

Translation



The following announcement details the PRC government's ambitious plan to use AI and other advanced information technologies to improve the Chinese justice system. These government-issued guidelines encourage Chinese corporations and researchers to apply facial recognition and other automated electronic search and discovery technologies to evaluate judges, identify relevant legal precedents, predict recidivism, and so on.

Title

Application Guidelines for the 2018 First Annual Batch of Projects for the "Technology and Equipment for Public Security Risk Prevention and Control and Emergency Response" Key Special Project (Judicial Thematic Tasks)

“公共安全风险防控与应急技术装备”重点专项(司法专题任务)2018年度第一批项目申报指南

Source

PRC Ministry of Science and Technology (MOST; 科技部) website, January 2018.

The Chinese source text is available online at:

<http://service.most.gov.cn/u/cms/static/201801/10093625gi5n.pdf>

An archived version of the Chinese source text is available online at: <https://perma.cc/7UEP-D82U>

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Application Guidelines for the 2018 First Annual Batch of Projects for the “Technology and Equipment for Public Security Risk Prevention and Control and Emergency Response” Key Special Project (Judicial Thematic Tasks)

In order to fully implement the relevant tasks of the National Medium-and Long-Term Program for Scientific and Technological Development (2006-2020) and the State Council Program for Deepening Administrative Reform of Central Fiscal Science and Technology Plans (Special Projects, Funds, etc.) ([2014] No. 64), the Ministry of Science and Technology (MOST), in collaboration with the Supreme People's Court, the Supreme People's Procuratorate, and the Ministry of Justice, has organized experts and formulated implementation plans for the “Research and Application Demonstration of Key Technologies for Impartial Justice and Justice for the People” thematic research task

of the “Technology and Equipment for Public Security Risk Prevention and Control and Emergency Response” special project within the National Key R&D Program. It is a newly listed task and has officially entered the implementation stage.

This thematic task is oriented toward the strategic layout of “comprehensively ruling the country according to law,” and actively responds to the “cyber powerhouse¹ construction,” “big data strategy,” and “Internet+” action plans. With the focus centered around the urgent problems in the construction of the national smart justice (智慧司法) system, technology research and application demonstrations will be carried out, so that the theory of optimal allocation of judicial resources and the key technologies for cross-departmental and cross-level multi-service (多业务) judicial coordination in China can reach the international advanced level. A number of advanced technological achievements with Chinese characteristics will be generated that lead the development of judicial technology and equipment in the world, and a national smart justice operational support system will initially be formed, with a Smart Justice Knowledge Center and the operational support platforms of the “three departments” of the courts, the procuratorates, and the justice departments (法检司三部门) as the core, providing S&T support for the realization of impartial justice and justice for the people, and for the establishment of a fair and transparent judicial system.

The implementation period of this thematic task is 2018-2021. In accordance with the principle of step-by-step implementation and focusing on what is prominent, these batch guidelines will launch 16 research tasks in the following six areas: (1) research on basic science problems of smart justice and artificial intelligence (AI) technology, (2) research on key technologies and equipment for the core business of smart courts, (3) research on key technologies and equipment for the core business of smart procuratorial services, (4) research on key technologies and equipment for the core business of smart justice departments, (5) research on smart judicial business collaboration and knowledge support systems, and (6) research on the comprehensive application demonstration and effectiveness evaluation of impartial justice and justice for the people. The total estimate of the proposed state funding is Chinese yuan Renminbi (RMB) 450 million, of which the central government funding for use in typical application demonstration projects shall not exceed 30% of the total central government funding for said special project.

These project guidelines require that projects be taken as the basic units for overall

¹ Translator's note: Alternate translations for the Chinese term wǎngluò qiángguó (网络强国)—translated here as “cyber powerhouse”—include “cyber superpower,” “internet superpower,” and so on. For a detailed discussion in English of the meaning of this term, see:

<https://www.newamerica.org/cybersecurity-initiative/digichina/blog/lexicon-wangluo-qiangguo/>

organization of applications. They must cover all the research content and assessment indicators under the secondary heading (for example, 1.1) of the guideline research direction being applied for, and the project implementation cycle shall be no more than four years. When an enterprise is the lead applicant for a project, the ratio of other funds (including local government fiscal expenditures, contributions from organizations (单位出资), and social channel funds, etc.) to central government fiscal expenditures shall not be less than 2:1. In principle, one project is to be supported in each research direction of the guidelines. If different technical routes are taken for the same direction, and the evaluation results are similar, the two projects can be supported at the same time on their merits, and will continue to be supported on their merits according to the results of the mid-term evaluations. The number of research topics established under each project shall not exceed six, and the number of organizations (单位) included shall not exceed 20.

Joint industry-academia-research institute-technology user (产学研用) applications are encouraged, and project units are obliged to promote the conversion of research achievements into practical applications. Project demonstrations in areas such as national sustainable development experimental zones are encouraged.

1. Research on basic science problems of smart justice and AI technology

1.1 Research on intelligentized (智能化) service technology for smart courts

Research content: Conduct research on intelligent Q&A technology for the entire case trial and enforcement process; conduct research on trial risk checking and warning technology for the entire case process; conduct research on intelligent face recognition-based retrieval technology for case-related individuals; conduct research on personnel performance evaluation technology for optimal allocation of trial resources; conduct research on court integrity risk prevention and control technology based on person-case correlation data; conduct research on public opinion monitoring and emergency handling technology for the entire case trial process.

Assessment indicators: Support handling of questions on at least 20 types of courtroom proceeding scenarios such as case filing, adjudication, and sentencing; support multiple rounds of interactive Q&A; support customized, multimodal, and affective (情感化) Q&A configuration; support the establishment of comprehensive risk checking and warning for the whole process of case filing, adjudication, and sentencing, before, during, and after the event, at least including the risk points of five phases—case assignment management, scheduling management, trial deadline management, case completion management, and quality management—and covering

at least 200 risk points; build a cross-regional and distributed face information database of case-related persons that is able to provide cross-network, multi-dimensional search services for court-wide full-process applications, and that meets the security level protection requirements of dedicated court networks; build at least three dynamic performance assessment models that, at a minimum, include the assessment elements of case complexity, rate of case clearance within the trial time limit, degree of judgment deviation (裁判偏离度), etc., and that support the performance assessment of at least four types of court staff, such as judges, trial support staff, and enforcement staff; build no fewer than five risk prevention and control models to support automatic identification of clean government (廉政) risks from personnel, cases, reported clues, and external data; and propose no fewer than five public opinion monitoring algorithms to support emergency handling of illegal and harmful information. Integrate the above research achievements, carry out application demonstrations in at least five courts (covering three levels—high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least six software copyrights, and publish at least ten papers, covering typical application areas such as intelligent Q&A and retrieval, automatic risk checking and warning, personnel performance assessment and evaluation, and case-related public opinion monitoring.

2. Research on key technologies and equipment for the core business of smart courts

2.1 Research on technologies and equipment for integrated convenience services throughout the litigation process

Research content: Conduct research on automated litigation guidance and consultation support technology and equipment; research cross-network online mediation technology and equipment that supports multi-party access; research intelligent assessment and warning technology for litigation property preservation; research multi-channel electronic service technology for highly reliable and traceable judicial documents; conduct research on intelligent litigation risk analysis and result prediction technology for multi-party evidence correlation analysis; research key technologies and equipment for automated generation and validity review of intelligentized interactive litigation materials.

Assessment indicators: For the complex dynamic procedural scenarios in litigation service halls, develop assistive support equipment for automatic litigation guidance and consultation, supporting interactive communication with parties based on Chinese natural language; develop cross-network online mediation equipment supporting multi-party access to remote video mediation, and that is able to intelligently generate

at least two judicial mediation proposals based on dispute characteristics and causes; establish early warning models and tools for property preservation assessment with support for at least three types of warnings, such as warning of asset risk in the form of the debtor transferring or selling property, warning of guaranty (担保) risk, and warning of legal risk of wrongful preservation; be able to carry out anti-forgery processing of judicial documents by means of at least three methods of authentication, such as electronic signatures and two-dimensional codes, covering at least five kinds of channel scenarios such as real-time communication, e-mail, and WeChat, supporting traceability rates reaching 100% for the entire electronic document delivery process; support the identification of at least four types of risks, such as those involving the validity of evidence, statute of limitations, regularity of the legal acts of the parties, and the reasonableness of litigation claims, and predict the outcomes of cases at trial; develop integrated litigation self-help equipment to support the automatic generation and review of litigation materials, achieving accurate and rapid generation of intelligent and interactive litigation materials, and that is able to carry out automated content checking of litigation materials in terms of correctness of expression, completeness of content, and legal compliance. Integrate the above research results, build an integrated and convenient service platform for the entire litigation services process, carry out application demonstrations in at least five courts (covering three levels: high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least six software copyrights, and publish at least ten papers.

2.2 Research on key technologies and equipment for high-quality, high-efficiency trial support

Research content: Conduct research on false litigation screening and warning technology; conduct research on technology for intelligent case triage based on complexity level; conduct research on key technology and equipment for automatic generation of supplementary information and virtual evidence for the trial process; conduct research on multimodal recording and integrated comparative analysis technology and equipment for the entire trial process; conduct research on accurate suggestion technology for similar cases; conduct research on intelligent assistive technology for sentencing of criminal cases.

Assessment indicators: Support false litigation screening based on a large number of cases and litigant profiles, with litigant profiles having at least the six information dimensions of social relationships, economic interests, asset status, identity traits, credit situation, and litigation situation; support intelligent case triage based on elements such as parties, claims, and subject matter, with an accuracy rate of at least 90%; for the

process of opening court sessions and conducting hearings, support the generation of at least three types of supplementary information based on legal knowledge and current case information, such as important evidence suggestions, trial process suggestions, and applicable law suggestions, and send them to the judge, develop virtual evidence equipment, and support automatic generation and 3D interactive display of evidence images, with automatic generation of evidence images in no more than five seconds; conduct research on multimodal recording (such as voice, video, and transcript) and analytical mining equipment for the entire court session process, support multimodal fusion analysis and mutual corroboration for court data, achieve synchronous intelligent analysis of court status, behavior of parties concerned, etc., and support automatic analytical mining afterwards, supporting at least ten kinds of automatic analysis of court status or behavior; support providing judges similar cases based on the facts of the case, the focus of dispute, the applicable laws, and other elements, with a recommendation accuracy rate of at least 80%; build a standardized intelligent sentencing assistance tool which supports giving sentencing recommendations based on criminal facts, discretionary circumstances, and historical cases, with a deviation of less than 10% between sentencing recommendations and final adjudication results. Integrate the above research results, build a high-quality and efficient trial support platform, carry out application demonstrations in at least five courts (covering three levels: high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least six software copyrights, and publish at least ten papers.

2.3 Research on technologies and equipment for streamlined enforcement with whole-process control

Research content: Conduct research on clue-finding technology geared toward personnel doing integrated analysis of the activity trajectories of persons subject to enforcement; research concealed property clue extraction technology for analysis of virtual network financial transaction behavior; research technology aimed at the comprehensive analysis of multi-element data for dynamic evaluation and recommendation with respect to the reputation of agencies that provide contract services to the judiciary (司法委托机构); research technology for comprehensive analysis of auction data with auction value-difference reasonableness warnings and auction violation warnings; research intelligent case triage and assistive supervision technology for controlling and managing the entire enforcement case process; research law enforcement assistance technology and equipment that is for single officers and is intelligently linked to enforcement proceedings.

Assessment indicators: Through the integrated analysis of breach of trust

reprimands (失信惩戒), online inspection and control, and other feedback information, establish at least five models of concerned party (当事人) behavior, and automatically generate assistive solutions for investigating people and searching for things; support integrated analysis based on banking, securities, real estate, and other property data and transaction behaviors, build at least five concealed property discovery models, and support screening for concealed property behavior on the part of persons subject to enforcement; build a dynamic evaluation model of judicial evaluation, appraisal, and auction agencies based on at least three types of data, such as qualifications and reputation, business performance, and feedback on contracted services, and support intelligent recommendation of agencies that provide contract services; support the establishment of models of characteristics that affect value for at least five types of case-related property such as real estate, vehicles, marketable securities, devices and equipment, furniture, etc., establish a quantitative model for differences between transaction prices and reserve prices (保留价), and support price warning and auction violation identification; support intelligent triage based on complexity analysis of at least five factors (e.g., the nature of the case, the subject matter of the case, property search, dispute resolution, and liquidation of assets), automatically carry out the processing and circulation elements of seizure and disposal, property order issuance, and other aspects based on the circumstances of enforcement-related property, and achieve the supervision and warning of deviation from standard procedures for the entire enforcement process; develop technology and equipment for single officers that is intelligently linked to enforcement business, support fingerprint authentication of judicial police and human appearance recognition (人像识别) of persons subject to enforcement, support intelligent pushing of real-time case handling process and warning information, have the ability to automatically complete the delivery of enforcement instructions, and support geographic positioning as well as trajectory playback, multi-point data, and voice synchronous communication, and other functions. Integrate the above research results, build a streamlined integrated management platform for enforcement cases, carry out application demonstrations in at least five courts (covering three levels: high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least ten software copyrights, and publish at least 15 papers.

2.4 Research on key technologies for scientific and efficient intelligentized court management and decision-making

Research content: Conduct research on balanced case assignment technology oriented towards case complexity and human-case feature matching; research whole-chain supervision and deviation warning technology for standardized trial

process management; research trial quality evaluation technology with full coverage of case categories; conduct research on assistive technology for overall situation research, judgment, and management decision-making aimed at improving trial proceeding quality and efficiency; research technologies for court information system operations including situation analysis, responding to unforeseen emergencies, and failure warning and positioning; research technology and equipment for whole-process security supervision based on cross-level and cross-platform unified identity authentication of the four levels of courts.

Assessment indicators: Construct a human-case feature matching model based on the professional experience of judges, the case circumstances, and the case registration rate, with an accuracy rate of at least 90%, and achieve basic balance and scheduling optimization in the number and difficulty of cases handled by judges; support legal compliance monitoring and deviation warning for all aspects of trial conduct, with a warning accuracy rate of at least 95%; establish quantitative models and assessment tools for the quality of criminal, civil, and administrative cases, supporting intelligent assessment of trial fairness, trial efficiency, and trial effectiveness based on judges' case handling data, and providing a basis for assessing judges' performance; build a prototype for macro situation analysis of trial execution, based on the historical data of the number and types of cases, disputes involving litigation, judicial assistance, cross-jurisdictional areas, and other factors, to assist in predicting the trends of various types of case situations (案件态势) and generate management decision-making plans; support regulatory functions of at least four types of systems (e.g., trial information resource quality management, intelligent analysis of the operational data and operational situations of the court information system, active warning and positioning of system operation failures, and emergency response to unforeseen situations); research and develop a network-wide and unified identity authentication platform supporting cross-level and cross-platform identity security authentication, achieving whole-process authentication traceability based on data certificates, and supporting unified identity authentication that integrates at least three types of verification methods, such as digital certificate authentication, fingerprint authentication, and facial recognition. Integrate the above research results, build an integrated court management and decision-making platform, carry out application demonstrations in at least five courts (covering three levels: high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least six software copyrights, and publish at least ten papers.

3. Research on key technologies and equipment for the core business of smart procuratorial services

3.1 Research on key technologies to assist in prosecution and case handling

Research content: Conduct research on technology for case feature matching and retrieval and suggesting laws and regulations; research case feature analysis and business situation analysis technology for multi-source, heterogeneous prosecution data; research assistive study and judgment technology for the evidence system and case circumstances; research procurator trial response strategy models and technology for court appearance plan formulation and organization; research crime risk assessment systems and warning mechanisms for minors; research complaint information filtering, checking, and categorization models and centralized control technology.

Assessment indicators: Conduct research on feature matching retrieval technology and law and regulation suggestion technology based on a large number of cases, with an accuracy rate of at least 80% for case matching and a coverage rate of at least 95% for suggested laws and regulations; construct at least six models for correlation analysis of certain influential factors and case content, at least 40 information maps of case features and regions, and develop one prototype system for case and prosecution operational situation analysis; construct at least five models for multi-person and multi-section case decomposition, evidence correlation analysis, document verification, case sentencing, etc., and develop one prototype assisted research and judgment system for the evidence system and case circumstances; construct prosecution and defense focus identification models, and develop a prototype system for prosecutors' trial response strategies and court appearance planning and organization; construct a knowledge base of juvenile delinquency, and develop a prototype system of juvenile crime assessment and early warning; construct at least six models of information filtering, verification, and categorization of complaints, in which information is automatically categorized by type with an accuracy rate of at least 95%; carry out application demonstrations in the procuratorial institutions of three provinces, one province of which should include three levels of procuratorates; publish at least 15 high-level papers, and apply for at least six invention patents and at least five software copyrights.

3.2 Research on multidimensional evaluation of case handling based on centralized case management and open technology for procuratorial services

Research content: Conduct research on models for matching cases with the abilities of prosecutors; research models and assisted decision-making technology for quality assurance of prosecution cases, risk assessment of case supervision, and control of the case handling process; research key technologies for verifying judicial

interpretation documents based on laws and regulations; research procuratorial public information scope assessment models, and technologies for risk identification, warning, and handling; and carry out R&D of open (公开) and integrated intelligent equipment for procuratorial services based on a variety of human-computer interaction modes; launch an application demonstration of a procuratorial case handling quality assurance and supervision platform and an application demonstration of one-stop services for procuratorates.

Assessment indicators: Propose a case assignment model based on matching cases with the abilities of case-handling personnel, with a suggestion accuracy rate of at least 80%, and develop a prototype intelligent case assignment system; build at least 15 quality assurance, case supervision risk assessment, and case control models, develop a prototype system for case quality assurance and supervision; construct a benchmark database for judicial interpretation document verification, and develop a prototype system for judicial interpretation document verification based on laws and regulations; construct an open semantic standard library for procuratorial services, and at least ten models for procuratorial services, such as open information risk identification, automatic information generation, automatic identification of exception (例外) content, information classification (保密) review, and accurate dissemination of public information; develop open “one-stop” office service information platforms and intelligent service equipment for procuratorial services, develop a prototype intelligent Q&A system for procuratorial service consulting, with a Q&A accuracy rate of 90% or more; carry out application demonstrations in the procuratorial organs of three provinces, one of which provinces should include three levels of procuratorates; apply for at least six invention patents and at least six software copyrights, and publish at least ten high-level academic papers.

3.3 Research on key technologies for dynamic supervision of public interest litigation cases in important domains

Research content: Conduct research on categorized assessment and trend analysis technology in domains such as environmental and resource protection, food and drug safety, and state-owned land transfers and state-owned property protection; research damage analysis models and assessment techniques in environmental and food and drug rights infringement (侵权) cases; conduct research on information acquisition and dynamic supervision technology for public interest litigation in important domains; research decision-making models and effect tracking and analysis technology for procuratorial recommendations; and carry out application demonstrations of dynamic supervision of public interest litigation cases.

Assessment indicators: Build a categorization assessment and trend analysis

model for public interest litigation cases, with research on at least six domains; establish a damage identification resource base in the fields of environmental rights infringement and food and drug rights infringement, covering identification institutions, identification example cases, identification processes, identification models, and other resources; establish mechanisms for obtaining supervision information and public interest litigation data in at least six domains, develop intelligent clue discovery and extraction tools for public interest litigation, and achieve dynamic supervision, analysis, and warning of public interest litigation in important domains, with a comprehensive accuracy rate of at least 80%; construct a decision-making model of procuratorial recommendations with offenders, facts of offenses, damage and consequences, and risk prediction as the main indicators, and a tracking and evaluation model of the effectiveness of procuratorial recommendations, with reply deadlines, rectification measures, and rectification effects as the main indicators, and having an evaluation accuracy rate of at least 90%; carry out application demonstrations in the procuratorial organs of three provinces, one of which provinces should include three levels of procuratorates; publish at least 20 high-level papers, and apply for at least five invention patents and at least five software copyrights.

4. Research on key technologies and equipment for the core business of smart justice departments (智慧司法)

4.1 Research on technology and equipment for accurate public legal services support

Research content: Conduct research on target categorization, group profiling, and accurate communication technologies for propaganda on the rule of law; conduct research on semantic recognition and intelligent interaction technology for legal consultation based on deep networks and knowledge ontology databases (知识本体库); research technology for the construction of and searching in legal service case databases based on semantic analysis; research legal aid lawyer service quality evaluation models and intelligent recommendation technology; research electronic notary support system architectures, and technology for the preservation, exchange, and identification of electronic notary information; and conduct R&D of a prototype intelligent public legal services platform system, and carry out application demonstrations.

Assessment indicators: Develop target audience categorization and group profiling algorithms for propaganda on the rule of law, with at least 30 target categories, at least ten dimensions of profiling data, and a categorization accuracy rate of at least 90%; research and develop legal advice semantic recognition and intelligent interaction

equipment with a semantic recognition rate of at least 90%; develop semantic analysis and search algorithms for the legal service case database, build a semantic marker database covering ten types of subjects and 20 types of legal service matters, with a semantic marker accuracy rate of at least 95% and a search matching rate of at least 98% for cases entering the database; develop legal aid lawyer service quality evaluation and recommendation algorithms with accuracy rates of at least 90%; build an electronic notary support system model, and develop electronic preservation, exchange and identification technology for electronic notary procedures and their object (对象) information, covering five types of electronic items, five types of traditional items, and five types of notary business matters; demonstrate application of the intelligent platform for public legal services in five different prefectural and municipal judicial administrative agencies; publish at least 15 papers, apply for at least five software copyrights and at least four invention patents, and formulate at least one judicial industrial standards specification.

4.2 Research on technology and equipment for prisoner rehabilitation and correction

Research content: Research and develop technology and equipment for the intelligent collection of mental representations and behavior patterns for the rehabilitation of prisoners; research and develop virtual reality (VR) interactive content, technology, and equipment for the psychological rectification (心理矫治) of prisoners; research correctional quality confidence assessment technology based on supervision and rehabilitation big data; research quantitative assessment models for sentence commutation, parole, and probation, and mechanisms for sharing data on sentence commutation, parole, and probation; research intelligent recommendation technology and equipment for evidence-based prisoner rectification strategies; research big data analysis and early warning technology for prisoner psychology, behavior, and correctional strategy evolution; research a prototype intelligent correctional platform system for prisoners, and carry out application demonstrations.

Assessment indicators: Research and develop prison inmate mental representation and behavior pattern analysis algorithms, as well as supporting technology and equipment, to achieve mental representation and behavior pattern extraction and [trend line] intersection-based judgment, covering ten types of mental representations and ten types of behavior patterns, with an extraction accuracy rate of at least 85%; research and develop VR interactive equipment for psychological rectification of prisoners, with a mental representation collection function, and build a VR interactive correctional content library with at least five types of psychological models; conduct research on prisoner correctional quality confidence assessment

algorithms covering ten quality factors, and with an assessment validity of at least 85%; establish a quantitative assessment model for sentence commutation, parole, and probation based on correctional quality, with an assessment accuracy of at least 85%; build an evidence-based correctional model and correctional case database covering ten types of cases, five types of personnel, and five types of correctional strategies, with a semantic marking accuracy rate of at least 95% for cases entering the database, build an AI algorithm for recommending prisoner correction strategies, with an efficiency rate of at least 80%, and develop mobile handheld intelligent correctional equipment; conduct research on big data analysis and early warning algorithms for prisoner psychology, behavior and correctional strategy evolution, with a situation analysis accuracy rate of at least 85%; carry out application demonstrations of an intelligent platform for the supervision and rehabilitation of prisoners in five different provincial (municipal, autonomous region) prisons, covering high and low security, male and female prisoners, and juvenile prisons; publish at least 20 papers, and apply for at least ten software copyrights and at least two invention patents.

4.3 Research on support technology and equipment for prevention of crime by ex-prisoners and prisoners on parole or probation

Research content: Research and develop intelligent technology and equipment for monitoring and evaluating the behavioral and psychological characteristics of people on parole or probation; conduct research on intelligent decision-making technology for rectification of people on parole or probation based on big data from the monitoring of the state of society (社会状态检测大数据); conduct research on factor correlation (要素关联)-based quality assessment and risk warning technology for the rehabilitation of people on parole or probation; conduct research on intelligent decision-making technology for assistance programs based on big data on the placement, help, and education status of released prisoners; research and develop a crime prevention platform for people on parole or probation or released from prison, and carry out pilot applications.

Assessment indicators: Develop behavioral and psychological feature monitoring equipment for people on parole or probation, supporting wearable and judicial office fixed types, and develop feature pattern generation and matching-based assessment algorithms with an accuracy rate of at least 85%; construct a social state (社会状态) monitoring system and correctional case database with five types of cause of action and three types of people on parole or probation, and covering ten types of status, with a semantic marker accuracy of at least 95% for cases entering the database, and develop a big data-based intelligent algorithm for correctional plan recommendation,

with an effectiveness of at least 85%; establish a correctional quality assessment model and risk warning model for people on parole or probation, develop a big data-based algorithm for early warning and diagnosis of recidivism, and verify that the efficiency is at least 85% based on historical data; construct a collection system and recidivism case database for ten types of released prisoner placement, help, and education status, and develop a big data-based intelligent assistance program recommendation algorithm with an effectiveness of at least 85%; in five different judicial administrative agencies at the provincial (municipal, autonomous region) or prefectural level or above, carry out application demonstrations of a crime prevention platform for people on parole or probation and released prisoners; publish at least ten papers, and apply for at least four copyrights and at least two invention patents.

5. Research on smart judicial operations collaboration and knowledge support systems

5.1 Research on technology and equipment for smart justice operations collaboration

Research content: Conduct research on key support technology of virtual workspaces for judicial operations collaboration; research adjudication-centered categorization and management technology for judicial operations information resources; research interactive processing technology for multi-departmental, cross-level and cross-network data security oriented toward judicial operations; research operational collaboration service technology based on domain-driven design; conduct research on software integration development and operation technology driven by judicial operational collaboration models; research and develop a smart justice operational collaboration support platform.

Assessment indicators: Develop a multi-departmental collaborative conferencing tool for judicial operations, supporting at least three kinds of collaborative work interaction between courts, procuratorates, and judicial administrative departments, including judges, prosecutors, and prison police (监狱人民警察), and supporting at least three kinds of interaction modes, such as voice, video, and text; build prototypes for court, procuratorate, and judicial administrative department information resource categorization and management, establish an adjudication-centered judicial operations information resource categorization system, form a public data model covering trial information resources such as electronic files, evidence, personnel, institutions, and case-related property, and support on-demand access and collaborative management of cross-departmental information resources; build interactive processing technology for adjudication-centered collaborative operations data security, achieving

cross-network data security sharing and exchange among multiple departments of the courts, procuratorates, and judicial administrative departments, with non-intrusive data access, content distribution, fidelity tracing, and anti-infringement capabilities, supporting electronic document exchange, case trial process information exchange, criminal sentence commutation and parole information exchange, and other services, and covering data types such as case information, documents, electronic evidence, electronic files, and courtroom audio and video; support the service reconfiguration of the operational collaboration functions of the court, procuratorate, and judicial administrative department information systems, with an accuracy rate of at least 90% in discovering the required services based on the semantics of judicial operational collaboration services, and support real-time invocation and on-demand assembly of services according to the collaboration model; support automated development and operation and maintenance, from judicial operational collaborative domain model mapping and binding to service code (服务代码) generation, deployment, and operation monitoring, with an automatic code generation rate of at least 90%. Integrate the above research results, build an intelligent collaborative common support platform for judicial operations, carry out application demonstrations in at least two provincial-level courts, apply for at least five invention patents and at least six software copyrights, and publish at least ten papers.

5.2 Research on internally and externally coherent collaborative support technology for trial proceedings and litigation services

Research content: Research key technologies for cross-level court case jurisdiction identification and warning; research key technologies for warning and collaborative handling of “one person, multiple cases” across regions and levels; research key technologies for cross-level collaboration on litigation-related petitioning (信访); research key technologies and equipment for multi-party collaboration across geographical and hierarchical levels in outsourced enforcement (委托执行) cases; research key technologies for cross-jurisdiction case filing and collaboration with specialized courts; research technologies for the automated release of adjudication and enforcement process and node information synchronized and controlled with internal and external network information.

Assessment indicators: Build a case jurisdiction identification and warning tool that supports determination of case jurisdiction and is able to automatically generate jurisdictional recommendations with an adoption rate of at least 70%; establish a “one person, multiple cases” correlation early warning prototype, with a cross-regional and cross-level real-time warning accuracy rate of at least 95%, and the ability to

automatically generate collaborative processing recommendations for the collaborative handling of cases; support automatic identification of cross-level and cross-regional behavior such as frivolous petitions and repeated petitions, and generation of corresponding emergency handling plans, and support linkage warning, with an accuracy rate of at least 90%; develop portable equipment for outsourced enforcement, support real-time interaction with enforcement circumstances of outsourced enforcement cases in complex environments, with synchronized recording and real-time monitoring of enforcement data in different places, and achieve full traceability of outsourced enforcement; support cross-jurisdiction filing of cases nationwide and collaborative data exchange with specialized courts, provide legal explanations and material recommendations, and automatically generate case guidance, with a case guidance adoption rate of at least 90%; build a prototype for automatic release of trial process, enforcement process, and node information on internal and external networks, and support verification of data quality and data synchronization consistency. Integrate the above research results, build a cross-level and cross-domain court collaboration and integrated service platform, carry out application demonstrations in at least 5 courts (covering three levels: high courts, intermediate courts, and grassroots courts), apply for at least five invention patents and at least six software copyrights, and publish at least ten papers.

5.3 Research on case-centered support technologies for procuratorial collaboration

Research content: Conduct research on standards for collaboration among procuratorial organs internally and between public security, procuratorate, court, and judicial administration departments; research common collaboration and data supply chain models for procuratorial organs; research data standardization and integration technologies for cases, people, property, and materials; research case-centered procuratorial system service encapsulation technology, and research procuratorial system monitoring, auditing, and trajectory analysis technology; research resource integration, services dynamic discovery, and data management technologies for procuratorial collaboration information grids; research security risk identification and visualization methods for cross-network exchange by dedicated procuratorial networks.

Assessment indicators: Develop a process modeling method for procuratorial collaboration, and build a standard system for procuratorial collaboration; build at least five procuratorial collaboration models; make breakthroughs in collaborative case handling data integration and centralized control of cross-regional and multi-source procuratorial data, collection of distributed cross-regional information system data and other key technologies, with access to over ten types of procuratorial data; research

service encapsulation and operational collaboration support technologies for procuratorial service systems, and propose at least five collaboration-based business process monitoring models; develop a prototype collaborative information grid system for procuratorial services, with at least 150 types of operational information; make breakthroughs in key technologies for cross-network security exchange for dedicated procuratorial networks, and develop one prototype system; carry out application demonstrations in three provincial procuratorial organs, apply for at least six invention patents and at least six software copyrights, and publish at least ten high-level papers.

5.4 Research on support technology for judicial administration cross-regional joint law enforcement collaboration

Research content: Conduct research on a cross-regional joint law enforcement command system for judicial administration, based on situational analysis and intelligent scheduling technology for multi-departmental law enforcement resources; research and develop technology and equipment for visualization of cross-regional prisoner escort correlation warning and collaborative handling in joint law enforcement; research and develop cross-regional prison inmate remote meeting help and education information access control technology and equipment based on intelligent identification technology; research and develop multi-departmental data mining technology and emergency handling plan integration technology for persons sentenced to community service; research and develop systems and equipment for multi-departmental collaborative electronic authentication of attorney practice qualifications and credentials; conduct research on a pilot cross-regional joint enforcement platform for judicial administration, and carry out demonstration applications.

Assessment indicators: Develop cross-regional joint law enforcement command processes for judicial administration, support multi-departmental joint situation analysis, and support joint law enforcement resource scheduling algorithms with at least three types of constraint rules, covering at least three types of law enforcement matters; develop a set of equipment for visualization of cross-regional prisoner escort in joint law enforcement, providing active indoor and outdoor personnel tracking functionality, with a behavior tracking error of three meters or less, and develop high-capacity mobile data real-time transmission technology, with single nodes supporting at least six concurrent video feeds, two-way audio, and real-time transmission of instructions; research and develop cross-regional prisoner remote meeting and help and education technology and equipment based in judicial offices, with an identity recognition accuracy rate of at least 99%; establish a multi-departmental data integration model and command pre-plan dynamic linkage

mechanism for cross-regional joint law enforcement by judicial administrations, supporting the integration and linking of at least four departments such as judicial administration, procuratorates, courts, public security, etc., and develop a set of equipment for multi-departmental law enforcement coordination, cross-regional law enforcement command, and emergency handling with respect to persons sentenced to community service; establish an electronic authentication system for attorney practice qualifications and credentials, develop equipment for attorney practice qualification-related electronic document production and identification, and electronic credentials exchange, with an electronic document identification accuracy rate of at least 99.99%; design cross-regional collaboration mechanisms, standards, and specification systems for judicial administration, and carry out application demonstrations of cross-regional joint law enforcement pilot platforms for judicial administration in three provincial judicial systems; apply for at least four invention patents and at least eight software copyrights, and publish at least eight papers.

6. Research on the comprehensive application demonstration and effectiveness evaluation of judicial impartiality and justice for the people

6.1 Comprehensive demonstration and effectiveness evaluation of smart courts

Research content: Conduct research on technology for automated detection of trial process norms; research rapid human-computer collaborative transcript generation technology for trial environments; research automated document proofreading and error correction technology; research deep application technologies such as automatic cataloging and efficient retrieval of electronic files; research case evaluation technology; research adjudication-centered technical solutions for collaboration on sentence commutation, parole, and probation; research prototypes of comprehensive effectiveness evaluation systems and integrated application platforms for smart courts.

Assessment indicators: Support the automatic detection of at least 30 norms of courtroom dress, judge behavior, courtroom order, etc., with an automatic discovery accuracy rate of at least 95%; support automatic courtroom voice recognition and collaboration with manual real-time correction to quickly generate transcripts, with a transcript accuracy rate of at least 98%, and cutting transcript completion time in real courtroom environments by at least 25% compared to completely manual transcription; support automatic document proofreading and intelligent error correction functions, with an error correction accuracy rate of at least 90%; for electronic files, support functions such as remote access, automatic indexing, efficient retrieval, and information backfilling, with a backfilling accuracy rate of at least 90%; support general evaluation of all cases, special sampling of some cases, and inter-court evaluation between courts,

with an evaluation adoption rate of at least 80%; adjudication-centered technical solutions for sentence commutation, parole, and probation should be based on big data, cloud computing, AI, and other advanced technologies, cover key aspects of sentence commutation, parole, and probation, and support the integration and linking of courts, procuratorates, judicial administration, and other departments; build a comprehensive effectiveness evaluation system for smart courts, supporting comprehensive service capacity assessment in the three dimensions of networkization (网络化), transparency, and intelligentization, develop a prototype system for an integrated smart court application platform, carry out application demonstrations across high, intermediate, and grassroots courts in at least two provincial-level regions, and produce a comprehensive report on application demonstrations; apply for at least five invention patents and at least five software copyrights, and publish at least five papers.