



OCT. 05

NIJ

Solicitation for Concept Papers

Modeling and Simulation Research and Development: Software for Improved Operations, Operational Modeling, Speech-to-Text Recognition, and Training Technologies

Notice:

You *must* submit your application electronically using Grants.gov.

Go to <http://www.ojp.usdoj.gov/nij/funding/howto.htm> for application instructions. For Grants.gov technical support, call 1-800-518-4726.

Catalog of Federal Domestic Assistance (CFDA) Number: 16.560

CFDA Title: National Institute of Justice Research, Evaluation, and Development Project Grants

Deadline:

November 22, 2005

8 p.m. eastern time

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U.S. Department of Justice
Office of Justice Programs
810 Seventh Street N.W.
Washington, DC 20531

Alberto R. Gonzales
Attorney General

Regina B. Schofield
Assistant Attorney General

Glenn R. Schmitt
Acting Director, National Institute of Justice

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Modeling and Simulation Research and Development: Software for Improved Operations, Operational Modeling, Speech-to-Text Recognition, and Training Technologies

I. Introduction

The National Institute of Justice (NIJ) is the research, development, and evaluation agency of the U.S. Department of Justice and a component of the Office of Justice Programs (OJP). NIJ provides objective, independent, evidence-based knowledge and tools to enhance the administration of justice and public safety. NIJ supports research that can provide knowledge and tools to guide policy and practice.

NIJ is seeking concept papers on the following topics:

1. Software to improve the performance of law enforcement and corrections operations (e.g., resources allocation and command and control tools).
2. Immersive technologies for training of public safety officers.
3. Use of speech-to-text/text-to-speech recognition in public safety.
4. Model and analysis of criminal justice agencies' operations, including police, corrections, or court operations or linkages between them.

See Section II, Concept Paper Topics, for more details about the requirements.

Due date: The due date for this concept paper is **November 22, 2005**. Extensions to the deadlines are generally not granted.

Page limit: The program narrative section of your concept paper must not exceed 7 double-spaced pages in 12-point font with 1-inch margins. Abstract, table of contents, charts, figures, appendixes, and government forms do not count toward the 7-page limit for the narrative section, but should not increase the total past 10 pages. (The program narrative section of full proposals, for applicants who will be invited to submit them, are usually limited to 25 to 30 pages.)

Reasons for rejection: NIJ may reject applications that are incomplete, do not respond to the scope of the solicitation, do not comply with format requirements, or are submitted after the deadline. No additions to the original submission are allowed.

How to apply: Detailed instructions for using Grants.gov to apply are available at <http://www.ojp.usdoj.gov/nij/funding/howto.htm>. For Grants.gov technical support, call 1-800-518-4726.

II. Concept Paper Topics

Concept papers should include:

1. A complete description of the proposed solution.
2. A description of the data needed and its availability.
3. The names of specific individuals, agencies, or professional associations who will collaborate on the project.
4. A description of how the models will be tested and validated.
5. An explanation of how closely the proposed models reflect common law enforcement processes.
6. Required hardware and ancillary software.
7. Deliverables with time estimates. Successful applicants must give a midterm presentation on the effort and results in Washington, D.C., using real data.

A. Software to Improve the Performance of Law Enforcement and Corrections Operations

1. Resource Allocation Tools

Law enforcement and corrections users need tools that will help them effectively and efficiently allocate limited resources such as personnel, funding, and equipment. A resource allocation tool would help ensure that available resources provide adequate public safety. Also, a police department could use this tool to improve its ability to effectively and efficiently deploy its personnel at the appropriate times and locations to satisfy normal day-to-day demands for service.

Resource allocation tools must have the following operational characteristics:

- a. Web-based applications.
- b. Able to accommodate multiple simultaneous users.
- c. Able to transmit, save, and archive data for future use and evaluation.
- d. Use existing crime-mapping software and be able to merge capabilities with other software, such as scheduling software, as appropriate.
- e. Able to interface with multiple, existing law enforcement databases.
- f. Compatible with existing computer technology, and able to accept inputs and outputs from Microsoft Office products.
- g. Require minimal training and administration to use.

2. Command and Control Tools

An incident commander and other command staff need tools that allow them to effectively and efficiently monitor the incident, and track and allocate resources from multiple agencies. Without these tools, command personnel may not have full control or awareness of available resources.

Many agencies now use paper-based solutions or “stove-piped” computer systems that cannot communicate with other systems. Proposed solutions should integrate with common resource allocation tools so command and control officers can share data.

Proposed tools must work equally well in training and operational scenarios.

Considerable time and resources have already been invested in developing command and control tools and special attention will be given to proposed tools that make maximum use of existing systems and tools. However, applicants are free to propose building a new tool.

B. Immersive Technologies for Training

Enhancements in virtual reality training technologies provide the potential for significant enhancement in training for public safety personnel.

Work requirements, limited training facilities, and budgetary constraints constrain the number and quality of training opportunities for law enforcement and corrections practitioners, particularly with regard to dealing with critical incidents, such as hostage situations, in-progress robberies, prison riots, etc., where the ability to make accurate split-second decisions with minimal information is vital. To keep these perishable skills honed, law enforcement and corrections agencies need improved, cost effective means to conduct realistic interactive training to deal with such situations, using minimal or no training infrastructure. Ideally, the technology would enable realistic, meaningful training to be conducted at or near a police or fire station, or, less desirably, in an existing training facility.

Technologies that engage as many of the five senses as possible are highly desired as they enable trainees to experience each scenario in as realistic a fashion as possible.

The technologies should provide editing tools for configuring the virtual environment to specific locations and threats of concern to an agency and to the types of equipment and protocols that the agency uses.

Both new training tools and enhancements to existing tools will be considered.

C. Speech-to-Text/Text-to-Speech Recognition

To further improve officer safety and efficiency, agencies can take advantage of recent technical developments in speech-to-text/text-to-speech recognition technology. In particular, the ability to interface computer-aided dispatch/records-management systems (CAD/RMS), or similar reporting or information systems, through an automated speech-to-text/text-to-speech interface is considered highly desirable.

Patrol officers are often required to type information into reporting systems from their vehicles. Enabling a speech recognition system in a patrol vehicle could enhance an officer's ability to create reports and conduct searches. Implementing this technology would provide more timely and accurate information retrieval, reduce training requirements, and address ergonomic and vehicle safety issues.

This technology would allow officers to complete a report or perform a search or query through a voice interface. Query results would be returned to the officer as both text and voice.

Applicants may leverage commercial off-the-shelf speech-to-text and text-to-speech product technology. The Car 54 project for speech detection and the Advanced Public Safety (APS) project in Florida could also be leveraged.

D. Model and Analysis of U.S. Criminal Justice Agencies' Operations

NIJ is seeking concept papers for applied studies in the modeling of the operations of criminal justice organizations including police, corrections, or court operations, or linkages between them. The purpose is to develop widely applicable methodologies that (1) criminal justice organizations can use to demonstrate the utility of funding innovations in technology and operations, and (2) innovators can use to evaluate how best to design new technology.

Examples of projects that will be accepted are:

1. Access Control and Tracking Devices in Corrections Facilities: yes/no/which/where.

Applicants will evaluate the utility and costs of using different types of access control and tracking devices in corrections facilities by modeling in detail the operations there. Proposals will assess what combination of parameters would make them very attractive from a cost-saving point of view. The model should assist the decision making about applying access control devices: yes/no/which/where.

Various access control and tracking devices exist or are in development that allow inmates, visitors, and officers to be recognized at checkpoints. For example, ID methods include biometrics (such as iris or facial recognition, retina scanning, finger and hand geometry, voice and fingerprint identification, and dynamic signature); tracking methods include radio frequency identification tracking (RFID).

These devices differ in the amount of time needed per identification, the cost per checkpoint, the possibility of deception, the false recognition or no recognition rate, and other parameters. In a minimum or medium security prison, the use of such checkpoints may reduce costs of

escorting inmates; legal costs due to inmate complaints; investigation costs for disturbances, contraband discovery, injury, or other events; costs of counts; and possibly other costs.

A detailed model of the daily, occasional, and unplanned events can be constructed that will provide estimates of the various costs involved with (1) access control devices at some set of checkpoints, (2) no technology change, and (3) a tracking system based on RFID. The model will help in making decisions about applying access control devices: yes/no/which/where.

2. Type and Amount of Communication between Different Agencies in Critical Incidents.

Applicants will evaluate the utility and costs of using different configurations of interoperable radio devices in critical incidents by modeling the necessary communications during such an event. Proposals will assess which functionalities to include (e.g., voice and data); what specifications, such as channel count, have a significant effect on costs or utility; and what different levels of communication to consider—giving everybody access to all channels could be more disruptive than helpful. The model will then assist in determining the type and amount of communication between different parties that will be necessary to facilitate all relevant activities.

Several types of networks can be envisioned for critical incident management where multiple independent agencies are involved. Much information is available concerning the technical specifications for such systems; however, a reasonably simple model that allows sufficiently accurate assessment of the resulting utility would assist in making choices among the different systems as well as choices of parameters in any individual system.

The model should be scalable in some manner to allow different magnitudes of incidents to be examined. The ideal model would consider events that range from basic traffic stops to large-scale critical events.

The model should recognize bottlenecks, flow analysis, redundancy, and throughput requirements (including overhead, etc.). It should also address mobility requirements versus temporary fixes.

As an appendix that does not count toward the 7-page limit, the proposal should include the planning documents that describe possible scenarios and detail the interaction of various agencies.

III. General Requirements and Guidance

NIJ is asking you to submit a concept paper that captures the essence of a full proposal. The main difference between a concept paper and a proposal is that concept papers are much shorter and do not contain detailed budgets.

Your concept paper should state the problem under investigation (including goals and objectives of the proposed project) and the relevance of the project to public policy, practice, or theory. The narrative program section should state the research question and objectives and explain how the work will contribute to knowledge and practice. It should describe in sufficient detail the research methods and analytic strategy.

While the concept paper should not include a detailed budget or management plan, the program narrative should include a staffing plan and an estimate of the funding required, summarized by task, and a general timeframe for completion of those tasks and the project as a whole.

Peer reviewers will evaluate each concept paper and based on their recommendations, NIJ will invite authors of selected concept papers to submit full applications.

The format for your concept paper is as follows:

1. Abstract of no more than 400 words.
2. Program narrative.
 - a. Research question or problem.
 - b. Research goals and objectives.
 - c. Research design and methods.
 - d. Implications for policy and practice.
 - e. Dissemination strategy.
 - f. Description of estimated costs.
 - g. Staffing plan.
 - h. Timeline.
3. Tables, figures, charts, and appendixes, if applicable.

A. Submit applications online: Paper applications are not accepted. Applications must be submitted online at Grants.gov. See <http://www.ojp.usdoj.gov/nij/funding/howto.htm> for application instructions.

B. Relevance of the project for policy and practice: Higher quality concept papers clearly explain the practical implications of the project. They connect technical expertise with policy and practice. To ensure that the project has strong relevance for policy and practice, some researchers and technologists collaborate with practitioners and policymakers. You may include letters showing support from practitioners, but they carry less weight than clear

evidence that you understand why policymakers and practitioners would benefit from your work and how they would use it. While a partnership may affect State or local activities, it should also have broader implications for others across the country.

- C. Cofunding:** A grant made by NIJ under this solicitation may account for up to 100 percent of the total cost of the project. You must indicate whether you believe it is feasible for you to contribute cash, facilities, or services as non-Federal support for the project. Your concept paper should identify generally any such contributions that you propose to make. If you are asked to submit a full proposal, your proposed budget should indicate in detail which items, if any, will be supported with non-Federal contributions.
- D. Number of grants to be awarded:** NIJ's grant award process is highly competitive. The number of awards to be made is subject to the availability of funds and the number and quality of applications received.
- E. When awards will be made:** All applicants, whether they are accepted or rejected, will be notified. The review and approval process for concept papers takes about 8 weeks. The review and approval process for full proposals takes about 6 months. You should not propose to begin work until at least 8 months after the concept paper deadline on the cover of this solicitation. Also, you should not expect to receive notification of a decision for at least 8 months after that date. Lists of awards are updated regularly on NIJ's Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.
- F. Financial capability questionnaire:** Any applicant that is a nongovernmental entity and has not previously received an award from OJP will be required to complete and submit a financial capability questionnaire before any award is made.
- G. An environmental assessment may be required:** All awards are subject to the National Environmental Policy Act (NEPA). To ensure NEPA compliance, NIJ may require some award recipients to submit additional information.
- H. Protection of confidentiality:** Federal regulations require applicants for NIJ funding to outline specific procedures for protecting private information about individuals as part of the Privacy Certificate submitted with the application package. For additional information, see "Guidelines: How to Submit Applications," at <http://www.ojp.usdoj.gov/nij/funding.htm#gasya>.
- I. A DUNS number is required:** The Office of Management and Budget requires that all businesses and nonprofit applicants for Federal funds include a DUNS (Data Universal Numeric System) number in their application for a new award or renewal of an award. Applications without a DUNS number are incomplete. A DUNS number is a unique nine-digit sequence recognized as the universal standard for identifying and keeping track of entities

receiving Federal funds. The identifier is used for tracking purposes and to validate address and point of contact information. NIJ will use the DUNS number throughout the grant life cycle. Obtaining a DUNS number is a free, one-time activity. Obtain one by calling 1–866–705–5711 or by applying online at <http://www.dunandbradstreet.com>. Individuals are exempt from this requirement.

- J. Funds cannot be used to lobby:** Under the Anti-Lobbying Act (18 U.S.C. § 1913), grantees generally may not use funds to support the enactment, repeal, or modification of any law, regulation, or policy at any level of government. For additional information on rules and regulations, see OJP’s Financial Guide at <http://www.ojp.usdoj.gov/FinGuide>.
- K. What will *not* be funded:** Typically, NIJ *does not* fund the following:
1. Provision of training or direct service.
 2. Proposals primarily to purchase equipment, materials, or supplies. (Your budget may include these items if they are necessary to conduct applied research, development, demonstration, evaluation, or analysis, but NIJ does not fund proposals that are primarily to purchase equipment.)
 3. Work that will be funded under another specific solicitation.
 4. Proposals that do not involve a suitable treatment of a technology, such as the conduct of applied research, development, analysis, evaluation, or the demonstration of one or more technologies.
- L. Cost of proposed work:** Total funding for this solicitation and number of awards will depend on the availability of funds and the quality of applications. All awards are subject to the availability of appropriated funds. If appropriate, NIJ recommends that applicants divide the project into discrete phases, stages, or tasks so that NIJ can consider making an award for a specific portion of the work. Typically, NIJ awards grants of \$500,000 and below.
- M. Information technology standards compliance:** As appropriate, all equipment and software developed under awards that result from this solicitation must be compliant with U.S. Department of Justice Information Technology interface standards, including the National Criminal Intelligence Sharing Plan (see http://it.ojp.gov/documents/National_Criminal_Intelligence_Sharing_Plan.pdf), Global Justice XML Data Model (see <http://it.ojp.gov/jxdm/>), and the Law Enforcement Information Sharing Plan (LEISP). A list of additional standards can be found at the OJP Standards Clearinghouse (<http://it.ojp.gov/jsr/intro/intro03.html>).
- N. Funding to faith-based and community organizations:** Consistent with President George W. Bush’s Executive Order 13279, dated December 12, 2002, and 28 C.F.R. Part 38, it is OJP policy that faith-based and community organizations that statutorily qualify as eligible applicants under OJP programs are invited and encouraged to apply for assistance awards to

fund eligible grant activities. Faith-based and community organizations will be considered on the same basis as any other eligible applicants and, if they receive an award, will be treated on an equal basis with all other grantees in the administration of such awards. No eligible applicant or grantee will be discriminated for or against on the basis of its religious character or affiliation, religious name, or the religious composition of its board of directors or persons working in the organization. Faith-based organizations receiving OJP awards retain their independence and do not lose or have to modify their religious identity (e.g., removing religious symbols) to receive assistance awards. OJP grant funds, however, may not be used to fund any inherently religious activity, such as prayer or worship. Inherently religious activity is permissible, although it cannot occur during an activity funded with OJP grant funds; religious activity must be separate in time or place from the OJP-funded program. Further, participation in such activity by individuals receiving services must be voluntary. Programs funded by OJP are not permitted to discriminate in the provision of services on the basis of a beneficiary's religion.

O. Call for assistance:

For technical guidance about applying through Grants.gov, call Grants.gov Technical Support at 1-800-518-4726. For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, see the NIJ Web site at <http://www.ojp.usdoj.gov/nij> or contact NIJ at 202-305-7807.

IV. Selection Criteria

NIJ is firmly committed to the competitive process in awarding grants. All concept papers and proposals are subjected to independent peer-review panel evaluations. External peer-review panelists consider both technical and programmatic merits. Panelists are selected based on their expertise in subject areas pertinent to the proposals.

Peer-review panelists will evaluate concept papers using the criteria listed below. Following this assessment, NIJ will then invite selected applicants to submit full proposals. Full proposals will also be peer reviewed. NIJ staff then make recommendations to the NIJ Director. The Director makes final award decisions.

Successful applicants must demonstrate the following:

A. Understanding of the problem and its importance.

The proposal must state the current status of research or technology, and the contribution of the proposed work. Whenever applicable, a brief literature review with references is expected.

B. Quality and technical merit.

1. Awareness of the state of current research or technology.
2. Soundness of methodology and analytic and technical approach.
3. Feasibility of proposed project and awareness of pitfalls.
4. Innovation and creativity (when appropriate).

C. Impact of the proposed project.

1. Potential for significant advances in scientific or technical understanding of the problem.
2. Potential for significant advances in the field.
3. Relevance for improving the policy and practice of criminal justice and related agencies and improving public safety, security, and quality of life.
4. Affordability and cost-effectiveness of proposed end products, when applicable (e.g., purchase price and maintenance costs for a new technology or cost of training to use the technology).
5. Perceived potential for commercialization and/or implementation of a new technology (when applicable).

D. Capabilities, demonstrated productivity, and experience of applicants.

1. Qualifications and experience of proposed staff.
2. Demonstrated ability of proposed staff and organization to manage the effort.
3. Adequacy of the plan to manage the project, including how various tasks are subdivided and resources are used.
4. Successful past performance on NIJ grants and contracts (when applicable).

E. Budget.

1. Total cost of the project relative to the perceived benefit.
2. Appropriateness of the budget relative to the level of effort.
3. Use of existing resources to conserve costs.

F. Dissemination strategy.

1. Well-defined plan for the grant recipient to disseminate results to appropriate audiences, including researchers, practitioners, and policymakers.
2. Suggestions for print and electronic products NIJ might develop for practitioners and policymakers.

V. Requirements for Successful Applicants

If you are invited to submit a proposal and your proposal is funded, you will be required to submit several reports and other materials as follows:

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- A. Final report:** The final report should be a comprehensive overview of the project and should include a detailed description of the project design, data, and methods; a full presentation of scientific findings; and a thorough discussion of the implications of the project findings for criminal justice practice and policy. It must contain an abstract of no more than 400 words and an executive summary of no more than 2,500 words.

A draft of the final report, abstract, and executive summary must be submitted 90 days before the end date of the grant. The draft final report will be peer reviewed upon submission. The reviews will be forwarded to the principal investigator with suggestions for revisions. The final report, abstract, and executive summary then must be submitted by the end date of the grant. The abstract, executive summary, and final report must be submitted in both paper and electronic formats.

For evaluation studies, the final report should include a section on measuring program performance. This section should outline the measures used to evaluate program effectiveness, modifications made to those measures as a result of the evaluation, and recommendations regarding these and other potential performance measures for similar programs. (This information will be particularly valuable to NIJ and other Federal program agencies in implementing performance measures for federally funded criminal justice programs.)

- B. Interim reports:** Grantees must submit quarterly financial reports, semi-annual progress reports, a final progress report, and, if applicable, an annual audit report in accordance with the Office of Management and Budget Circular A-133. Future awards and fund drawdowns may be withheld if reports are delinquent. Post-award reporting requirements are described in "Guidelines: How to Submit Applications," available at <http://www.ojp.usdoj.gov/nij/funding.htm#gasya>.

- C. Materials concerning protection of confidential information and human subjects:** Recipients of NIJ research funds must comply with Federal regulations concerning the protection of private information about individuals. Recipients also must comply with Federal regulations concerning protection of human subjects. In general, all research involving human subjects that is conducted or supported by NIJ funds must be reviewed and approved by an Institutional Review Board before Federal funds are expended for that research. NIJ may also ask grant recipients for additional information related to privacy and human subjects testing.

Additional general information regarding NIJ's requirements for privacy and protection of human subjects appears in "Guidelines: How to Submit Applications," available at <http://www.ojp.usdoj.gov/nij/funding.htm#gasya>. Additional information about NIJ's requirements can be found at <http://www.ojp.usdoj.gov/nij/funding/humansubjects/index.html>.

D. Electronic data: Some grant recipients will be required to submit electronic data and supporting documentation, such as a codebook or dictionary, capable of being re-analyzed and used by other researchers. The materials must be submitted by the end date of the grant. Grant applicants should ensure that the proposed timeline and budget accommodate these requirements.

E. Performance Measures: To assist OJP in fulfilling its responsibilities under the Government Performance and Results Act (GPRA), P.L. 103-62, applicants who receive funding under this solicitation must provide data that measures the results of the work. This data will also contribute to achieving NIJ's overall research, development, and evaluation mission. NIJ expects research to be accurate, objective, relevant, and useful. Performance measures for this solicitation are as follows:

Objective	Performance Measures	Data Grantee Provides
<p>Develop, test, or evaluate technologies or tools to improve the performance of law enforcement and corrections operations or more effectively and efficiently train officers.</p>	<ol style="list-style-type: none"> 1. Relevance to the needs of the field as measured by whether the grantee's substantive scope did not deviate from the funded proposal or any subsequent agency modifications to the scope. 2. Quality of the research as assessed by peer reviewers. 3. Quality of management as measured by whether significant interim project milestones were achieved, final deadlines were met, and costs remained within approved limits. 	<ol style="list-style-type: none"> 1. A final report providing a comprehensive overview of the project and a detailed description of the project design, data, and methods; a full presentation of scientific findings; and a thorough discussion of the implications of the project findings for criminal justice practice and policy. 2. Quarterly financial reports, semi-annual progress reports, and a final progress report.

Tips for Submitting Your Application

1. Begin the application process early—especially if you have never used the Grants.gov Web site. NIJ will not accept applications received after the deadline listed on the cover. To start the process, go to <http://www.grants.gov>.
2. Go to <http://www.ojp.usdoj.gov/nij/funding/howto.htm> for detailed application instructions.
3. Although your proposal may budget for the purchase of equipment if the equipment is necessary to conduct the project, NIJ will not fund applications that are primarily to purchase equipment, materials, or supplies.
4. Call for help:
 - For technical guidance about Grants.gov, call 1-800-518-4726.
 - For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, contact NIJ at 202-305-7807.

View or print a copy of this document from the NIJ Web site (<http://www.ojp.usdoj.gov/nij/funding.htm>) or request one by calling NCJRS at 1-800-851-3420 or e-mailing askncjrs@ncjrs.org.

The National Institute of Justice is the research, development, and evaluation agency of the U.S. Department of Justice. NIJ's mission is to advance scientific research, development, and evaluation to enhance the administration of justice and public safety.

NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.