, GenAI regulation demonstrates a stronger tendency toward security than toward development. Under the statutory rights protection objective, although instrument use is lowest in frequency, the average efficacy is the highest. The public safety and interests objective shows a markedly higher number of instruments than the other three objectives. In the development domain, the application scenario improvement objective has a higher number of instruments than the technological security and innovation objective, yet its average efficacy is lower. This suggests that, on the development side, regulation oriented toward specific application scenarios still needs further exploration, operationalization, and fine-grained specification.

4.2.2 Instrument-Level Efficacy

From the instrument perspective, mandatory instruments are used most frequently. Among them, “standards and norms” and “assessment and supervision” are particularly prominent, indicating that government currently relies on administrative means to deploy GenAI regulation rapidly and to form enforceable governance baselines. However, with respect to average efficacy within the mandatory category, no clear advantage is observed except for standards and norms; other mandatory instruments do not show a significant superiority in average efficacy.

Within voluntary instruments, “service operations” is notably prominent in frequency and also shows a relatively strong efficacy advantage. This reflects a prudent and tolerant stance toward regulating the transformation and application of technological results, supporting the entry of technical outcomes into markets and their real-world use. In contrast, “exchange and cooperation” appears infrequently, yet it has the highest average efficacy among voluntary instruments. While mature matching experience between instruments and regulation may still be limited, this pattern indicates forward-looking policy planning to rely on market forces and multi-actor collaboration to reverse-drive regulation and to shift traditional regulatory relationships.

Within mixed instruments, “pilot and demonstration” has a relatively high frequency but the lowest efficacy. Although pilots are promoted to explore regulatory pathways, many remain small-scale, locally led initiatives with limitations in planning level and actual implementation. The scope and quality of pilot-to-scale conversion are therefore limited. In addition, financial support for GenAI regulation is notably lacking: finance can complement constrained fiscal resources and guide governance by incorporating regulatory and compliance conditions into financial evaluation and resource allocation.

4.2.3 Results of Instrument–Objective Fit

In aggregate, mandatory instruments account for 51.98% of all instruments, reflecting a strong-intervention posture in the current policy toolkit. Across all objective dimensions, mandatory instruments account for close to half. Voluntary and mixed instruments have similar shares, but both are far below that of mandatory instruments. Voluntary instruments are used mainly for statutory rights protection, while their use for application scenario improvement is insufficient. Mixed instruments are used more for application scenario improvement than for other objectives, and least for statutory rights protection.

At the sub-instrument level, mandatory instruments exhibit a dual-pillar pattern: “standards and norms” plus “assessment and supervision.” Among voluntary instruments, “service operations” is high in both frequency and efficacy, suggesting that service provision and operational support directly contribute to governance effectiveness. By contrast, “exchange and cooperation” has very low frequency yet corresponds to the highest efficacy, and its count under the statutory rights protection objective is zero. This implies substantial potential for experience diffusion and for expanding voluntary instrument use. Among mixed instruments, “publicity and promotion” and “industry

organizations” are used relatively often, yet their efficacy mostly remains at a medium level, reflecting a “heavy advocacy” tendency. Meanwhile, “fiscal and tax incentives” and “talent development” exhibit relatively high efficacy but low frequency; “financial support” and “information support” show both low frequency and low efficacy.

Table 4. Three-dimensional fit analysis results (instruments × objectives × frequency/percentage).

Policy instruments / objectives	Individual rights protection		Public safety & interests		Tech innovation & development		Application scenario improvement		count	Share (%)
	count	Share (%)	count	Share (%)	count	Share (%)	count	Share (%)		
Mandatory Total	51	41.13	211	57.81	98	50.78	112	49.56	472	51.98
Standards & norms	28	22.58	75	20.55	40	20.73	36	15.93	179	19.71
Infrastructure	1	0.81	13	3.56	12	6.22	15	6.64	41	4.52
Development planning	2	1.61	13	3.56	14	7.25	13	5.75	42	4.63
Assessment & supervision	17	13.71	69	18.90	21	10.88	25	11.06	132	14.54
Organizational support	3	2.42	41	11.23	11	5.70	23	10.18	78	8.59
Voluntary Total	52	41.94	81	22.19	40	20.73	26	11.50	199	21.92
Product development	16	12.90	18	4.93	6	3.11	2	0.88	42	4.63
Service operations	33	26.61	49	13.42	18	9.33	9	3.98	109	12.00
Exchange & cooperation	0	0	3	0.82	5	2.59	6	2.65	14	1.54
Market improvement	3	2.42	11	3.01	11	5.70	9	3.98	34	3.74
Mixed Total	21	16.94	73	20.00	55	28.50	88	38.94	237	26.10
Fiscal & tax incentives	0	0	5	1.37	4	2.07	10	4.42	19	2.09
Financial support	0	0	1	0.27	3	1.55	5	2.21	9	0.99
Talent development	2	1.61	9	2.47	7	3.63	5	2.21	23	2.53
Pilots & demonstrations	1	0.81	5	1.37	15	7.77	27	11.95	48	5.29
Information support	1	0.81	3	0.82	2	1.04	3	1.33	9	0.99
Industry organizations	3	2.42	16	4.38	14	7.25	20	8.85	53	5.84
Publicity & promotion	14	11.29	34	9.32	10	5.18	18	7.96	76	8.37
Total	124	100.00	365	100.00	193	100.00	226	100.00	908	100.00

5. Pathways for Optimizing Generative AI Regulation

5.1 Key Findings

5.1.1 Uneven Regional Distribution of Regulatory Supply

To date, only a limited number of provincial-level jurisdictions have issued regulatory measures for generative AI, and these policies are concentrated in eastern China. Beijing and Shanghai tend to adopt an innovation-oriented approach that emphasizes enabling conditions for rapid iteration and industrial upgrading. Many other provinces remain in secondary development or application-driven stages and therefore prioritize constraining application risks. Differences in economic foundations, factor endowments including talent, data, and computing resources, and the

clustering of leading firms jointly shape an innovation–application–governance loop in core regions. By contrast, many central and western regions are constrained by local development conditions and functional positioning. Their industries often sit in the mid-to-lower segments of the digital value chain and rely more on importing applications, which leads to delayed institutional supply and an imbalanced allocation of regulatory resources.

5.1.2 Persistent Coordination Challenges Across Levels and Sectors

Generative AI regulation must balance innovation and security at the same time. Innovation spans both technological development and application deployment, while security includes risks at the macro level and the micro level. At the central level, policy attention often targets specific governance domains, such as data governance, cybersecurity and information governance, and service management, while also addressing broader concerns including science and technology ethics, industrial standardization, and the content ecosystem. At the provincial level, policies more frequently focus on sectoral application risks, such as those emerging in audiovisual content, financial technology, and livestreaming. Regulatory responsibilities are also divided across agencies. Technology-oriented governance tends to be led by the cyberspace authority, while scenario-oriented governance is led by sectoral regulators. Hard instruments and soft instruments coexist. Technical issues like public data, model filing or registration, and content labeling are more often addressed through hard rules, whereas comprehensive and forward-looking governance is more often expressed through soft guidance. These patterns underscore the need for system-level integration that can manage multi-level and multi-dimensional trade-offs.

5.1.3 Overreliance on Coercive Policy Instruments

The current regulatory toolkit is dominated by mandatory instruments. In principle, administrative intervention should be limited to what is necessary and should, where feasible, be implemented through market-compatible approaches. As market and societal mechanisms mature, mixed instruments can better realize the government’s guiding role. However, the rapid pace of technological change, heightened public uncertainty, and generally limited AI literacy concentrate governance expectations on government regulators and professional organizations. Existing arrangements for market and societal participation remain fragmented and are often advocacy-oriented, lacking institutionalized provisions that clarify where they apply and how they should operate in terms of procedures and safeguards.

5.1.4 Fragmentation of Regulatory Objects and Governance

Existing policies still carry legacy features from earlier stages of internet governance and broader digital governance. Some measures continue to target single technical elements rather than generative AI as an integrated socio-technical system. This single-factor approach can overlook the deep interdependence among data, algorithms, content, and services, making it difficult to address emergent and cross-factor risks (Xu & He, 2025). Dispersed regulatory objects may blur priorities and weaken policy orientation. In early development stages, this may also reinforce first-mover advantages and contribute to oligopolistic tendencies, discouraging broader investment. Governance measures are frequently scattered and insufficiently embedded in an overarching framework or clearly coordinated with other instruments. Cross-provincial differences in instrument type, intensity, and focus further impede nationwide diffusion of effective practices and hinder the formation of a unified national market for generative AI.

5.2 policy recommendations to Optimizing Generative AI Regulation

5.2.1 From Localized Pilots to Institutional Diffusion: Building a Replicable Governance Closed Loop for Generative AI

The optimization of generative AI regulation should not be understood merely as an adjustment in the mix of policy instruments; rather, it should be approached as the institutional construction of a governance closed loop. Although the current predominance of coercive instruments may be justified as a pragmatic response to the rapid diffusion of technology and the need to stabilize

order through bottom-line constraints, such an instrument structure also points to persistent deficiencies in inter-organizational coordination, resource support, and the capacity for institutional diffusion. To address these shortcomings, future regulatory reform should move beyond fragmented and localized pilots and place greater emphasis on institutional replication. Effective practices developed in key firms, key sectors, and key regions should be consolidated into governance mechanisms that are auditable, accountable, and scalable.

At the micro level, leading firms should be treated as pivotal governance nodes. Through firm-specific regulatory ledgers and evidentiary chains, obligations related to data compliance, content safety, model iteration, and emergency response can be translated into verifiable process-based responsibilities. At the meso level, standardized “scenario governance toolkits” should be developed for sectors with high externalities, such as education, finance, and audiovisual services, so as to improve the contextual adaptability and operational clarity of regulation. At the macro level, provincial governments should play a stronger coordinating role in promoting cross-departmental collaboration, capacity building, and regional diffusion. In this way, regulation may gradually shift from one-off interventions to a cyclical mechanism of “pilot-evaluation-replication-scaling-re-evaluation,” thereby strengthening institutional learning and policy diffusion.

5.2.2 From Monocentric Control to Meta-Governance: Fostering a Polycentric Collaborative Order under Government Coordination

In institutional terms, the future direction of generative AI regulation should be to move from monocentric administrative control toward a polycentric governance structure coordinated by the government. Given the rapid diffusion of generative AI, its strong externalities, and the plurality of responsible actors, overreliance on administrative commands and *ex post* intervention is likely to increase regulatory costs, fragment rules, and discourage innovation. The policy priority, therefore, should not be to diminish the role of the state, but rather to strengthen its meta-governance function. In such an arrangement, government should remain responsible for rule provision, risk calibration, and responsibility integration, while enterprises, third-party organizations, industry associations, and users assume differentiated yet coordinated roles.

Enterprises should be encouraged, and where necessary required, to embed ethical review, data and copyright compliance, content safety, and responsibility traceability into their research, development, and operational processes. Third-party bodies should be incorporated more systematically into the regulatory framework to provide independent evaluation and professional verification. Industry associations should play a larger role in standard coordination and the integration of governance practices. Users should also be provided with clearer channels for external oversight through mechanisms such as complaint filing, withdrawal, and redress. More broadly, the regulatory toolkit should be rebalanced toward a policy mix combining constraint, incentive, and capacity building. Such an approach would enable the state to maintain overall steering capacity while fostering a more resilient and collaborative governance structure. In this respect, a government-led polycentric governance model may provide a more suitable institutional pathway for China than either the U.S. platform self-governance model or the EU’s rule-centered approach.

5.2.3 From Static Filing to Dynamic Ledgers: Improving Information-Driven Model-Based Regulation

As models iterate rapidly and application scenarios continue to expand, the object of regulation should gradually shift from static organizational actors to dynamic technological units, thereby enabling an information-driven model-based regulatory approach. If regulation continues to rely primarily on a system of “one-time filing plus uniform requirements,” it is likely to produce a mismatch in regulatory resource allocation, whereby high-risk segments remain insufficiently regulated while low-risk actors bear disproportionate compliance burdens. To mitigate this problem, the filing system should be upgraded into a dynamic regulatory ledger under the principle of “one model, one file.” Such a ledger should compile structured information on model versions, data

compliance, evaluation results, application scenarios, and rectification records, thereby providing the informational basis for classification, tiering, and continuous updating.

At the same time, responsibility boundaries should be refined along the industrial chain and within the open-source ecosystem. In particular, foundational model developers, downstream developers, and deployment or application entities should be distinguished more clearly so that regulatory obligations correspond more closely to the sources of risk. Clear requirements for change registration and continuous compliance should also be established for major model upgrades, changes in data types, entry into sensitive sectors, and major incidents. Through such reforms, regulation could move beyond static entry control toward a dynamic chain of “ledger-classification-updating-inspection-rectification.” From an institutional perspective, this would enhance the state’s capacity to identify, compare, and act upon technological change, while also strengthening the visibility of technology governance and its contribution to social stability.

5.2.4 From Static Entry Control to Experimental Governance: Using Regulatory Sandboxes to Foster Institutional Maturity

In the context of the rapid spillover of general-purpose technologies, regulation should move beyond static entry control toward experimental governance, and the regulatory sandbox should be considered a key instrument for promoting institutional maturity. Given China’s long-standing application-oriented and scenario-driven approach to science and technology governance, the regulation of generative AI should not remain at the level of abstract principles alone; rather, it should be tested and refined within concrete sectors and application settings. The value of a regulatory sandbox lies not in relaxing regulation per se, but in converting technological uncertainty into observable and revisable governance experience through bounded, clearly defined, and measurable institutional experimentation.

Sectoral regulators should therefore be authorized to take the lead in sandbox admission, risk assessment, and operational monitoring within specific scenarios, while clearly defining testing objects, user groups, data boundaries, operational cycles, and exit conditions. Quantifiable indicators such as safety incident rates, complaint-handling efficiency, false-positive rates, compliance costs, and efficiency gains should be incorporated into the evaluation framework so that experimentation can generate usable evidence for future regulation. At the national level, the legal status, procedural rules, and mechanisms for translating sandbox outcomes into formal institutions should also be standardized, enabling local and sectoral pilots to be elevated into replicable institutional templates. Through such a design, the combination of a national regulatory framework, local scenario-based pilots, and sectoral implementation could improve regulatory adaptability while also creating a more systematic pathway for institutional learning.

In sum, the future development of China’s generative AI regulation should not be framed as a simple choice between regulatory loosening and tightening. Rather, it should be understood as a process of institutional construction aimed at balancing development and security, innovation and order. Policy reform should therefore focus on building a regulatory system that integrates risk prevention, capacity building, and social stability. More specifically, greater emphasis should be placed on government coordination, scenario embedding, territorial diffusion, and dynamic adjustment, so that technology governance can evolve from a model of external constraint into one of sustainable institutional capacity. Such a pathway would not only reflect China’s distinctive governance context in comparison with the United States and the European Union, but may also offer a useful institutional reference for governing highly uncertain technological domains.

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