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Report to the Honorable Jane Harman, House of Representatives

November 2003

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Better Performance Measures Needed to Assess Results of Justice's Office of Science and Technology

GAO-04-198

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Highlights

Highlights of GAO-04-198, a report to the Honorable Jane Harman, House of Representatives

Why GAO Did This Study

The mission of the Office of Science & Technology (OST), within the Department of Justice's National Institute of Justice (NIJ), is to improve the safety and effectiveness of technology used by federal, state, and local law enforcement and other public safety agencies. Through NIJ, OST funds programs in forensic sciences, crime prevention, and standards and testing. To support these programs, Congress increased funding for OST from $13.2 million in 1995 to $204.2 million in 2003 (in constant 2002 dollars). GAO reviewed (1) the growth in OST's budgetary resources and the changes in OST's program responsibilities, (2) the types of products OST delivers and the methods used for delivering them; and (3) how well OST's efforts to measure the success of its programs in achieving intended results meet applicable requirements.

What GAO Recommends

GAO recommends that the Director of NIJ reassess the measures used to evaluate OST's progress toward achieving its goals and to better focus on outcome measures to assess results where possible. In those cases where measuring outcomes is, after careful consideration, deemed infeasible, we recommend developing appropriate intermediate measures that will help to discern program effectiveness.

www.gao.gov/cgi-bin/getrpt?GAO-04-198.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Laurie Ekstrand at (202) 512-8777 or Ekstrandl@gao.gov.

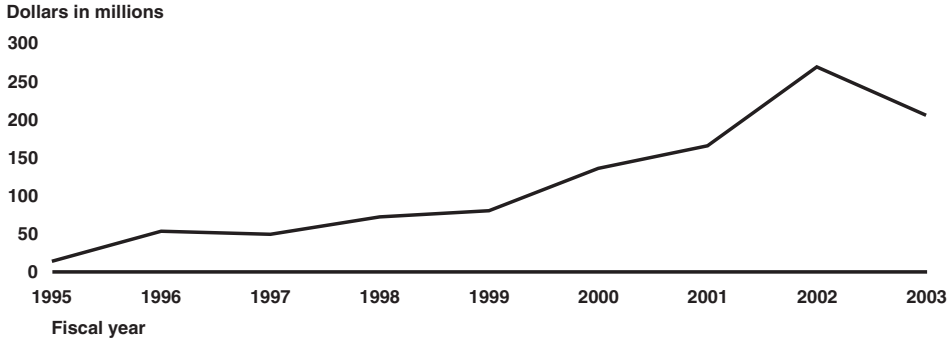
What GAO Found

OST's budgetary resources grew significantly in recent years, along with the range of its program responsibilities. From fiscal year 1995 through fiscal year 2003, OST received over $1 billion through Department of Justice appropriations and the reimbursement of funds from other federal agencies in exchange for OST's agreement to administer these agencies' projects. Of the over $1 billion that OST received, approximately $749 million, or 72 percent, was either directed to specific recipients or projects by public law, subject to guidance in congressional committee reports, or directed though reimbursable agreements. At the same time that spending expanded, OST's program responsibilities have changed—from primarily law enforcement and corrections to broader public safety technology.

OST delivers three groups of products through various methods. The three groups include (1) information dissemination and technical assistance; (2) the application, evaluation, and demonstration of existing and new technologies for field users; and (3) technology research and development. According to OST, as of April 2003, it has delivered 945 products since its inception. Furthermore, OST identified an additional 500 products associated with ongoing awards. OST makes its products available through a variety of methods, such as posting information on its Web site and providing research prototypes to field users for testing and evaluation.

OST has been unable to fully assess its performance in achieving its goals as required by applicable criteria because it does not use outcome measures to assess the extent to which it achieves the intended results of its programs. OST's current measures primarily track outputs, the goods and services produced, or in some cases OST uses intermediate measures, which is a step toward developing outcome measures. The Government Performance and Results Act of 1993 provides that federal agencies measure or assess the results of each program activity. While developing outcome measures for the types of activities undertaken by OST is difficult, we have previously reported on various strategies that can be used to develop outcome measures, or, at least intermediate measures, for similar types of activities.

OST's annual budgetary resources in constant 2002 dollars, fiscal years 1995–2003



Source: OST.

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Abbreviations

AAG	Assistant Attorney General
CITA	Crime Identification Technology Act
CLIP	Crime Lab Improvement Program
CODIS	Combined DNA Index System
COPS	Community-Oriented Policing Services
DNA	deoxyribonucleic acid
DOD	Department of Defense
FBI	Federal Bureau of Investigation
GAO	General Accounting Office
GPRA	Government Performance and Results Act
LLEBG	Local Law Enforcement Block Grant
NFSIA	Paul Coverdell National Forensic Sciences Improvement Act
NIJ	National Institute of Justice
NLECTC	National Law Enforcement and Corrections Technology Centers
OJP	Office of Justice Programs
OMB	Office of Management and Budget
OST	Office of Science and Technology
R&D	research and development
SSLEA	State and Local Law Enforcement Assistance

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G A O
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

November 14, 2003

The Honorable Jane Harman
House of Representatives

Dear Ms. Harman:

To enhance public safety and bring criminals to justice, it is important for law enforcement officials to benefit from the latest advances in science and technology. The mission of the Office of Science and Technology (OST), within the Department of Justice's National Institute of Justice (NIJ), is to improve the safety and effectiveness of technology used by federal, state, and local law enforcement, corrections, and other public safety agencies. OST awards funds to research and develop more effective technology and improve access to technology in a wide range of areas. For example, OST funds programs in the areas of crime prevention technologies, investigative and forensic sciences, and electronic crime. Examples of products resulting from OST's programs include a guide on school safety, an evaluation of police protective gear, a prototype for ground-penetrating radar, and a report on gunshot residue detection and interpretation. To support OST's programs, Congress has significantly increased its funding, from $13.2 million in fiscal year 1995 to $204.2 million in fiscal year 2003 (in constant 2002 dollars).

In response to your interest about whether OST's programs are achieving their intended results, we reviewed certain aspects of OST's operations. Specifically, this report assesses (1) the growth in OST's budgetary resources, from fiscal year 1995 to fiscal year 2003, and changes in OST's program responsibilities; (2) what types of products OST delivers and the methods used to deliver these products to public safety agencies; and (3) how well OST's efforts to measure the success of its programs in achieving intended results meet applicable requirements.

To address our objectives, we collected and analyzed relevant data and reports and interviewed OST officials and NIJ officials, including NIJ executive staff and the Assistant NIJ Director for OST, division chiefs, and managers. We also collected data and interviewed officials at OST technology centers in Rockville, Maryland; and El Segundo and San Diego, California. Appendix I contains detailed information on the scope and methodology we used for this assessment. We conducted this engagement in accordance with generally accepted government auditing standards.

Results in Brief

OST has grown in terms of both budgetary resources and the range of programs it operates.[1] From fiscal year 1995 through fiscal year 2003, OST received over $1 billion through several Department of Justice (Justice) appropriations accounts as well as the reimbursement of funds from other federal agencies in exchange for OST's agreement to administer these agencies' projects. Of the over $1 billion that OST has received, approximately $749.7 million, or about 72 percent, was either directed for specific recipients or projects by public law, subject to guidance in congressional committee reports designating specific recipients or projects, or directed from reimbursable agreements with other federal agencies for OST to manage their projects. At the same time that spending has expanded, OST's program responsibilities have changed—from primarily law enforcement and corrections technologies to broader public safety technologies, including safe school initiatives.

OST delivers three groups of products through various methods. The three groups include (1) information dissemination and technical assistance; (2) the application, evaluation, and demonstration of existing and new technologies for field users; and (3) technology research and development (R&D). According to OST, as of April 2003, it had delivered 945 products since its inception. Furthermore, OST identified an additional 500 products associated with ongoing awards. Depending on its research agenda, OST makes its products available through a variety of methods, such as posting information on its Web site and providing research prototypes to field users for testing and evaluation. While OST does not directly commercialize the results of its technology R&D, it does help link prototypes with potential developers.

OST has been unable to fully assess its performance in achieving its goals because it does not measure the extent to which it achieves the intended outcomes of its programs. OST's current measures primarily track outputs (goods and services produced). In some cases OST uses intermediate measures—a step closer to developing outcome measures—but has not taken this step toward better measurement in many cases where it may be

[1]We are using "programs" to indicate the broad categories of OST's individual projects. NIJ and OST have referred to these categories as both portfolio areas and programs. Our use of the term "programs" encompasses "portfolio areas" (see app. IV for OST's portfolio areas) and the safe school technology, counterterrorism technology, and correction technology programs. NIJ and OST delineations between the various programs and various portfolio areas are flexible. For example, some of the projects to develop metal detectors and personnel locator devices would apply to both school safety technologies and corrections technologies programs and therefore could be placed in different portfolio areas.

possible to do so. The Government Performance and Results Act of 1993 (GPRA) provides, among other things, that federal agencies establish performance measures, including, the assessment of relevant outputs and outcomes of each program activity. Office of Management and Budget (OMB) guidance suggests that, to the extent possible, federal agencies measure or assess the extent to which they are achieving the intended outcomes of their programs. As part of Justice's efforts to comply with GPRA, OST established goals and developed output, and some intermediate, measures to track its progress. While developing outcome measures for the types of activities undertaken by OST is difficult, we have previously reported on various strategies that can be used to develop outcome measures or at least intermediate measures for activities that are similar to those in OST's portfolio of programs.

So that OST does all that is possible to assess whether its programs are achieving their intended results, we are recommending that the Attorney General instruct the Director of NIJ to reassess OST's performance measures to better focus on outcome measures. In commenting on a draft of this report, the Assistant Attorney General (AAG) for Justice's Office of Justice Programs (OJP) agreed with our recommendation. The AAG made additional comments concerning the challenge of developing outcome measures for R&D activities, OST's overall performance record, and the amount of OST's funds that are directed for specific recipients and projects. We respond to these comments in the Agency Comments and Evaluation section of the report. OJP also provided technical comments, which have been incorporated in this report where appropriate.

Background

The Office of Science and Technology (OST) was created in fiscal year 1995 following a long history of science and technology efforts within the National Institute of Justice (NIJ).[2] NIJ is a component of the Office of Justice Programs (OJP), a Justice agency that, among other things, provides assistance to state, tribal, and local governments. In establishing OST's objectives and allocating funds for OST's programs, the NIJ Director considers the priorities of many stakeholders, including the President, Congress, Justice, and state and local law enforcement and public safety agencies.

[2]NIJ was established in statute by the Justice System Improvement Act of 1979 (P.L. 96-157, 93 Stat. 1167 (1979)), which, among other things, amended the Omnibus Crime Control and Safe Streets Act of 1968 (P.L. 90-351, 82 Stat. 197 (1968)).

OST Established in Statute by the Homeland Security Act of 2002

In November 2002, Congress established OST and its mission and duties in statute as part of the Homeland Security Act of 2002 (the Act).[3] The Act specified OST's mission "to serve as the national focal point for work on law enforcement technology; and to carry out programs that, through the provision of equipment, training, and technical assistance, improve the safety and effectiveness of law enforcement technology and improve access to such technology by federal, state, and local law enforcement agencies." The Act defined the term "law enforcement technology" to include "investigative and forensic technologies, corrections technologies, and technologies that support the judicial process."[4] The Act also specified OST's duties to include the following, among others:

- establishing and maintaining advisory groups to assess federal, state, and local technology needs;
- establishing and maintaining performance standards, and testing, evaluating, certifying, validating, and marketing products that conform to those standards;
- carrying out research, development, testing, evaluation, and cost-benefit analysis of certain technologies; and
- developing and disseminating technical assistance and training materials.

OST's Operations

OST's operations have multiple levels of internal organization and multiple kinds of external partners. (For a more detailed description of OST's operations, see app. V.) OST's multiple levels of organization include a Washington, D.C., office and a network of 10 technology centers that provide technical assistance to OST's customers around the country.[5] To fulfill its mission, OST also collaborates with entities such as the

[3]P.L. 107-296, 116 Stat. 2135, 2159 (2002). These mission and duties are not unlike what OST had been carrying out previously. The Act codified the mission and duties in statute.

[4]According to NIJ, forensic science is the application of established scientific techniques to the identification, collection, and examination of evidence from crime scenes; the interpretation of laboratory findings; and the presentation of reported findings in judicial proceedings.

[5]These 10 technology centers are OST's National Law Enforcement and Corrections Technology Center (NLECTC) system.

Departments of Defense and Energy and public and private laboratories to take advantage of established technical expertise and resources.

NIJ has three main types of awards for funding OST's programs: grants, interagency agreements, and cooperative agreements.[6]

- Grants are generally awarded annually by NIJ to state and local agencies or private organizations for a specific product and amount.
- Interagency agreements are used by NIJ for creating partnerships with federal agencies.
- Cooperative agreements are a type of NIJ grant to nonfederal entities that prescribes a higher level of monitoring and federal involvement.

NIJ also uses memorandums of understanding (MOU) to coordinate programs and projects between agencies. The MOUs specify the roles, responsibilities, and funding amounts to be provided by participating agencies. Through NIJ, OST can provide supplemental funding to interagency and cooperative agreements that may be used to contract for special projects.

OST awards are administered by managers at its Washington, D.C., office who have final oversight and management responsibility. These managers may delegate some responsibility to another federal R&D agency receiving the award. In March 2003, 21 managers were responsible for overseeing 336 active awards totaling $636 million.

Guidance has been established for measuring the performance of government operations. To assist Justice to follow the Government Performance and Results Act of 1993 (GPRA),[7] OST establishes goals and develops performance measures to track its progress. In addition, in May 2002, the White House Office of Management and Budget (OMB) and Office of Science and Technology Policy issued a memorandum setting forth R&D investment criteria that departments and agencies should implement. The investment criteria require an explanation of why the investment is important, how funds will be allocated to ensure quality, and

[6]We did not include contracts because NIJ uses them for the purchase of goods and services rather than for awarding funds for carrying out OST programs and projects.

[7]P.L.103-62, 107 Stat. 285 (1993).

how well the investment is performing. According to the memorandum, program managers must define appropriate outcome measures, and milestones that can be used to track progress toward goals and assess whether funding should be enhanced or redirected. The memorandum encourages federal R&D agencies to make the processes they use to satisfy GPRA consistent with these criteria.

OST's Budgetary Resources Have Grown and Program Responsibilities Have Changed

OST's budgetary resources have grown and the range of program responsibilities has changed. Budgetary resources for OST increased significantly, from $13.2 million in fiscal year 1995 to $204.2 million in fiscal year 2003 (in constant 2002 dollars), totaling over $1 billion.[8] This increase can be attributed to the introduction of new allocations and large increases for existing ones. The NIJ director decides how to allocate certain appropriated funds to the various NIJ components, including OST. About $749.7 million, or 72 percent, of OST's total budgetary resources was either directed to specific recipients or projects by public law, subject to congressional committee report guidance designating specific recipients or projects, or directed from the reimbursements from other Justice and federal agencies in exchange for OST managing their projects. Corresponding with the designation of spending for specific recipients and projects, the range of OST's programs changed, from primarily law enforcement and corrections to include broader public safety technology R&D, such as for improving school safety and combating terrorism.

Budgetary Resources for OST's Programs

OST's budgetary resources[9] include both funding received via Justice appropriations accounts as well as reimbursements from other Justice and federal agencies. First, OST receives funding via three appropriations accounts enacted in the appropriations law for the Justice Department. From these appropriations accounts, OJP allocates amounts to NIJ. The NIJ director suballocates part of the NIJ funds for OST programs. In addition, OST receives reimbursements from other Justice and federal agencies in exchange for OST's management of specific projects of those agencies, such as ballistic imaging evaluation for the FBI. Table 1 lists NIJ

[8]Figures do not include funding for management and administration expenses, salaries, and unobligated balances carried from one year to the next.

[9]For the purposes of this report, we will refer to both the funds OST receives via several Justice appropriations accounts as NIJ allocations as well as the reimbursements it receives as OST's budgetary resources.

allocations from the Justice appropriations accounts that go toward funding OST programs.

Table 1: Flow of Budgetary Resources to OST's Programs

Justice appropriation accounts	NIJ's allocations to OST programs
Justice Assistance	**NIJ Base**: NIJ uses base funds for research, development, demonstration, and dissemination activities.
	Counterterrorism R&D:[a] NIJ sponsors research, development, and evaluations and tools to help criminal justice and public safety agencies deal with critical incidents, including terrorist acts.
State and Local Law Enforcement Assistance (SLLEA)	**Local Law Enforcement Block Grant (LLEBG)**: NIJ allots its R&D portion of LLEBG funds to OST to assist local units of government to identify, select, develop, modernize, and purchase new technologies for law enforcement use.
Community Oriented Policing Services (COPS)	**Crime Identification Technology Act (CITA)**: CITA activities include upgrading and integrating national, state, and local criminal justice record, identification systems, and funding multi-jurisdictional, multi-agency communications systems, and improving forensic science capabilities, including DNA analysis.
	Safe Schools Technology R&D: OST's Safe Schools Technology R&D program uses three methods for improving school safety: needs assessments and development of technical partners, technology R&D, and technical assistance.
	Crime Lab Improvement Program (CLIP): CLIP activities include providing equipment, supplies, training, and technical assistance to state and local crime laboratories to establish or expand their capabilities and capacities to perform various types of forensic analyses.
	DNA Backlog Reduction: This seeks to eliminate public crime laboratories' backlogs of DNA evidence as soon as possible.
	Paul Coverdell National Forensic Sciences Improvement Act (NFSIA): This provides funding to state and local laboratories to improve the quality, timeliness, and credibility of forensic science services for criminal justice purposes.
	Reimbursements of funds from other Justice Department and federal agencies' accounts: Reimbursable activities have included ballistic imaging evaluation from the FBI, a study of communications interoperability (the ability to communicate across different public safety agencies and jurisdictions) requirements from the Defense Advanced Research Projects Agency, and death investigator guidelines from the Centers for Disease Control and Prevention.

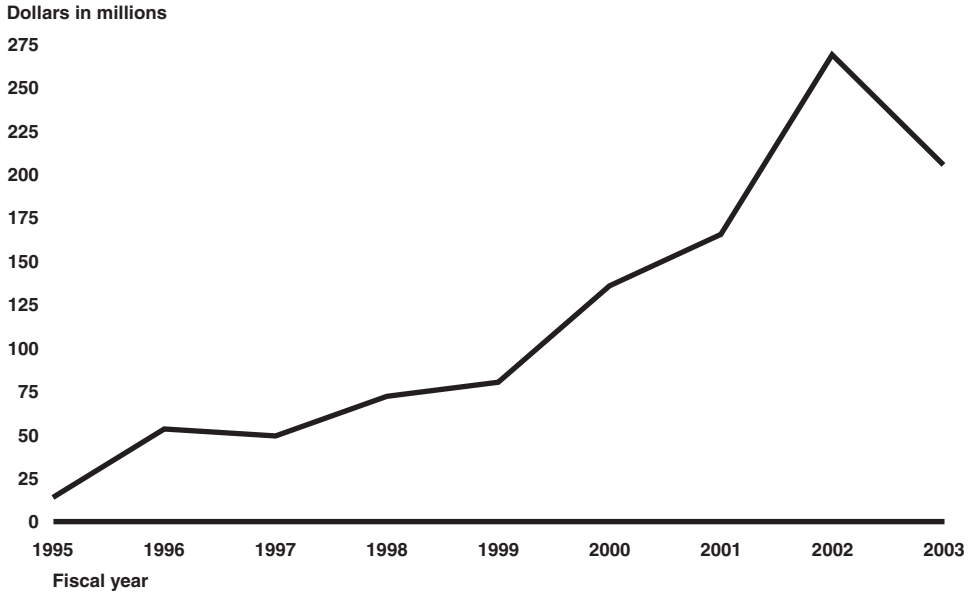
Source: GAO analysis of OST data.

[a]In fiscal year 1999, OST's counterterrorism R&D programs received funding through the Justice Department's Counterterrorism Fund appropriation account.

OST's budgetary resources almost quadrupled from fiscal year 1995 to 1996, increased 70 percent from fiscal year 1999 to 2000, and increased 63 percent from fiscal year 2001 to 2002. While resources decreased

24 percent from fiscal year 2002 to 2003, OST's fiscal year 2003 level still represents a 157 percent increase over the fiscal year 1999 level.

Figure 1: OST's Budgetary Resources in Constant 2002 Dollars, Fiscal Years 1995–2003



Source: OST.

Notes: Figures do not include funding for management and administration expenses, such as salaries.

The $103.4 million increase from fiscal year 2001 to 2002 is largely attributable to increases of $55.6 million in reimbursable agreements, $24.3 million in DNA Backlog Reduction allocation, and $15.4 million in the Crime Lab Improvement Program allocation.

The sharp decrease in OST's budgetary resources from fiscal years 2002 to 2003 is largely attributed to the elimination of counterterrorism R&D allocation (from $45.3 million in fiscal year 2002), which moved to the Department of Homeland Security, and a decrease of $26.2 million from reimbursable agreements.

Certain Allocations Contributed to the Increase in Budgetary Resources since 1995

Our analysis of OST's yearly budgetary resources from fiscal year 1995 to fiscal year 2003 showed that the overall increase can be attributed to the introduction of new NIJ allocations and large increases for existing ones. The NIJ allocations that contributed to the overall increase in OST's budgetary resources are most notably the Crime Lab Improvement Program, DNA Backlog Reduction, Safe Schools Technology R&D, and Counterterrorism R&D allocations. Table 2 shows figures for all years in constant 2002 dollars.

All dollar figures used in this narrative are in constant 2002 dollars, except as noted otherwise.

Fiscal years 1995-1996: The $39.4 million (298 percent) increase from $13.2 million to $52.6 million primarily came from two NIJ allocations totaling $35.4 million.

- Local Law Enforcement Block Grant (LLEBG) initiated with $22.2 million.
- Reimbursement of funds increased by $13.2 million (471 percent) from $2.8 million to $16.0 million.

Fiscal years 1999-2000: The $55.6 million (70 percent) increase from $79.5 million to $135.1 million primarily came from three NIJ allocations totaling $51.7 million.

- DNA Backlog Reduction initiated with $15.6 million.
- Safe Schools Technology R&D allocation initiated with $15.6 million.[10]
- Counterterrorism R&D increased by $20.5 million (193 percent) from $10.6 million to $31.1 million.

Fiscal years 2001-2002: The $103.4 million (63 percent) increase from $164.6 million to $268.0 million primarily came from three NIJ allocations totaling $95.3 million.

- Reimbursement of funds increased by $55.6 million (209 percent) from $26.6 million to $82.2 million.
- DNA Backlog Reduction increased by $24.3 million (227 percent) from $10.7 million to $35 million.
- Crime Lab Improvement Program increased by $15.4 million (79 percent) from $19.6 million to $35 million.

To be consistent with the report narrative and to show trends, figures in table 2 are in constant 2002 dollars. A table with the figures in current dollars can be found in appendix II.

[10]In fiscal year 1999, NIJ used the LLEBG allocation to meet congressional guidance to spend $10 million on a new Safe School Initiative. The following year NIJ's Safe Schools Technology R&D funding was introduced with $15 million. The OST funding was not reduced as a result of the $15 million increase for the Safe Schools Technology R&D.

Table 2: Budgetary Resources in Constant 2002 Dollars for OST's Programs by NIJ Allocation, Fiscal Years 1995-2003

Dollars in millions										
NIJ allocations for OST programs	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total[a]**
NIJ Base	10.4	13.3	12.7	14.8	20.3	19.1	29.0	27.1	32.3	**179.1**
Local Law Enforcement Block Grant (LLEBG)	0	22.2	21.7	21.4	21.2	20.8	20.2	20.0	19.6	**167.1**
Crime Identification Technology Act (CITA)	0	0	0	0	0	4.4	4.3	1.4	0	**10.1**
Safe Schools Technology Research and Development	0	0	0	0	0	15.6	17.7	17.0	16.6	**66.9**
Crime Lab Improvement Program (CLIP)	0	1.1	3.3	13.4	15.9	15.6	19.6	35.0	39.6	**143.4**
DNA Backlog Reduction[b]	0	0	0	0	0	15.6	10.7	35.0	35.2	**96.5**
Paul Coverdell National Forensic Sciences Improvement Act (NFSIA)[b]	0	0	0	0	0	0	0	5.0	4.9	**9.9**
Counterterrorism R&D	0	0	10.9	12.9	10.6	31.1	36.5	45.3	0	**147.2**
Reimbursements from other Justice and federal agencies	2.8	16.0	0	8.9	11.5	13.0	26.6	82.2	56.0	**217.1**
Total[a]	**13.2**	**52.6**	**48.6**	**71.4**	**79.5**	**135.1**	**164.6**	**268.0**	**204.2**	**1037.1**

Source: GAO analysis of OST data.

[a]Totals might not add due to rounding.

[b]In fiscal years 2000 and 2001, DNA Backlog Reduction was funded as DNA Combined DNA Index System (CODIS) Backlog Reduction. In fiscal years 2002 and 2003, both the DNA Backlog Reduction and Coverdell NFSIA allocations were funded within DNA CODIS Backlog Reduction.

OST had a $63.8 million (24 percent) decrease in total budgetary resources from fiscal years 2002 to 2003, largely attributed to its not receiving fiscal year 2003 Counterterrorism R&D resources, which totaled $45.3 million in fiscal year 2002. According to OST, its counterterrorism resources were transferred to the Department of Homeland Security's Office of Domestic Preparedness. There was also a $26.2 million decrease in the reimbursement of funds from other agencies. However, OST's fiscal year 2003 level still represents a 157 percent increase from fiscal year 1999.

Range of OST's Program Responsibilities Has Changed

The range of OST's program responsibilities has changed over the years from primarily law enforcement and corrections to include broader public safety technology R&D. This has happened as more and more of OST's budgetary resources were directed to be spent on specific recipients and projects. Appropriated funds, for example, are sometimes designated for specific recipients or projects in public law. In addition, guidance on the spending of appropriated funds may be provided through congressional

committee reports. Of the more than $1 billion (in constant 2002 dollars) that OST programs received from fiscal years 1995 to 2003, $532.6 million, or 51 percent, was designated for specific recipients and projects in public law or subject to guidance in committee reports designating specific recipients or projects.[11] Of the $532.6 million, $249.8 million was designated in public law for specific recipients or projects while $282.8 million was specified in committee report guidance for specific recipients or projects.[12]

In addition to the $532.6 million designated in public law for specific recipients or projects or subject to guidance in committee reports for specific recipients or projects, another $217.1 million was reimbursements from other Justice and federal agencies in exchange for OST's management of specific projects of those agencies. Thus, the total spending either directed for specific recipients and projects through public law, subject to committee report guidance designating specific recipients or projects, or received as reimbursements, amounts to $749.7 million, or 72 percent, of OST's total budgetary resources.

The range of OST's program responsibilities has changed to include such areas as school safety and counterterrorism. In fiscal year 1999, a Safe Schools Initiative program was established pursuant to conference committee report guidance[13] with $10 million[14] directing NIJ to develop school safety technologies. In another example, OST's counterterrorism R&D program, initially funded by public law in fiscal year 1997,[15] received $147.3 million through fiscal year 2002, $96.6 million of which was specified in conference report guidance for three recipients from fiscal

[11]We separated reimbursements from this total because they included projects that were not originally allocated to OST, although those projects also may have been specified in public law and committee reports.

[12]Included in the $249.8 million was $143.5 million for the CLIP project. Committee report guidance further designated $107.0 million of that $143.5 million for specific recipients. Given that we have included the $107.0 million in the amounts designated in public law for specific recipients or projects, we excluded it from the committee report guidance category to avoid double counting.

[13]H.R. Conf. Rep. No. 105-825, at 1020-21 (1998).

[14]For this effort, NIJ initially allocated Local Law Enforcement Block Grant funds to OST.

[15]P.L. 104-208, 110 Stat. 3009, 3009-13 (1996).

years 2000 to 2002[16]—Oklahoma City National Memorial Institute for the Prevention of Terrorism ($37.8 million), Dartmouth College's Institute for Security Technology Studies ($51.8 million), and the New York University's Center for Catastrophe Preparedness and Response ($7 million).

OST's program responsibilities have also changed to expand the focus on investigative and forensic sciences. Our review of OST's budgetary resources for fiscal years 1995 through 2003 shows that budgetary resources for investigative and forensic sciences equals at least $342.1 million in constant fiscal year 2002 dollars,[17] or about one-third, of its $1 billion in budgetary resources, as shown in table 3. The proportion of investigative and forensic sciences annual funding to total OST funding rose from 6 percent ($800,000) in fiscal year 1995 to 52 percent ($106.0 million) in fiscal year 2003.

[16]H.R. Conf. Rep. No. 106-479, at 161 (1999); H.R. Conf. Rep. No. 106-1005, at 226 (2000); and H.R. Conf. Rep. No. 107-278, at 86-87 (2001).

[17]The total amount of budgetary resources for investigative and forensic sciences is likely to be larger. However, because of the limitations in detail in the budget documents we received from OST, we could not determine the amount of funding for investigative and forensic sciences within certain NIJ Base and LLEBG projects, such as within OST's technology center network and unspecified NIJ-directed projects.

Table 3: Budgetary Resources in Constant 2002 Dollars for OST's Investigative and Forensic Sciences by NIJ Allocation, Fiscal Years 1995-2003

Dollars in millions										
NIJ allocation containing funds for investigative and forensic sciences	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total[a]**
NIJ Base	0.6	0.6	0.4	1.5	6.2	5.6	5.5	5.0	4.3	**29.6**
LLEBG	0	0	0	0	0	1.1	0	0	0	**1.1**
CITA	0	0	0	0	0	0.8	1.3	0	0	**2.0**
Safe Schools Technology R&D	0	0	0	0	0	0	0	0	0	**0**
CLIP	0	1.1	3.3	13.4	15.9	15.6	19.6	35.0	39.6	**143.4**
DNA Backlog Reduction	0	0	0	0	0	15.6	10.7	35.0	35.2	**96.5**
Coverdell NFSIA	0	0	0	0	0	0	0	5.0	4.9	**9.9**
Counterterrorism R&D	0	0	0	0	0	0	0	0	0	**0**
Reimbursement of funds from other agencies	0.2	8.9	0	0	0	1.6	1.1	25.4	22.0	**59.1**
Total[a]	**0.8**	**10.5**	**3.6**	**14.9**	**22.1**	**40.2**	**38.5**	**105.4**	**106.0**	**342.1**

Source: GAO analysis of OST data.

[a]Totals might not add due to rounding.

OST Delivers Three Groups of Products Through Various Methods

OST delivers many products, which we categorized into three groups, and uses various methods to deliver them. These three groups are (1) information dissemination and technical assistance; (2) the application, evaluation, and demonstration of existing and new technologies for field users; and (3) technology R&D. According to OST, as of April 2003, it had delivered 945 products since its inception.[18] Furthermore, OST identified an additional 500 products expected from ongoing awards. Figure 2 shows our distribution of OST's delivered products by group. We recognize, as OST officials told us, that the groups overlap and there is not a clean division between them. For example, while reports are associated with information dissemination, they may also result from the technology R&D group. OST has reviewed our classification of products and agrees that it is generally accurate. Because classification of some products is based on a judgment call, the proportions of products in each group should be considered approximations.

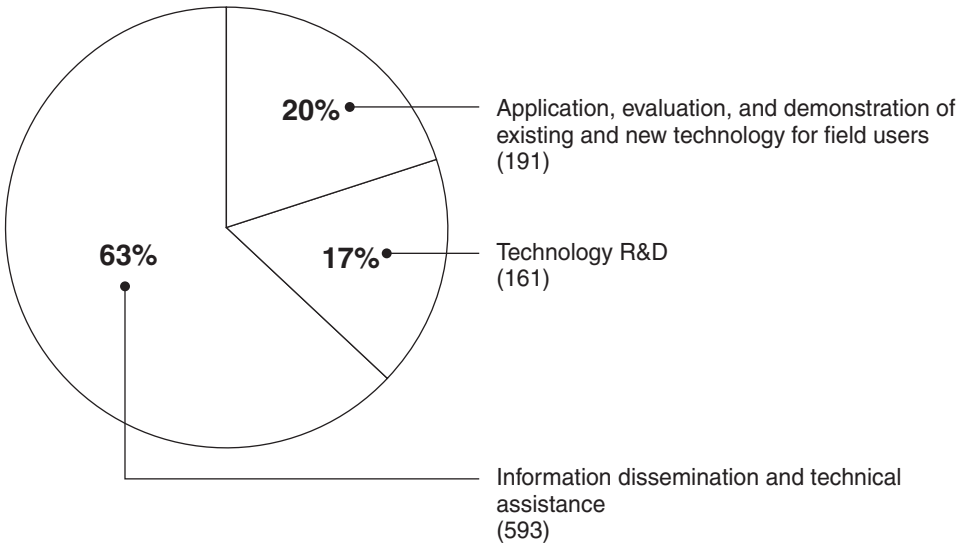
[18]Because NIJ's science and technology efforts predate OST's establishment in fiscal year 1995, some of the products listed as delivered have award years prior to 1995. The earliest listed is 1983.

OST's Range of Products

The following examples, while not exhaustive, indicate the wide range of OST's products.

- **Reports** on topics such as analysis of DNA typing data, linguistic methods for determining document authorship, a pepper spray projectile and disperser, and gunshot residue detection and interpretation.
- **Prototypes** of products including ground-penetrating radar, ballistics matching using 3-dimensional images of bullets and cartridge cases, and an optical recognition system to identify and track stolen vehicles.
- **Evaluations** of technology including prison telemedicine networks, police vehicles, and protective gear.
- **Guides** on topics such as electronic crime scene investigation, use of security technologies in schools, and antennas for radio communications. For a more detailed description of OST's products and further examples, see appendix III.

Figure 2: GAO's Grouping of OST's 945 Delivered Products, as of April 2003



Source: GAO analysis of OST data.

Notes: See appendix III, table 7 for examples of the products within each group. Proportions should be considered approximations because some products overlap categories.

Information Dissemination and Technical Assistance

Information dissemination and technical assistance represents about 63 percent of OST's delivered products. OST provides information to its customers in a variety of ways. For example, OST provides guidance to R&D laboratories on the needs of public safety practitioners. To public safety practitioners, OST recommends certain public safety practices, tools, and technologies. Through its Office of Law Enforcement Standards,

OST develops performance standards to ensure that commercially available public safety equipment, such as handheld and walk-through metal detectors, meets minimum performance requirements. OST also helps its customers enhance their technical capacities by providing them with training and technical assistance through its Crime Lab Improvement Program (which also provides supplies and equipment), DNA Backlog Reduction Program, and network of technology centers. OST also uses the R&D expertise and experience of already established laboratories and other R&D organizations to provide additional guidance for managing specialized technology projects. Further, OST helps its customers receive surplus federal equipment by acting as their liaison to the equipment transfer program of the Department of Defense. For example, equipment transferred ranges from armored vehicles to boots and uniforms.

In addition, OST sponsors conferences, workshops, and forums that bring together its customers, technologists, and policymakers. For example, it sponsors the Mock Prison Riot, an annual event demonstrating emerging technologies in riot training scenarios held at the former West Virginia Penitentiary in Moundsville, West Virginia. This event brings together corrections officers and vendors for technology showcases and training exercises. Also, OST sponsors the Innovative Technologies for Community Corrections Annual Conference, among others.

Application, Evaluation, and Demonstration of New and Existing Technologies

Another OST product group is the application, evaluation, and demonstration of new and existing technologies, which represents about 20 percent of OST's delivered products. Some of OST's programs apply existing technology solutions in new ways to assist public safety operations. Examples of the application of new and existing technologies include developing methods for the collection and analysis of chemical trace evidence left from explosives and a handheld computer device provided to bomb technicians in order to access bomb data at the scene of incidents. In addition, OST tests commercially available products through NIJ-certified laboratories to determine whether they are in accordance with national performance standards. Examples of products evaluated against standards include body armor, handcuffs, and semiautomatic pistols. OST's evaluations also include conducting field tests to compare different commercially available products of the same type to allow users to select the product that best suits their needs. OST also demonstrates technology resulting from R&D directly to its customers through OST-sponsored events. For example, the Critical Incident Response Technology Seminar, formerly known as the Operation America, demonstrates live-fire simulation for bomb technicians. The annual Mock

Prison Riot demonstrates emerging technologies for use by corrections officers and tactical team members.

Technology R&D

About 17 percent of OST's delivered products were related to technology R&D, which involves the development of prototype devices, among other efforts.[19] According to OST, R&D in its early stages includes development of prototypes and demonstration that a principle can be proven. Applied R&D, which also involves the development of prototypes, includes technologies that are made available to public safety agencies, generally through OST-assisted commercialization. Examples of products resulting from OST's applied R&D range from a bomb threat training simulator, facial recognition technology for internet-based gang tracking, to a personal alarm and location monitoring system for corrections officers.

According to OST, R&D in its early stages begins with testing technology concepts, exploring solutions, and deciding whether continued development is warranted. If OST decides to support product development and if it has available funds, it awards funding to develop, demonstrate, and evaluate an experimental prototype, which is then further developed into an initial engineering prototype, and then demonstrated and evaluated. If the prototype proves successful, OST demonstrates a "near commercial" model to its customers for their evaluation.

While OST does not directly commercialize the results of its technology R&D, it does provide prototypes to local users for field-testing and assists in linking prototypes with potential commercial developers. OST officials believe it would be a conflict of interest and therefore inappropriate for them to promote one vendor or technology over another or try to dictate what equipment their customers should purchase. OST's role in commercialization is to bring technologies and potential manufacturers together so that the manufacturers can determine the feasibility of commercializing the technologies.

[19]While some of the products resulting from technology R&D are similar to those of the application, demonstration, and evaluation of new and existing technologies group, the primary distinction is that the former includes the development of prototypes and the latter generally does not.

OST's Methods for Delivering its Products

OST delivers its products to its customers through a variety of methods. (We recognize that products are sometimes delivery methods. For example, a publication can be both a product resulting from research and a method of information dissemination.) Besides publications, OST's methods for delivering information and technical assistance include mass mailings; downloadable material from its Web site; panels, boards, and working groups; training, support, and presentations; and programs to enhance the capacity of public safety agencies.

OST also delivers its products related to application, evaluation, and demonstration through various means. For example, private industry provides new and existing technologies to OST; in turn, OST informs its customers of the results of using these technologies in new ways. OST publishes user guides and the test results of its evaluations of commercially available equipment (both standards-based and comparison-based). Seeking to further educate its customers, OST demonstrates new technology at technology fairs, providing "hands on" opportunities to use it.

For its R&D products, OST may test "near commercial" prototypes in particular settings. For example, OST may install in a police agency a prototype technology that facilitates communications among public safety agencies and across jurisdictions. If the technology is effective, the police agency may incorporate the technology directly into its operations, before the technology has become a commercial product.

OST's Performance Measurement Efforts Do Not Fully Meet Requirements

OST's efforts to measure its performance results, including the usefulness and effectiveness of its products, do not fully meet applicable requirements. To help Justice comply with the Government Performance and Results Act of 1993 (GPRA), OST establishes goals and develops performance measures to track its progress. GPRA, which mandates performance measurements by federal agencies, requires, among other things, that each agency measure or assess relevant outputs and outcomes of each program activity.[20] According to GPRA, the Office of Management and Budget (OMB), and GAO, outcomes assess actual results as compared with the intended results or consequences that occur from carrying out a

[20]Performance measures are to be included in the agency performance plan covering each program activity set forth in the budget of such agency. Program activity, in this case, refers to projects and activities that are listed in program and financing schedules of the annual *Budget of the United States Government*.

program or activity. Outputs count the goods and services produced by a program or organization. Intermediate measures can be used to show progress to achieving intended results. Subsequent OMB and committee report guidance on GPRA, and previous GAO reports[21] recognize that output measures can provide important information in managing programs. However, committee report guidance emphasizes using outcome measures to aid policy makers because such measures are key to assessing intended results.

OST Performance Measures Do Not Measure Results

The performance measures that OST has developed do not measure results. According to the NIJ director, the Assistant Attorney General (AAG) in April 2002 issued a memorandum requiring NIJ, including OST, to develop outcome measures for fiscal year 2004. In August 2002, the NIJ Director responded by stating that OST had indeed developed outcome measures for its programs. In its fiscal year 2004 performance plan,[22] OST established goals for 11 of its initiatives[23] and developed 42 measures for assessing the achievement of those goals. However, based on our review of OST's performance plan, OMB guidance on GPRA, and GAO definitions of outcome, output, and intermediate measures, we determined that of the 42 measures, none were outcome-oriented, 28 were output-oriented, and 14 were intermediate. See table 4 for GAO's determination of the measures and appendix VI for further details of our results.

[21]U.S. General Accounting Office, *Managing for Results: An Agenda to Improve the Usefulness of Agencies' Annual Performance Plans*, GAO/GGD/AIMD-98-228 (Washington, D.C.: Sept. 8, 1998).

[22]Annual performance plans describe a department component's goals and performance targets in support of the department's long-term strategic goals and targets. In its fiscal year 2004 performance plan, OST reported actual performance data for fiscal year 2002, enacted plans for fiscal year 2003, and performance plans for fiscal year 2004.

[23]Initiatives in this sense encompass portfolio areas, programs, and projects.

Table 4: GAO's Assessment of the 42 Measures OST Developed for 11 of Its Initiatives

OST's initiatives	Type of measure		
	Output	Intermediate	Outcome
1. Convicted Offender DNA Backlog Reduction Program	0	3	0
2. No Suspect DNA Backlog Reduction Program	0	1	0
3. Paul Coverdell National Forensic Sciences Improvement Grants Program	0	1	0
4. Critical Incident Response Technology Initiative	4	1	0
5. DNA Research & Development	4	0	0
6. Law Enforcement Technology Research and Development	4	1	0
7. School Safety Technology	3	0	0
8. Crime Lab Improvement Program	4	6	0
9. Office for Law Enforcement Standards	3	0	0
10. Smart Gun	4	0	0
11. OST's network of regional centers (known as the National Law Enforcement and Corrections Technology Center system)	2	1	0

Source: GAO analysis of OST data.

According to Justice officials, R&D activities present measurement challenges because outcomes are difficult or costly to measure. As the NIJ Director pointed out, a May 2002, White House OMB and Office of Science and Technology Policy memorandum concluded that agencies should not have the same expectations for measuring the results of basic R&D as they do for applied R&D.[24] According to NIJ, relatively little of OST's work is basic R&D. As shown earlier, most of OST's products are related to information dissemination and technical assistance and the application, evaluation, and demonstration of existing and new technologies for field users.

[24]According to the OMB document, *Budget of the United States Government* (Analytical Perspectives) for fiscal year 2004, basic R&D is defined as systematic study directed toward greater knowledge or understanding of fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind. Applied R&D is defined as systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.

We recognize that OST's task in relation to measuring the results of even non-basic research is complex in part because of the wide array of activities it sponsors, and because of inherently difficult measurement challenges involved in assessing the types of programs it undertakes. For example, programs that are intended to deter crime face measurement issues in assessing the extent to which something (crime) does not happen. Nevertheless, improvement in measurement of program results is important to help OST ensure it is doing all that is possible to achieve its goals. It is worth noting that an outcome measure in relation to one OST program was discussed by the NIJ Director in a May 2002 statement to Congress. In this statement, the Director provided an example of an outcome from the Convicted Offender DNA Backlog Reduction Program. The Director stated that as a direct result of the program, approximately 400,000 convicted offender samples and almost 11,000 cases with no suspect were analyzed. According to the NIJ Director, as of May 14, 2002, more than 900 "hits" had been made on the FBI's Combined DNA Index System (CODIS) database as a direct result of the program, that is, 900 cases previously unsolved had been reopened. This information indicates how the program is achieving its intended results in addressing unsolved cases. Although this example seems to be a credible outcome measure, it is not included in OST's fiscal year 2004 performance plans.

Limitations in OST's Efforts to Measure Effectiveness of Information Dissemination

OST efforts to measure information dissemination effectiveness have been limited. One of the purposes of GPRA is to improve federal program effectiveness and public accountability by promoting a new focus on results, service quality, and customer satisfaction. Surveys to gauge customer satisfaction represent one step toward finding out whether customers have received information and whether they deem it of value. However, these surveys have limitations in determining the extent to which the information has been acted upon and resulted in intended improvements. Thus, surveys such as these are more likely to be intermediate measures (Did information get transferred?) than outcome measures (Did information get transferred, acted upon, and achieve a result?).

In 1998, NIJ initiated an effort to report the results of surveys to measure the satisfaction of participants at all conferences, workshops, and seminar series.[25] OST reported on the "grantee level of satisfaction with NIJ

[25]The surveys were done to determine if participants were satisfied with the conference as a vehicle of information dissemination.

conferences" for fiscal years 1998-2000. However, in the fiscal years 2001-2004 GPRA performance plans, OST discontinued tracking the surveys because OJP and NIJ had ceased tracking these data as a performance measure.

In fiscal year 2001, OST attempted to evaluate the effectiveness and value of its *TECHbeat* newsletter. The survey sample of 5,500 was taken from a distribution of major readership groups on *TECHbeat*'s mailing list of 20,674. According to OST, the response rate for the survey was too low to produce statistically valid results: only 124 completed or substantially completed responses were collected. The surveyors also experienced a very low return on follow-up phone queries. According to the study, the primary reason for the exceedingly low response rate was that so many individuals on the mailing list had either changed jobs or were completely unfamiliar with *TECHbeat*. Given these results, OST is trying to improve the management and distribution of *TECHbeat*.[26]

In fiscal year 2001, OST attempted to launch another effort to measure program results, service quality, and customer satisfaction, but funding for the effort was not provided. OST requested funding for an evaluation to measure the success of its outreach efforts, including those by its technology centers. The evaluation was to determine customer satisfaction with its strategies for outreach and communication and with its products. Specifically, OST planned to measure user satisfaction of the content, format, and delivery mechanisms of its efforts, such as technology information and assistance.

[26]To address issues with the mailing lists, the technology centers have shipped a larger portion of copies to agencies, in bulk, and to individuals who have actively requested copies and supplied their addresses; continued to purchase the most current version of the National Directory of Law Enforcement Administrators, Correctional Institutions and Related Agencies to update their mailing list; and modified mailing labels to include the addressee and "...or Training Officer" in case the addressee is no longer with that agency.

Most Studies of Other OST Initiatives Have Focused Primarily on Process

In fiscal years 1998 and 1999, OST funded eight outside studies of some of its science and technology initiatives (see table 5).[27] Our review of these studies showed that seven of the eight studies focused on management and organizational processes, and one was outcome-oriented.[28] Management and process evaluations can be useful tools for examining how a program is operating and can offer insights into best practices. They do not assess whether a program is achieving its intended results.

[27]Initiatives in this sense encompass portfolio areas, programs, and projects.

[28]GPRA establishes two approaches for assessing an agency's performance: annual measurement of program performance against goals outlined in a performance plan and program evaluations to be conducted by the agency as needed. Evaluations can play a critical role in helping to address measurement and analysis challenges. Performance measurement is the ongoing monitoring and reporting of program accomplishments, particularly progress toward established goals. Program evaluations are individual systematic studies conducted periodically or on an ad hoc basis to assess how well a program is working. See U.S. General Accounting Office, *Performance Measurement and Evaluation: Definitions and Relationships*, GAO/GGD-98-26 (Washington, D.C.: April 1998).

Table 5: OST's Outside Studies of Its Initiatives

Outside study topics	Focus of study	Type of study	Date completed
1. National Law Enforcement and Corrections Technology Centers (NLECTC) Program[a]	Management, oversight, structure, organization, and operations	Process	October 1998
2. Counterterrorism Technology Portfolio	Organization, funding, program process	Process	June 1999
3. Investigative and Forensic Sciences Technology Portfolio	Program and structure, management, policies, procedures, lines of control, and funding	Process	August 1999
4. Less-Than-Lethal Technology Portfolio	Management, processes, and organization	Process	September 1999
5. Southwest Border States Antidrug Information System	Program efficacy, including awareness of the program, and its value and usefulness or benefits to customers	Outcome	October 1999
6. Law Enforcement and Corrections Technology Advisory Council Priorities and Technology Portfolio Interaction	Management and coordination, processes, organizational challenges	Process	February 2000
7. Critical Incident Response and Management Crime fighting Technology Program for State and Local First Responder Teams	Options for planning, organization, mission, management, budget, and recommendations	Process	September 2000
8. Standards Initiative	Recommendations for the planning, organization, and management of the proposed initiative expected to be a part of #7 above	Process	September 2000

Source: OST.

[a]In this report we refer to the National Law Enforcement and Corrections Technology Centers as OST's network of technology centers.

Efforts Are Under Way to Address Performance Measurement of Technology Centers

The Homeland Security Act of 2002 requires NIJ[29] to transmit to Congress by late November 2003 a report assessing the effectiveness of OST's existing system of technology centers and to identify the number of centers necessary to meet the technology needs of federal, state, and local law enforcement in the United States. According to NIJ, in response to the Homeland Security Act requirement, it has initiated a study to assess the impact and effectiveness of the technology center system and how it can be enhanced to meet the evolving science and technology research and technology needs of the state and local public safety community. NIJ also stated that the report would address the functions that the technology center system must provide to transfer NIJ's research and development results to practice in the criminal justice system. NIJ and OST have failed

[29]The Homeland Security Act actually directs the "Director" of OST to transmit the report. After reorganizing in early 2003, NIJ now calls this position the assistant NIJ director for science and technology.

to provide us with information detailing the methodology of the study, so we cannot comment on the likelihood that this study will produce the information sought by Congress. Additionally, according to OJP, the technology centers are in the process of developing outcome measures to demonstrate the impact of their activities.

According to NIJ, OJP has implemented additional performance measures developed in May 2003 that will apply to NIJ, including OST. However, OJP said it would defer implementing the measures related to the technology centers until the results of the technology center study are known and NIJ has a chance to take action, if warranted.

Measuring Results Is Difficult but Feasible

We acknowledge that measuring results using outcome measures is difficult, and may be especially so in relation to some of the types of activities undertaken by OST. Indeed, given the types and wide range of program goals for OST efforts—solving old crimes, saving lives, and reducing property loss—it may be the case that for some programs intermediate measures represent the best feasible measure of results. We note that approximately 63 percent of OST's products fall into the category of information dissemination and technical assistance, aimed at informing customers and ultimately encouraging adoption of research results that lead to increased efficiency and effectiveness. There are strategies available that have been used by other federal agencies to take steps toward assessing the effectiveness of information dissemination and technical assistance efforts. For example, a recent GAO report[30] outlines various strategies to assess media campaigns and informational seminars, including immediate post workshop surveys and follow-up surveys and the use of logic models to define measures of a program's progress toward intended results and long-term goals.

Conclusions

Given the wide range of its products, OST has the potential to significantly improve the technological capabilities of federal, state, and local public safety agencies. However, the lack of information about the results of program efforts, or the assessment of progress toward goals, means that little is known about their effectiveness. While developing outcome

[30]U.S. General Accounting Office, *Program Evaluation: Strategies for Assessing How Information Dissemination Contributes to Agency Goals*, GAO-02-923 (Washington, D.C.: Sept. 30, 2002)

measurements in many research-related programs is extremely difficult, there are various performance measurement strategies that other federal programs have used for assessing information dissemination, technical assistance and other R&D activities that might be applied to OST's programs. It is important to develop outcome measurements where feasible, or intermediate measurements where appropriate, to assist Congress, OST and NIJ management, and OST's customers to better assess whether investment in OST's programs is paying off with improved law enforcement and public safety technology.

Recommendation

To help ensure that OST does all that is possible to measure its progress in achieving goals through outcome-oriented measures, we recommend that the Attorney General instruct the Director of NIJ to reassess the measures OST uses to evaluate its progress toward achieving its goals and to better focus on outcome measures to assess results where possible. In those cases where measuring outcome is, after careful consideration, deemed infeasible, we recommend developing appropriate intermediate measures that will help to discern program effectiveness.

Agency Comments and Our Evaluation

We provided a copy of a draft of this report to the Attorney General of the United States for review and comment. In an October 30, 2003, letter, the Assistant Attorney General (AAG) for OJP commented on the draft. Her comments are summarized below and presented in their entirety in appendix VII. OJP also provided technical comments, which have been incorporated into this report where appropriate.

In the AAG's written response, the Justice Department concurred with our recommendation that NIJ reassess the measures OST uses to assess program outcomes. In response to our recommendation, the AAG reported that she has directed the NIJ Director, to reassess NIJ's performance measures for OST and to refine them, where possible, in order to focus them more toward measuring outcomes.

While the AAG agreed with our recommendation, she also made several other comments. First, she commented that developing numerical outcome measures like those urged by GAO is a particular challenge for R&D activities. As stated in our report, we recognize that measuring results using outcome measures is difficult and may be especially so in relation to some of the types of activities undertaken by OST. Our reference to a numerical measure is meant only as an example of how one of OST's program activities can be linked to intended results. We believe

that further consideration of measures, both quantitative and qualitative, could improve the assessment of results for R&D as well as other OST programs. Our report also notes that relatively little of OST's work is R&D. The majority of OST's products are in the category of information dissemination and technical assistance.

Second, the AAG noted that GAO did not reach any conclusions in its discussion of OST's growth in budgetary resources, changes in program responsibilities, management of programs, and delivery of its products. The AAG noted that Justice believed that OST's record is outstanding. Neither OST nor we can determine whether OST's efforts in these areas are successful or otherwise, given that OST has not developed measures to assess their outcomes. Therefore, it is not possible to draw conclusions.

Third, the AAG indicated that GAO did not discuss in detail that over one-half of OST's funds were designated by Congress for specific recipients and projects. She noted that GAO missed an opportunity to inform the requester of the impact of Congress' recent decisions regarding OST. We reported that 51 percent of OST's budgetary resources were designated for specific recipients and projects in public law or subject to guidance in committee reports.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days from its issue date. At that time, we will send copies of the report to the Attorney General, appropriate congressional committees and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on GAO's Web site at http://www.gao.gov. Major contributors to this report are listed in appendix VIII.

If you or your staff have any questions concerning this report, contact me on (202) 512-8777.

Sincerely yours,

Laurie E. Ekstrand
Director, Homeland Security and Justice Issues

Appendix I: Scope and Methodology

To answer our objectives, we interviewed National Institute of Justice (NIJ) and Office of Science and Technology (OST) officials and collected documents at OST's office in Washington, D.C., and at three of OST's technology centers—the National center in Rockville, Maryland; West center in El Segundo, California; and Border Research and Technology Center in San Diego, California. We selected the Rockville center because of its proximity to Washington, D.C., and the other two centers because of their locations and particular areas of technology and technical concentrations. We also interviewed a small group of OST's customers—federal, state, and local law enforcement, and corrections and public safety officials—who were selected by officials at the El Segundo and San Diego centers. In addition, we analyzed information that is available on the National Institute of Justice's public Web site.

To determine OST's budgetary resources and amounts from fiscal year 1995 to fiscal year 2003 and the changes in OST program responsibilities, we reviewed NIJ and OST budget documents, interviewed officials in OST's Technology Management and the OJP's Office of Budget and Management Services, and reviewed pertinent appropriations laws and committee reports covering that period. To determine the amount of OST budgetary resources that were directed to specific recipients and projects, we compared OST's budget documents that listed individual recipients and projects with the public laws and reports. We defined directed spending as spending for specific recipients and projects designated in appropriations laws or subject to congressional committee report guidance designating specific recipients or projects. We did not determine the amount of reimbursable projects designated in public laws or specified in committee reports because those projects were not originally allocated to OST. Instead, we considered all the reimbursable projects to be specific projects for which OST was directed pursuant to its agreements with other agencies on spending its reimbursable funds.

To determine the changes in OST's program responsibilities, we analyzed the year-to-year changes in its budget and program scope. To determine the amount of OST's budgetary resources used for investigative and forensic sciences for fiscal years 1995-2003, we compared OST's portfolio description and NIJ's definition of forensic sciences with the individual budget program and project items listed in OST's budget documents for each fiscal year. However, while we recognize that OST's technology centers and their technical partners include investigative and forensic sciences in their provision of technical assistance, we did not attempt to determine the amount of center funds associated with investigative and forensic sciences because the budget documents we received from OST

did not break out such amounts within the funding awarded to the centers. Therefore, our determination that $342.1 million of OST's total funding supported investigative and forensic sciences did not include such amounts.

To determine the amounts of funding awarded to the technology centers, we analyzed databases on all of the products OST has produced through April 2003 and the associated grants, interagency agreements, and cooperative agreements and their amounts.

To determine the composition of OST's products and how OST delivers the products to its customers, we analyzed OST documents and a database of all the products associated with its past and ongoing awards, from inception through April 2003, that were delivered or anticipated to be delivered. While the database included the award amounts associated with the products, it was not possible to reliably associate the award amounts for each product or type of product because multiple types of products could result from individual awards. We also conducted interviews with the parties mentioned above.

For the budget and product data that OST provided us, we assessed the reliability of these data by examining relevant fields for missing data, conducting range checks to identify any potentially erroneous outliers and inspecting a subset of selected data elements that were common to two or more data sets. In addition, we independently verified selected budget data back to appropriations legislation and Committee reports. In conducting our analyses, we identified some potential data errors or reliability problems. When this occurred, we contacted agency officials to address and resolve these matters. However, we did not verify the budget or product data back to source materials. Overall, we determined that budget or product data provided to us is adequate for the descriptive purposes it is used in this report.

We examined OST's efforts to measure performance by interviewing officials on this matter at OJP, NIJ, and OST in the Washington, D.C., office along with officials and staff at the technology centers, and current and previous Advisory Council officials. We also reviewed related agency documents, such as the OJP mission statement and performance plans; NIJ strategic planning documents and website pages, annual performance plans and performance reports, and GPRA documents; policies and procedures, Department of Justice memoranda, OST internal planning and reporting documents, program descriptions and documentation, and other related documents.

As part of our examination, we reviewed OST's fiscal year 1997 to 2004 goals and measures as presented in OST's GPRA performance plans.[1] We focused our review on OST's fiscal year 2004 performance plan and measures. As part of our review of these goals and measures, we made a determination as to whether the performance measure was output, outcome, or intermediate-oriented. To make this determination about the types of performance measures contained in OST's performance plans, we compared the measures used in the plans with the requirements of GPRA, accompanying committee report, OMB's guidance on performance measurement challenges (Circular A-11), Justice's guidance to its components for preparing performance measures, and previous GAO work on GPRA.[2]

Also included in our examination of OST performance measurement efforts were studies prepared by external parties under grants from OST that reviewed selected OST initiatives such as portfolio areas, projects, and programs. In response to our request for all of OST's efforts to assess its programs, OST provided eight outside studies funded from fiscal years 1998 to 1999. For example, the Pymatuning Group, Inc., conducted an "Assessment of the National Law Enforcement and Corrections Technology Center (NLECTC) Program," which described the operations of the OST's regional technology centers network. We reviewed all eight of the outside studies for performance information on the OST initiatives being examined in the report. We examined the studies to determine whether they provided information that would be considered consistent with an outcome-oriented evaluation as defined by our criteria.[3]

The scope of this review was limited to OST, and therefore we cannot compare OST's efforts to measure the performance of its programs or the amount of funding directed to specific recipients and projects with the efforts and funding of any other federal R&D agencies. We performed our

[1]To determine the goal for each OST program included in the plan, we used the stated public benefit statement provided in the plan, except for the Law Enforcement Technology R&D program.

[2]See U.S. General Accounting Office, *Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers*, GAO/GGD/AIMD-99-69 (Washington, D.C.: Feb. 26, 1999) for our guidance concerning intermediate-oriented measures and *Managing for Results: Critical Issues for Improving Federal Agencies' Strategic Plans*, GAO/GGD-97-180 (Washington D.C.: Sept. 16, 1997).

[3]See U.S. General Accounting Office, *Performance Measurement and Evaluation: Definitions and Relationships*, GAO/GGD-98-26 (Washington, D.C.: April 1998).

audit work from September 2002 to September 2003 in Washington, D.C., and other cited locations in accordance with generally accepted government auditing standards.

Appendix II: Bugetary Resources for OST's Programs in Current Year Dollars

Table 6: Budgetary Resources in Current Dollars for OST's Programs by NIJ Allocation, Fiscal Years 1995-2003

Dollars in millions										
NIJ allocations for OST programs	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total[a]**
NIJ Base	9.2	12.0	11.7	13.8	19.2	18.4	28.6	27.1	32.8	**172.9**
Local Law Enforcement Block Grant (LLEBG)	0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	19.9	**159.8**
Crime Identification Technology Act (CITA)	0	0	0	0	0	4.2	4.2	1.4	0	**9.9**
Safe Schools Technology Research and Development	0	0	0	0	0	15.0	17.5	17.0	16.9	**66.4**
Crime Lab Improvement Program (CLIP)	0	1.0	3.0	12.5	15.0	15.0	19.4	35.0	40.3	**141.1**
DNA Backlog Reduction[b]	0	0	0	0	0	15.0	10.6	35.0	35.8	**96.3**
Paul Coverdell National Forensic Sciences Improvement Act (NFSIA)[b]	0	0	0	0	0	0	0	5.0	5.0	**10.0**
Counterterrorism R&D	0	0	10.0	12.0	10.0	30.0	36.0	45.3	0	**143.3**
Reimbursements from other Justice and federal agencies	2.5	14.5	0	8.3	10.9	12.5	26.3	82.2	56.9	**214.1**
Total[a]	**11.7**	**47.5**	**44.7**	**66.6**	**75.1**	**130.2**	**162.6**	**268.0**	**207.6**	**1,013.8**

Source: GAO analysis of OST data.

[a]Totals might not add due to rounding

[b]In fiscal years 2000 and 2001, DNA Backlog Reduction allocations was funded as DNA CODIS Backlog Reduction. In fiscal years 2002 and 2003, both the DNA Backlog Reduction and Coverdell NFSIA allocations were funded within DNA CODIS Backlog Reduction..

Appendix III: OST's 10 Categories of Products

While we divided OST's products into three groups for our reporting purposes, OST divides them into 10 categories. (See table 7 for GAO's 3 groupings of OST's 10 categories.) In regrouping OST's 10 categories, we recognized, as OST officials told us, that the 10 categories overlap and there is not a clean division between them. We also recognized that many of OST's products could also be considered a delivery method. For example, publications, such as the *TECHbeat* newsletter, are OST products that can also represent a method of delivery for OST technology information. OST has reviewed our classification of products and agrees that it is generally accurate.

Table 7: GAO's Groupings of OST's Categories of Products and Examples of Each Category

GAO's 3 groupings of OST's 10 categories	OST's 10 categories	Examples of products
1. Technology R&D	1. Results of the early stages of technology R&D include the development of prototypes and demonstration that a principle or concept can be proven.	Results of investigating forensic techniques, studying potential less-than-lethal incapacitation technologies, and researching advanced weapons detection.
	2. New applied technologies made available to public safety agencies, generally through commercialization.	Improved bomb robots and electromagnetic concealed weapons detection.
2. Application, evaluation, and demonstration of new and existing technologies for field users	3. Existing technologies applied to new situations.	Communications interoperability (the ability to communicate across different public safety agencies and jurisdictions), handheld computer devices for bomb investigators, and software tools to measure levels of school safety.
	4. Product evaluations based on voluntary national performance standards and comparisons with like products.	Ballistic and stab-resistant body armor, handcuffs, semi-automatic pistols, walk-through metal detectors; patrol vehicles, patrol vehicle tires, and replacement brake pads; cut-, puncture-, and pathogen-resistant protective gloves.
	5. Technology demonstrations.	Annual Mock Prison Riot meeting demonstrates emerging technologies for use in hands-on riot training scenarios, and the annual Critical Incident Response Technology seminar (formerly called Operation America), in which bomb technicians practice live-fire simulations.
3. Information dissemination and technical assistance	6. Information and guidance for public safety practitioners and those in R&D.	Needs assessments of what public safety practitioners require, such as for combating electronic crime and terrorism; funding requirements for forensic science; investigative, selection, and application guides; and technology and training for small agencies.
	7. Standards to ensure that commercially available public safety equipment meets minimum performance.	Ballistic resistance of personal body armor and handheld and walk-through metal detectors.

GAO's 3 groupings of OST's 10 categories	OST's 10 categories	Examples of products
	8. Enhanced capacity that gives agencies access to technologies and tools they otherwise might not have had funding for or access to.	Technology assistance provided to OST's customers by its regional centers; Crime Lab Improvement Program for establishing or expanding laboratories' capacities for forensic analysis; the DNA Backlog Reduction Program for helping to eliminate DNA backlog, leading to the resolution of unsolved crimes.
	9. Conferences, forums, and workshops that bring together practioners, technologists, and policymakers to form partnerships, communicate needs, and educate participants.	Technical working groups of experienced practitioners and researchers working to improve investigation techniques and issue procedural guides. Panels and councils of public safety leaders, experts, and policymakers assisting OST and its regional centers in setting development priorities, launching technologies, identifying equipment problems, and enhancing understanding of technological issues and advances. Commercialization planning workshops involving developers and entrepreneurs interested in commercializing public safety technologies.
	10. Technical expertise and oversight of technology projects provide additional oversight and guidance.	Space and Naval Warfare Systems Command providing oversight, contracting, and administrative support for the NIJ User Centric Information Technology Program and Critical Incident Management System Testbed; the U.S Air Force Research Laboratory providing oversight and administrative support to the NIJ Concealed Weapons Detection and Personnel Location Technology Programs and hosting the NIJ-sponsored National Cyberscience Laboratory.

Source: GAO analysis of OST data.

Appendix IV: OST's Portfolio Areas

OST has organized its individual projects to develop, improve, and implement technology for public safety agencies into nine portfolio areas. As of April 2003, these portfolio areas included

- **critical incident technology**, for first responders and investigators protecting the public in the event of critical incidents such as natural disasters, industrial accidents, or terrorist acts;
- **communications interoperability**[1] **and information sharing**, enhancing communication among public safety agencies through wired links, wireless radios, and information networks, even when disparate systems are involved;
- **electronic crime**, supporting computer forensic laboratories, publishing guides for handling electronic evidence, and developing computer forensic tools;
- **investigative and forensic sciences**, funding at the state and local levels for DNA-typing of convicted offenders and use of DNA-typing in the investigation of unsolved cases, and developing tools for forensic casework;
- **crime prevention technologies**, including contraband detectors, sensors and surveillance systems, and biometric technologies;
- **protective systems technologies**, including body armor; "smart" handguns, which fire only upon recognition of, for example, a certain handprint or password; puncture resistant gloves; better handcuffs; better concealed weapon detection; and personnel tracking and location technologies;
- **less-than-lethal technologies**, developing alternatives to lethal force, including technologies involving electrical or chemical effects, light barriers, vehicle stopping, and blunt trauma, and evaluating and modeling the effects of these technologies;
- **learning technologies**, developing technology tools for agencies to use in training their personnel, including use of the internet, CD-ROMs, and video-based and interactive simulations; and

[1]Interoperability of communications is the ability to communicate across different public safety agencies and jurisdictions.

- **standards and testing**, ensuring that the equipment public safety agencies buy is safe, dependable, and effective.

Appendix V: OST's Operations

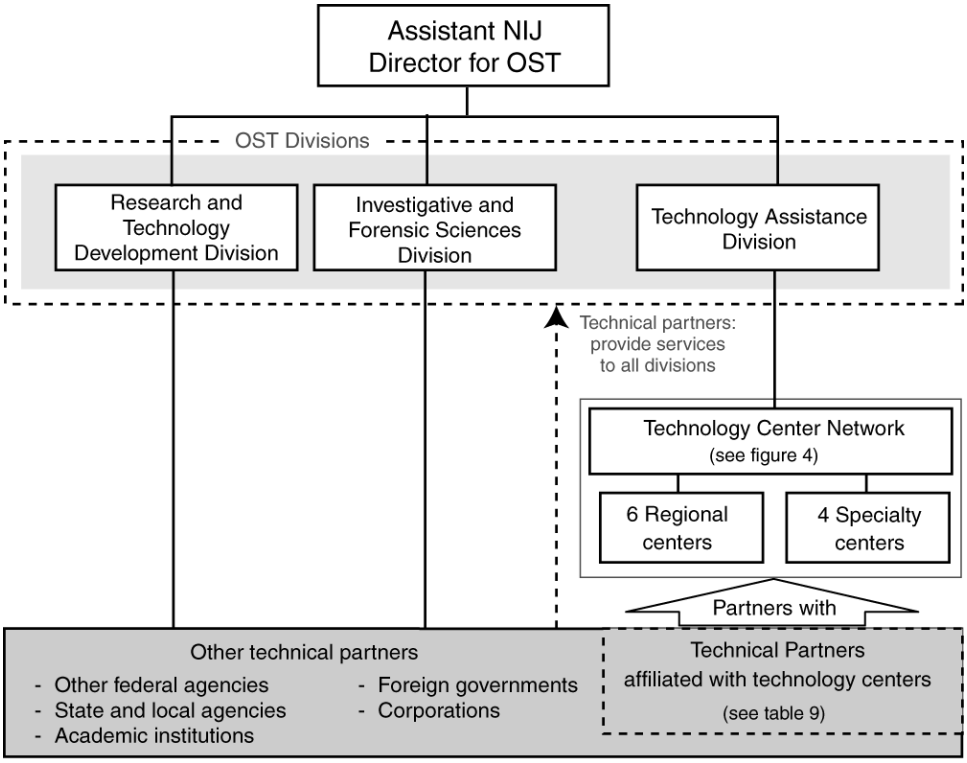
As with other federal agencies, OST's operations involve multiple levels of internal organization and multiple kinds of external partners. OST's multiple levels of organization include a Washington, D.C., office that manages its technology programs and a network of technology centers around the country that provide technical assistance to OST's regional customers. OST also collaborates with other R&D entities, such as those in the Departments of Defense and Energy and public and private laboratories, by forming technical partnerships in order to leverage already established technical expertise and resources to support their program efforts. Another aspect of OST's complex operations is the need to determine OST's own priorities and the priorities of its customers, which involves Washington and regional center staff collaborating formally and informally with a myriad of federal, state, and local officials, as well as with one another.

OST Has Multiple Levels of Organization

OST's multiple levels of organization include a Washington, D.C., office and technology centers, as well as technical partnerships with government, public and private R&D and public safety organizations. As of September 2003, OST's Washington office consisted of 25 full-time-equivalent Justice staff divided into three divisions and under the Assistant NIJ Director for OST.[1] Responsibility for managing these programs is divided among the three divisions. (See figure 3 for OST's organizational structure.)

[1]In addition, there were 2 federal detailees, 2 visiting scientists, and 32 on-site contractors supporting OST.

Figure 3: OST's Organizational Structure



Source: GAO.

- **Research and Technology Development Division** manages electronic crime (including cybercrime), critical incidents and counterterrorism, communications interoperability and information sharing, crime prevention, learning technology tools, less-than-lethal technologies, standards development, school safety, and corrections technologies.

- **Investigative and Forensic Sciences Division** manages DNA-related R&D and other investigative and forensic sciences, such as fingerprint analysis, and includes the Crime Laboratory Improvement Program projects, DNA Backlog Reduction projects, and DNA research and development projects.

- **Technology Assistance Division**, through the technology center network, provides training and technical advice to, and identifies technologies for, OST's customers, and oversees OST's network of 10 technology centers (see figure 4). The technology centers are another source of technical advice for OST's customers.

Figure 4: OST's 10 Technology Centers and the Regions They Serve

Source: National Institute of Justice, Department of Justice.

OST's Technology Centers

OST's network of 10 technology centers provides technical assistance, among other things, to OST's customers. From fiscal year 1995 to fiscal year 2003 (as of July 2003), funding support for the centers totaled $171.7 million. (See table 8 for funding by center.) The technology centers comprise six regional centers and four specialty centers. While the regional centers assist OST's customers by region—Northwest, West, Rocky Mountain, Northeast, Southeast, and National—they are expected to coordinate and collaborate among one another regardless of where the resources and capabilities are located. Each of these 6 centers works with a regional advisory council comprising state and local law enforcement, corrections, and public safety representatives.

As described below, the four specialty centers provide specialized expertise and services.

- The Office of Law Enforcement Standards tests commercially available equipment and develops minimum performance standards for such equipment.

- The Office of Law Enforcement Technology Commercialization, Inc., assists inventors and developers, among others, in commercializing technologies.
- The Border Research and Technology Center aids in the development of technologies for agencies concerned with law enforcement at the northern and southern borders.
- The Rural Law Enforcement Technology Center aids rural and small-community law enforcement and corrections agencies.

Table 8: Total Funds Awarded for the Operations, Maintenance, and Technical Support of OST's 10 Technology Centers, Fiscal Years 1995-2003

Dollars in millions	
Regional centers	**Total funding**
National, Rockville, Md.	**20.4**
Northeast, Rome, N.Y.	**11.7**
Southeast, North Charleston, S.C.	**23.5**
Northwest, Anchorage, Alaska	**2.8**
Rocky Mountain, Denver, Colo.	**16.2**
West, El Segundo, Calif.	**12.7**
Specialty centers	
Border Research Technology Center, San Diego, Calif.	**8.2**
Office of Law Enforcement Standards, Gaithersburg, Md.	**53.6**
Office of Law Enforcement Technology Commercialization, Wheeling, W.Va.	**19.6**
Rural Law Enforcement Technology Center, Hazard, Ky.	**3.0**
Total funding	**$171.7**

Source: OST.

Notes: Figures are based on the current year values of each award. According to OST documents, the first award year for the Office of Law Enforcement Standards in support of OST efforts was 1994. All of the centers had award years of 1995 or later.

OST's Technical Partnerships for Long-Term Support

In addition to forming divisions and technology centers, OST has also formed partnerships with governmental, public and private R&D organizations, agencies, and working groups. According to OST officials, an advantage of these partnerships is that OST can leverage the expertise and resources of already established R&D facilities without having to create their own. These partners have included

- corporations, such as Georgia Tech Research Corporation and L-3 Communications, Analytics Corporation;
- state and local agencies, such as the Houston Police Department and the Washington Metropolitan Area Transit Authority;
- academic institutions, such as the University of Virginia and Syracuse University;
- other federal government agencies, such as the Department of Defense's Army Training and Doctrine Command, and the Department of Transportation's Federal Aviation Administration; and
- foreign government organizations, such as the Royal Canadian Mounted Police, the United Kingdom Police Scientific Development Branch, and the government of Israel.

Each of OST's technology centers is affiliated with one or more of OST's technical partners. These technical partners are awarded funding in exchange for providing staff and facilities to the technology centers. Table 9 lists OST's partners and their affiliations, and funding they received to support the centers through June of fiscal year 2003.

Table 9: OST's Technology Centers, Their Affiliated Partners, and the Amounts Awarded to Support the Centers

Dollars in millions

Technology centers	Affiliated OST partner	Amount awarded to support center
Regional centers		
National, Rockville, Md.	Aspen Systems Corporation, Rockville, Md.	20.4
Northeast, Rome, N.Y.	Air Force Research Laboratory, U.S. Air Force, Rome, N.Y.	11.7
Southeast, North Charleston, S.C.	South Carolina Research Authority, North Charleston, S.C.	21.3
	Space and Naval Warfare Systems Center, U.S. Navy, Columbia, S.C.	0.6
	Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn.	0.3
	Savannah River Site, Department of Energy, Aiken, S.C.	1.3
Northwest, Anchorage, Alaska	Chenega Technology Services Corporation, and National Business Center, U.S. Department of Interior, Anchorage, Alaska	2.8
Rocky Mountain, Denver, Colo.	University of Denver - Colorado Seminary, Denver, Colo.	16.2
West, El Segundo, Calif.	Aerospace Corporation, El Segundo, Calif.	12.7
Specialty centers		
Border Research Technology Center, San Diego, Calif	Aerospace Corporation, El Segundo, Calif.	1.4
	Space and Naval Warfare Systems Center, U.S. Navy, San Diego, Calif.	1.7
	Sandia National Laboratories, U.S. Department of Energy, Albuquerque, N. Mex.	5.1
	U.S. Attorney's Office, Southern District of California, Department of Justice, San Diego, Calif.	0.0[a]
Office of Law Enforcement Standards, Gaithersburg, Md.	National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, Md.	53.6
Office of Law Enforcement Technology Commercialization, Wheeling, W.Va.	OLETC, Inc., Wheeling, W.Va.	2.8
	Wheeling Jesuit University, Wheeling, W.Va.	14.0
	National Aeronautics and Space Administration	2.8
Rural Law Enforcement Technology Center, Hazard, Ky.	Eastern Kentucky University, Hazard, Ky.	3.0
Total funding[b]		**$171.7**

Source: OST.

Note: Figures are based on the current year values of each award. Award amounts are for the operations, maintenance and technical support of the centers.

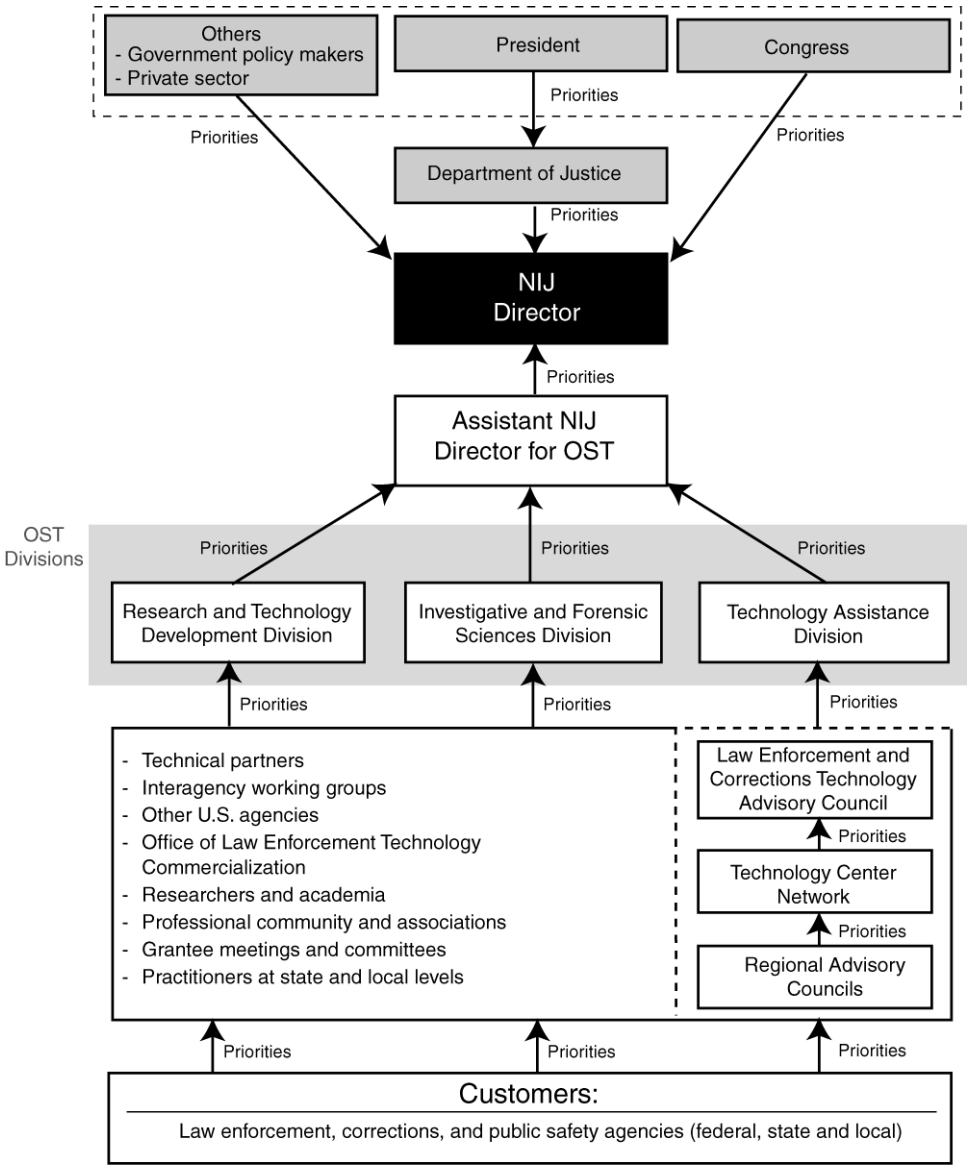
[a]Actual amount is $25,000.

[b]Total might not add due to rounding.

OST Collaborates with Many Customers and Partners to Determine Program Priorities

To determine its program priorities, OST collaborates with its many customers and partners. Staff at both OST's Washington, D.C., office and its technology centers are involved in helping OST to set program priorities. The staff report the results of their collaboration through formal meetings, periodic reports, and informal communication. Input is exchanged continually between OST's customers and staff and within its multiple levels of organization. Using their input, the NIJ Director determines OST's program priorities. (See figure 5 for the stakeholders, partners, and customers that contribute to the setting of OST's priorities.)

Figure 5: Stakeholders and Customers that Contribute to the Setting of OST's Priorities



Source: GAO.

OST Collaborates with Government Agencies, Research and Professional Communities, and Centers

OST's three divisions collaborate with other U.S. government agencies, the research and professional communities, and its technology centers to solicit input for setting priorities. Also, the divisions work with public safety practitioners at the state and local levels by, for example, meeting with grantees and assessing their needs.

- **The Investigative and Forensic Sciences Division** collaborates with, and receives input from, researchers, academia, and the forensic laboratory community to help set program priorities. It also collaborates with, for example, the FBI and the interagency Technical Support Working Group.

- **The Research and Technology Development Division** receives input through its collaboration with other federal agencies, such as the FBI, Drug Enforcement Administration, U.S. Secret Service, and White House Office of National Drug Control Policy. The division also participates in interagency working groups, such as for school safety and the Technical Support Working Group. Through these collaborations, OST can develop and share technologies used by both its customers and other agencies. For example, OST works with the Department of Defense to conduct less-than-lethal weapons R&D for law enforcement.

- **The Technology Assistance Division** is primarily responsible for receiving input from OST's technology centers. The centers solicit input from customers through their outreach efforts, such as technical assistance, e-mail exchanges, and telephone calls. The centers are also required to use OST's web-based reporting system to record information on their customers' requests for technical assistance. The centers are also required to submit monthly reports on their activities and finances.

Advisory Councils and Federal, State, and Local Public Safety Agencies Collaborate with OST's Technology Centers

OST's technology centers solicit input from the national and regional advisory councils that OST created to determine and advocate for the particular needs of its customers. Members of the national advisory council are selected by the technology centers and represent federal, state, and local public safety agencies, as well as international criminal justice organizations. Among its duties, this national advisory council identifies the present and future equipment and technology needs of OST's customers and reviews the programs of the technology centers. In addition, the national advisory council recommends (1) ways to improve the technology centers' programs' relevance to the needs of the centers' customers and (2) broad priorities for the technology center network and OST that are consistent with the needs of their customers.

Each technology center has a regional advisory council. The regional advisory councils consist of a cross-section of law enforcement and other public safety officials who represent the interests of state and local officials. The regional advisory councils solicit input from the state and local agencies serviced in their regions, advise and support their respective center directors on their customers' problems and needs, and advocate for resource support and improvements required by their customers. Through this method of sharing information, OST can better understand the needs of its customers. For example, OST's regional councils can represent the unique needs of their customers that the national advisory council or the technology centers might not be aware of.

Appendix VI: OST's Goals in its Fiscal Year 2004 Performance Plan and GAO's Assessment

Table 10: OST's Performance Goals, Initiatives, and Measures for Fiscal Year 2004, and GAO's Assessment

OST's initiatives	Goals for initiatives	Measures for assessing achievement of goals	Type of measure: Output	Type of measure: Intermediate	Type of measure: Outcome
1. Convicted Offender DNA Backlog Reduction Program	Reduce DNA backlog and support a functioning, active system, which can solve old crimes and prevent new ones from occurring.	1. Number of labs demonstrating improved access to external capabilities and increased lab capabilities.		X	
		2. Number of samples (1) analyzed using the selected DNA markers that are required by the FBI's national Combined DNA Index System (CODIS) database, and (2) made available for CODIS.		X	
		3. Number of states that have experienced an increase in the number of samples they have contributed to the national database.		X	
2. No Suspect DNA Backlog Reduction Program	Reduce DNA backlog and support a functioning, active system, which can solve old crimes and prevent new ones from occurring.	4. Number of DNA samples from cases where there is no known suspect.		X	
3. Paul Coverdell National Forensic Sciences Improvement Grants Program	Improve quality, timeliness, and credibility of forensic science services.	5. Number of forensic labs with improved analytic and technological resources.		X	
4. Critical Incident Response Technology Initiative	Improve the ability of public safety responders, including law enforcement and corrections officers, to deal with critical incidents, save lives, and reduce property loss.	6. Number of technology demonstrations and test indicators that describe the goods and services produced.	X		
		7. Number of prototype technologies developed.	X		
		8. Number of guides, standards, and assessments in progress.	X		
		9. Number of guides, standards, and assessments completed.	X		
		10. Number of technologies introduced in law enforcement and corrections agencies.		X	

OST's initiatives	Goals for initiatives	Measures for assessing achievement of goals	Type of measure: Output	Type of measure: Intermediate	Type of measure: Outcome
5. DNA Research & Development	Develop faster and more powerful tools and techniques for the analysis of DNA evidence. These new tools and techniques will result in more crimes prevented and solved and more perpetrators brought to justice.	11. Number of projects researching new forensic DNA markers.	X		
		12. Number of development/validation studies for forensic DNA techniques.	X		
		13. Number of computer programs developed for forensic DNA analysis.	X		
		14. Number of prototypes and tools for forensic DNA analysis.	X		
6. Law Enforcement Technology Research and Development	Assist in applying technology to reduce the vulnerability of critical infrastructure; detect weapons and other contraband; improve technologies to locate and differentiate between individuals in structures; leverage information technology to enhance the responder community's ability to anticipate and deal with critical incidents; identify and respond to terrorist attacks involving chemical, biological, and other unconventional weapons; and develop needed standards.[a]	15. Number of technology demonstrations and tests.	X		
		16. Number of prototype technologies developed.	X		
		17. Number of guides, standards, and assessments in progress.	X		
		18. Number of guides, standards, and assessments completed.	X		
		19. Number of technologies introduced in law enforcement and corrections agencies.		X	
7. School Safety Technology	Assist school administrators and law enforcement in creating a safer and more productive learning environment. Safe, effective, appropriate, and affordable technologies can affect the perception and reality of safe schools.	20. Number of technology demonstrations.	X		
		21. Number of conferences and forums.	X		
		22. Number of school safety technology products.	X		

OST's initiatives	Goals for initiatives	Measures for assessing achievement of goals	Type of measure: Output	Type of measure: Intermediate	Type of measure: Outcome
8. Crime Lab Improvement Program	Provide immediate results in solving more crimes, bringing to justice more criminals, and improving administration of justice through the presentation of strong, reliable forensic evidence at trial.	23. Number of crime labs receiving specialized forensic services.	X		
		24. Number of capacity-building forensic R&D and validation projects funded.	X		
		25. Number of forensic technology training tools developed and distributed.	X		
		26. Number of labs providing continuing education or advanced training to crime analysts.	X		
		27. Number of crime labs with increased capacity for implementation of new forensic capabilities (including DNA analysis).		X	
		28. Number of capacity-building forensic R&D and validation projects completed and impacting crime labs.		X	
		29. Number of labs establishing new forensic capabilities.		X	
		30. Number of labs expanding current forensic capabilities.		X	
		31. Number of labs experiencing a reduction in time needed for evidence analysis.		X	
		32. Number of labs experiencing a reduction in backlogged evidentiary sample analysis.		X	
9. Office for Law Enforcement Standards	Help the public safety community make informed decisions about products being marketed for public safety personnel.	33. Number of methods for examining evidentiary materials developed.	X		
		34. Number of standards for equipment and operating procedures developed.	X		
		35. Law enforcement technology deliverables (standards, product performance evaluations, product guides).	X		
10. Smart Gun	Develop a firearm that could save the lives of law enforcement officers and members of the public that they encounter while performing their duties.	36. Successful demonstration of prototype recognition system for smart gun.	X		
		37. Failure mode analysis for prototype recognition system for smart gun.	X		
		38. Incorporation and demonstration of recognition system into firearm (where applicable).	X		
		39. Identification of appropriate biometric solutions for recognition system (where applicable).	X		

OST's initiatives	Goals for initiatives	Measures for assessing achievement of goals	Type of measure		
			Output	Intermediate	Outcome
11. OST's network of technology centers (known as the National Law Enforcement and Corrections Technology Center system)	Help state and local law enforcement, corrections, and public safety personnel do their jobs more safely and efficiently, thereby leading to greater administrative efficiencies, more crimes solved, and more lives saved.	40. Number of technology information documents distributed.	X		
		41. Number of practitioners trained through the Crime Mapping Program.	X		
		42. Savings to criminal justice agencies through the DOD's Section 1033 Military Surplus Program. Section 1033 of the National Defense Authorization Act for Fiscal Year 1997[b] authorizes DOD to transfer excess military property to federal and state agencies to support law enforcement activities including counterdrug and counterterrorism activities.		X	

Source: OST.

[a]Because the goal for this initiative was not outcome-oriented according to our criteria, we used the initiative's mission statement as the goal.

[b]P.L. 104-201, 110 Stat. 2422 (1996).

Appendix VII: Comments from the Department of Justice

U.S. Department of Justice

Office of Justice Programs

Office of the Assistant Attorney General

Washington, D.C. 20531

OCT 30 2003

Laurie E. Ekstrand
Director, Homeland Security and Justice Issues
General Accounting Office
441 G Street, N.W.
Mail Stop 2440A
Washington, DC 20548

Dear Ms. Ekstrand:

This letter responds to the General Accounting Office (GAO) draft report entitled "*LAW ENFORCEMENT: Better Performance Measures Needed to Assess Results of Justice's Office of Science and Technology*" (GAO-04-198).

In the draft report, GAO recommended that the National Institute of Justice (NIJ), Office of Science and Technology (OST), reassess the measures that OST uses to evaluate its progress toward achieving its goals and to better focus on outcome measures to assess results where possible. In cases where measuring outcome is, after careful consideration, deemed infeasible, GAO recommended that OST develop appropriate intermediate measures that will help to discern program effectiveness.

We agree with the GAO's recommendation. The NIJ is participating in extensive planning processes to create and refine appropriate feasible measures for OST. In response to the Government Performance and Results Act (GPRA) and the President's Management Agenda, in Fiscal Year 2002, the Office of Justice Programs (OJP) initiated several agency-wide activities aimed at improving OJP's ability to more effectively identify, collect, analyze, and report program performance. As part of these processes, OJP:

- developed the agency's first Strategic Plan;
- restructured its budget to align programs, strategies, and goals with funding to support performance-based budgeting;
- clarified overarching goals, strategies, and measures for all major program areas, including those areas with OST involvement; and
- developed internal operational performance measures to track, on a quarterly basis, progress of those activities supportive of program success.

We are now in the process of implementing an agency-wide plan to collect and analyze the data necessary under the approved OJP performance measures. This baseline data will inform OJP, NIJ, and OST as to future performance goals that should be established to help assess the relevance, quality, and performance of OST's activities.

As NIJ's mission statement notes, the ultimate outcome that it seeks is "... to enhance the administration of justice and public safety" which most closely falls under the part of the Department of Justice's mission that states, ". . . to provide federal leadership in preventing and controlling crime . . . ." With respect to measuring such outcomes, the Department has stated, "Measuring law enforcement performance presents unique challenges. Success for the Department is highlighted when justice is served fairly and impartially and the public is protected. In many areas, our efforts cannot be reduced to simplistic numerical counts of activities such as convictions. Therefore, although the Department provides retrospective data on a limited number of these activities, it does not target levels of performance. The Department is concerned that doing so would lead to unintended and potentially adverse consequences. Additionally, it is extremely difficult to isolate the effects of our work from other factors that affect outcomes over which the Department of Justice has little or no control. Although during the last 7 years the annual violent crime rate has decreased by about 50 percent, the Department does not rely on this macro-level indicator in measuring its performance. Many factors contribute to the rise and fall of the crime rates, including federal, state, local, and tribal law enforcement activities and sociological, economic, and other factors."

Developing numerical outcome measures like those urged by GAO is a particular challenge for research and development (R&D) activities, as acknowledged in this draft report. Joint guidance issued in May 2002 by the Directors of the Office of Management and Budget (OMB) and the Office of Science and Technology Policy (OSTP) acknowledges the view that ultimate socially-desired outcomes, such as reduced crime, are not appropriate outcome measures for support organizations like research agencies, and that descriptions of performance should not be limited only to quantitative measures. The May 2002 guidance outlined the criteria to use in evaluating Federal R&D programs, which considers the: 1) relevance of the R&D; 2) quality of the R&D; and 3) performance of the R&D (i.e., research management).

In developing measures of the performance of its offices, including OST, NIJ benchmarks its activities with those of other Federal R&D agencies. All of the performance plans of Federal R&D agencies that NIJ reviewed[1] use output measures more frequently than outcome measures to evaluate their performance. Further, OMB approved a qualitative scale initially used by the National Science Foundation that has since been implemented by other agencies, such as the National Institutes of Health, an agency that reports its performance utilizing descriptive criteria allowed under the "alternative form" provisions of GPRA.

In the draft report, GAO described OST's budget resources and how funding from multiple sources has grown from $13.2 million in FY 1995 to $204.2 million in FY 2003 (in constant 2002 dollars). In addition, GAO described how program responsibilities have changed since OST was created in 1995, growing broader and more complex with the inclusion of investigative and forensic sciences, school safety, and counterterrorism programs. Also, GAO

[1] The NIJ reviewed the performance goals and measures of 12 Federal R&D agencies, including those within the Departments of Agriculture, Education, Energy, Health and Human Services, and Transportation; the Food and Drug Administration; the Environmental Protection Agency; and the National Science Foundation.

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described OST's nine research and development focus areas ("portfolios") which, in addition to OST's capacity building and technology assistance programs for the field, are managed and administered by 25 Federal positions. Further, GAO listed OST's principle products and characterized how nearly 1,000 OST products have been delivered to a wide variety of different customers using various dissemination methods.

We believe this record is an outstanding one and worthy of comment, even praise, from the GAO. However, while squarely within the purpose of the GAO study, GAO did not reach any conclusions about any of the material just summarized. Additionally, the GAO noted that over half of OST's funds were designated by Congress for specific recipients and projects (i.e., "earmarks") outside of the agency's normal nationwide peer-reviewed competitive process. This point, also falling within the scope of the GAO review, was not discussed in any detail in the report, which we view as a missed opportunity to inform the requestor of this report as to the impact of Congress's recent decision making with respect to OST.

In response to GAO's comments, I have directed the NIJ Director, Sarah Hart, to work to reassess NIJ's performance measures for OST and to refine them, where possible, in order to focus them more toward measuring outcomes. The Office of Justice Programs appreciates the opportunity to comment on the draft report.

Sincerely,

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Appendix VIII: GAO Contacts and Staff Acknowledgments

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