Goal 5. Continuous Improvement of the U.S. Education System:

Enhance the education system's ability to continuously improve through better and more widespread use of data, research and evaluation, evidence, transparency, innovation, and technology.

Goal Leader: Amy McIntosh

Objective 5.1: Data Systems and Transparency. Facilitate the development of interoperable longitudinal data systems for early learning through employment to enable data-driven, transparent decision-making by increasing access to timely, reliable, and high-value data. **Objective Leader: Ross Santy**

Metric 5.1.A: Number of public data sets included in ED Data Inventory and thus linked to Data.gov or ED.gov websites

Metric 5.1.B: Number of states linking K–12 and postsecondary data with workforce data

Metric 5.1.C: Number of states linking K–12 with early childhood data

Objective 5.2: Privacy. Provide all education stakeholders, from early childhood to adult learning, with technical assistance and guidance to help them protect student privacy while effectively managing and using student information. **Objective Leader: Kathleen Styles**

Metric 5.2.A: Average time to close "cases" (PTAC + FPCO)[96]

Objective 5.3: Research, Evaluation, and Use of Evidence. Invest in research and evaluation that builds evidence for education improvement; communicate findings effectively; and drive the use of evidence in decision-making by internal and external stakeholders. **Objective Leaders: Ruth Neild and Margo Anderson**

Metric 5.3.A: Percentage of select new[97] (noncontinuation) competitive grant dollars that reward evidence

Metric 5.3.B: Number of peer-reviewed, full-text resources in the Education Resources Information Center (ERIC)

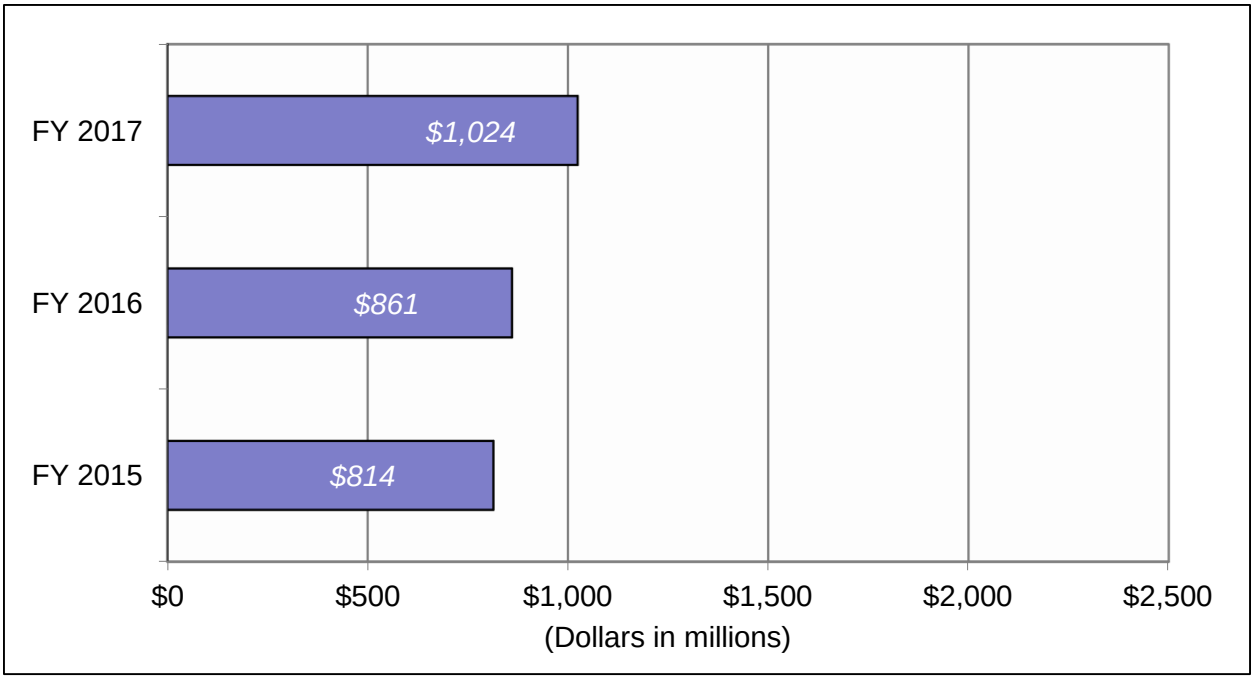
Metric 5.3.C: Number of reviewed studies in the WWC database[98]

Objective 5.4: Technology and Innovation. Accelerate the development and broad adoption of new, effective programs, processes, and strategies, including education technology. **Objective Leader: Joseph South**

[96] Privacy Technical Assistance Center (PTAC) and Family Policy Compliance Office (FPCO).
[97] "New competitive grant dollars that reward evidence" includes all dollars awarded based on the existence of at least "evidence of promise" in support of a project, per the framework in the Education Department General Administrative Regulations (34 CFR Part 75). Consideration of such evidence appears through: eligibility threshold (e.g., in the i3); absolute priority; competitive priority (earning at least one point for it); or selection criteria (earning at least one point for it). The percentage is calculated compared to the total new grant dollars awarded, excluding awards made by the IES, the National Institute on Disability and Rehabilitation Research, and technical assistance centers, with some exceptions.
[98] Metric is being removed at the end of the FY 2015 reporting period. Please refer to appendix B for details pertaining to the removal and addition of metrics.

Metric 5.4.A: Percentage of schools in the country that have actual Internet bandwidth speeds of at least 100 Megabits per second (Mbps)

Goal 5 Discretionary Resources



Major Discretionary Programs and Activities[99] Supporting Goal 5 Performance Metrics [Dollars in Millions]

POC	Account	Obj.	Program	FY 2015 Appropriation	FY 2016 Appropriation	FY 2017 President's Budget
IES	IES	5.3	National assessment	129	149	149
IES	IES	5.3	Regional educational laboratories	54	54	54
IES	IES	5.3	Research in special education	54	54	54
IES	IES	5.3	Research, development, and dissemination	180	195	209
IES	IES	5.1, 5.2	Statewide longitudinal data systems	35	35	81
IES	IES	5.3	Statistics	103	112	125
OII	I&I	5.3	Education innovation and research	120	120	180
	Subtotal			**675**	**719**	**853**
	Other Discretionary Programs/Activities			**139**	**142**	**171**
TOTAL, GOAL 5				**814**	**861**	**1,024**

POC = Principal Office Component
NOTES: Many programs may have sub-activities that relate to other goals. Detail may not add to total due to rounding.

Public Benefit

Education stakeholders, ranging from students and parents, to teachers and principals, to superintendents and the Secretary, need access to timely, appropriate, relevant, and actionable information. Information sources, which can range from datasets to rigorous evaluations and research studies, must be accessible through reliable technology and must reach needed

[99] All the programs listed are discretionary programs, as distinct from mandatory programs. These include both competitive and noncompetitive programs.

audiences through dissemination, while applying appropriate controls to protect student privacy. The Department must continue to invest in its information resources so that internal and external stakeholders can use this information to make evidence-based decisions.

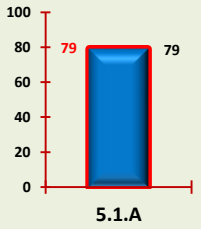
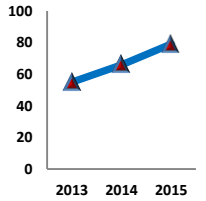
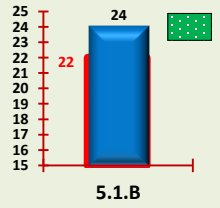
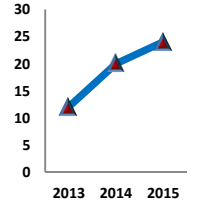
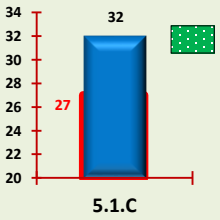
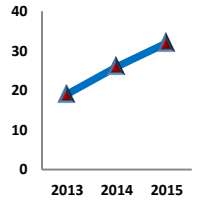
States continue to develop systems that will collect, manage, and appropriately report the valid, reliable data that are essential to achieving improvements across education, but there is much more work to do. The Department continues ongoing efforts to develop effective SLDS, design voluntary Common Education Data Standards (CEDS) to increase interoperability, and develop the capacity of institutions and staff to utilize data to improve teaching and learning outcomes. It is not enough to support only the development of the systems and structures that will provide education agencies across the nation with the data necessary to generate accurate pictures of student performance and other critical elements, from early learning programs through postsecondary institutions and the workforce. The Department must continue to lead the national discussion of how these systems are best and most appropriately used to support students, improve instruction, address inequities, develop future teachers, and inform practice; all while ensuring the privacy of the nation's students is safely protected.

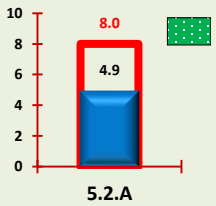
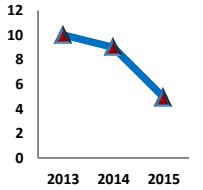
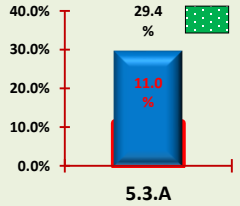
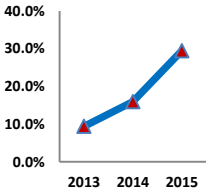
Additionally, the Department must serve as a model for how data are disseminated. Information that SEAs and LEAs report to the Department should be made accessible, where possible, to inform the public and help with local decision-making, but these data must be shared in ways that protect student privacy and that are in compliance with federal and state privacy laws. The collection, storage, maintenance, and use of data must be responsible and must appropriately protect student privacy. Stewards and users of data must remember that these data describe real people and ensure that systems protect the rights of those people. The Department will help practitioners in the field ensure they are properly protecting privacy and communicating with parents and students about the proper use and management of student data.

The Department continues to prioritize the use of "evidence-based" practices through its competitive programs while supporting the creation of new evidence through rigorous project evaluations. This approach helps ensure that scarce dollars have their intended impact and also empowers states and districts to become more dynamic learning organizations, especially in areas with little existing rigorous evidence. Additionally, the Department continues to provide tools to stakeholders that help them understand what types of which strategies and interventions are effective for various "problems of practice."

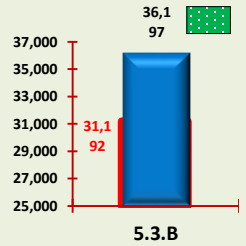
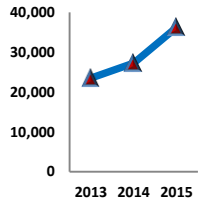
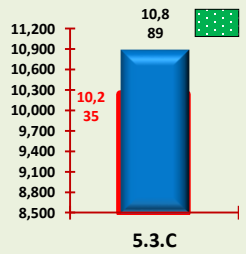
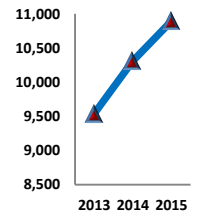
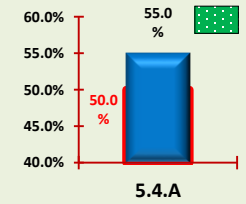
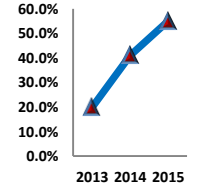
Better use of information, both for policy-makers, but also educators, depends on access to reliable technology. The Department's vision for 21st-century learning requires that schools have a 21st-century technology infrastructure anchored around high-speed Internet to allow for innovation and personalization in the classroom. This vision is supported by the remarkable progress we have made towards the President's ConnectED initiative goal to connect 99 percent of students in the nation's schools to high-speed broadband by 2018. States, districts, and schools must have such infrastructure to incorporate cutting-edge methods for strengthening curriculum quality and delivery to meet more rigorous college- and career-ready standards; improving student access and engagement; developing comprehensive, formative, and summative assessment systems; and enhancing data management systems.

Goal 5: Details

Continuous Improvement of the U.S. Education System Indicators of Success	Baseline	Actuals			Current Year Target	Current Year Results	Actual-to-Target 2015		Out-Year Targets		Trend Line (Actuals)
		2013	2014	2015	2015		Missed	Exceeded	2016	2017	
5.1.A. Number of public data sets included in ED Data Inventory and thus linked to Data.gov or ED.gov websites	FY: 2013 55	55	66	79	79	MET			94	104	
5.1.B. Number of states linking K–12 and postsecondary data with workforce data	FY: 2013 12	12	20	24	22	MET			25	25	
5.1.C. Number of states linking K–12 with early childhood data	FY: 2013 19	19	26	32	27	MET			29	32	

Continuous Improvement of the U.S. Education System Indicators of Success	Baseline	Actuals			Current Year Target	Current Year Results	Actual-to-Target 2015	Out-Year Targets		Trend Line (Actuals)
		2013	2014	2015	2015		Missed / Exceeded	2016	2017	
5.2.A. Average time to close "cases" (PTAC + FPCO)	FY: 2013 10 days	10	9	4.9	8 days	MET		7.2[100]	6.48[101]	
5.3.A. Percentage of select new (noncontinuation) competitive grant dollars that reward evidence[102]	FY: 2012 6.5%	9.35%	15.9%	29.4%	11.0%	MET		18%[103]	20%	
New APG Metric: Number of completed project evaluations from grantees from select discretionary grant programs in a given fiscal year that meet What Works Clearinghouse (WWC) Evidence Standards[104]	FY: 2015 2	NA	NA	2	NA	NA		10	20	

[100] Target is being updated to reflect the goal of a 10% reduction from the prior year.
[101] Target is being updated to reflect the goal of a 10% reduction from the prior year.
[102] Metric is aligned to an APG.
[103] The out-year performance targets are increased from what was reported in the *FY 2014 Annual Performance Report and FY 2016 Annual Performance Plan*.
[104] Metric is aligned to an APG.

Continuous Improvement of the U.S. Education System Indicators of Success	Baseline	Actuals			Current Year Target	Current Year Results	Actual-to-Target 2015	Out-Year Targets		Trend Line (Actuals)
		2013	2014	2015	2015		Missed / Exceeded	2016	2017	
5.3.B. Number of peer-reviewed, full-text resources in the Education Resources Information Center (ERIC)	FY: 2013 23,512	23,512	27,292	36,197	31,192	MET		35,692	40,892	
5.3.C. Number of reviewed studies in the What Works Clearinghouse (WWC) database[105]	FY: 2013 9,535	9,535	10,310	10,889	10,235	MET		NA	NA	
New Metric: Number of visits to the What Works Clearinghouse (WWC) website	FY: 2015 1,822,000	NA	NA	1,822,000	NA	NA		1,967,760	2,164,536	
5.4.A. Percentage of schools in the country that have actual Internet bandwidth speeds of at least 100 Mbps	FY: 2013 20%	20%	41%	55%	50%	MET		70%	80%	

NA = Not applicable.

[105] Metric being removed at the end of the FY 2015 reporting period and being replaced with the metric identified as "New Metric" directly below it. If there is no corresponding "New Metric" identified, new metric TBD. Please refer to appendix B for details pertaining to the removal and addition of metrics. The proposed FY 2016 and 2017 targets for the metric being removed were 10,585 and 10,935, respectively.

TBD = To be determined.
Academic Year (AY) is a collegiate year spanning August–May; School Year (SY) spans August–July and is aligned with a P–12 school year; Fiscal Year (FY) corresponds to a federal fiscal year; Calendar Year (CY) spans January–December.

Data Sources and Frequency of Collection:
5.1.A. Data Strategy Team Data Inventory and the public ED Data Inventory at http://datainventory.ed.gov; quarterly
5.1.B. State Longitudinal Data Systems (SLDS) grant monitoring (monthly updates from states, annual performance reports, final performance reports, and site visits); quarterly
5.1.C. SLDS grant monitoring (monthly updates from states, annual performance reports, final performance reports, and site visits); quarterly
5.2.A. Case Tracking System (CTS); quarterly
5.3.A. Forecast Report issued by the Office of the Chief Financial Officer (OCFO) and final Funding Reports from relevant programs; annually
5.3.B. Education Resources Information Center (ERIC); quarterly
5.3.C. What Works Clearinghouse (WWC); quarterly
5.4.A. Education Superhighway (for baseline), Consortium for School Networking (CoSN)/AASA E-rate Infrastructure Survey (for FY 2014 actual data); annually

***Note on performance metrics and targets*:** These metrics were established as a part of the *FY 2014–18 Strategic Plan*. Metrics may be updated or revised to reflect awareness of more accurate data or clarifications. Such updates or revisions are identified in footnotes.

Analysis and Next Steps by Objective

Objective 5.1: Data Systems and Transparency

Explanation and Analysis of Progress:

The Department continues to focus upon providing technical assistance to the field to support the development and use of longitudinal data systems that serve the education needs of the states. In recent years a core focus for this work has been upon implementing and sustaining connections that span the complete student lifecycle. For example, the SLDS grant program works with a State Support Team (SST) of experienced government and industry experts in the area of data systems development, connection and maintenance. The technical assistance provided by the SST is available to all states, not only to active grantees of the SLDS grant program. This level of support has enabled better conversations across states, sharing of both technical and business process best practices, and helped bring to life the number of new K-12 and postsecondary to workforce connections and P–12 to early childhood data connections that surpassed our targets for FY 2015 on both metrics.

Collaboration is key to the success of this objective. SLDS staff work frequently with other Department programs, including the ELC, as well as coordinating with Department of Labor's Workforce Data Quality Information program. The Department continues to collaborate with technical experts, standards organizations and key stakeholders in the maintenance, enhancement and roll-out of CEDS. In FY 2015, in addition to successfully completing a new grant round and awarding 16 new SLDS grants to support collaborative data uses, a new contract was awarded to support CEDS enhancements, tools and uses over the next two years. States, postsecondary institutions and independent research groups continue to use the online CEDS tools to map their data systems, data uses and data models to CEDS.

The Department continues to model the transparency we are working to develop in the field by updating and expanding the ED Data Inventory. While work to improve the functionality and connections of the ED Data Inventory system have stalled due to budgetary limitations, the work to improve and enhance the Inventory's content continues to move forward. Collections and reports from Department programs within seven different Principal Office Components are now represented in the Inventory. This resulted in 74 distinct publicly available datasets across the Department being connected to an Inventory entry. The Inventory continues to provide source information to data.gov on a regular basis.

Challenges and Next Steps:

As with previous years, state support for longitudinal data system development continues to be the largest dependency and area of risk for progress in this area. Several states have experienced increased political pressures over the past year to reduce collection and management of longitudinal student data. The most effective strategies towards building support within states for continuing to support longitudinal data system initiatives is to enable a strong set of best practice uses for the data that deliver value to stakeholders at multiple levels. The 16 new awards made in the SLDS FY 2015 grant competition are all focused upon data use. A key challenge that is being addressed right now is to develop a consistently applied and agreed upon metric (or set of metrics) for measuring and documenting good data use. The SLDS team has been driving work forward in this area as monitoring practices and protocols are set up for FY 2015 grantees.

Formalizing new phases for CEDS and the ED Data Inventory work will be very important in the coming months. As FY 2015 came to a close a new vehicle was put in place to support the development and use of CEDS for the next two years. As we start FY 2016, work is now getting back up to speed to engage the field in the continued development of the standards, and to support use of the online tools that enable agencies and interested individuals to interact with CEDS. Having the vehicle in place for two years will be helpful, as gaps in the work seen during both FY 2014 and FY 2015 should not occur. The ED Data Inventory is also at a critical juncture in its development. While the content of the inventory continues to be supported and enhanced, the technical work that was getting started at the beginning of FY 2015 to better integrate the Inventory and the collection clearance process systems at the Department had to be put on hold. Although, this should not cause problems for meeting the established goals connecting public data sets with entries within the Inventory in FY 2016, if the funding and integration issues are not resolved further progress into FY 2017 and FY 2018 may be threatened.

In FY 2016, the Department is launching the InformED initiative. InformED is the Department's groundbreaking effort to transform how the Department makes information available—and actionable—for internal users and for the public, building on lessons learned from the new College Scorecard. The InformED initiative would replicate across the education spectrum, from early childhood to adult education, what the Scorecard accomplished for higher education. Each of these Scorecard-like sites or "information hubs" would pull together the Department's diverse array of information on a particular topic, make it accessible with intuitive tools for decision-making, and allow open data access to unlock answers to pressing education questions and needs. As with the College Scorecard, the release of these data will enable external developers to create innovative new tools to further serve students. The Department is working to identify several key themes around which to center information and will develop new iterations of the College Scorecard. InformED will empower decision-makers by providing the full set of information, both data and studies that currently live in disparate locations, into one location with analysis and reporting tools and open data access to address relevant education questions. To support open access to education data and centralized dissemination of other evidence, the Department must invest in its underlying data infrastructure for managing the collection, quality, release, and analysis of data.

The Department is also continuing to improve its own internal data management practices through the maturation of the DST. What started as primarily a communication tool has evolved to document the key hurdles that prevent better data practices within the Department and to make recommendations to address them. Leadership of the DST is currently reviewing a drafted Directive on Departmental Data Management Practices. The Directive, if implemented, would formally unite existing data strategy and data governance practices while also outlining the roles and responsibilities for offices that steward key data on behalf of the Department. This work is continuing the evolution of DST from a volunteer, collaborative organization to a true governance body that can effect change and implement better practice across the Department.

Objective 5.2: Privacy

Explanation and Analysis of Progress:

Educational institutions rely on student data to improve decision-making, to personalize learning, and to target additional support to at-risk students, and the Department itself relies on student data for key administration initiatives. Increases in the collection and use of student data, however, have fueled public concern about student privacy, and important gains are at risk due to public concern. Throughout FY 2015, student privacy was an extremely hot topic and as a result the Department had to begin, to some degree, pulling away from our long term

improvement plans to respond to immediate *Family Educational Rights and Privacy Act* (FERPA) and privacy issues providing substantial, recurring technical assistance to the Hill on dozens of proposed bills dealing with student privacy. In addition, the Department responded to public and congressional criticism over the privacy of students' medical treatment records in the wake of a recent sexual assault case by issuing a draft Dear Colleague letter on the protection of student privacy in campus medical records. The Department was publicly commended for publishing the letter in draft format, to obtain public input before finalizing it in FY 2016.

While adjusting to these changing demands, there has been consistent, steady improvement in office metrics specific to privacy since we began tracking these numbers about two years ago. Our strategy has been to rely when appropriate on contractor resources, both within the office and from the contractors that staff the PTAC. These efforts in addressing the high degree of public interest in student privacy included the implementation of a new more user-friendly website, and the release of our Model Terms of Service guidance and teacher training video. Another strategy that continues to pay off is increased coordination with other Department offices engaged in privacy technical assistance as the Department expanded PTAC's work to include early childhood programs, particularly through the creation of new online resource page that curates a vast array of technical assistance resources on the privacy and security of early childhood (EC) data from across the Department's disparate EC technical assistance centers. Through PTAC and the Department's Office of the Chief Privacy Officer (OCPO), the Department conducted a number of targeted technical assistance activities on early childhood issues, including a site visits, webinars, and workshops and provided extensive internal technical assistance on privacy issues relating to the Preschool Development Grants program. As a result of this focus on efficiencies and resource utilization, using metrics to improve performance and relying on a case tracking system that manages workload and content for both our contractor and federal staff, the average time to respond to cases was under 5 days, meeting the Department's FY 2015 performance target of by having an average turnaround time of less than 8 days.

Challenges and Next Steps:

As we move forward into FY 2016, the Department again anticipates a significant amount of activity in the field on student privacy issues, from new state statutes, to policy statements, continued industry pledges and coordination with other enforcement agencies. The challenge for this area is to be proactive, when limited resources mandate reactivity. We are fundamentally realigning privacy processes and policy at the Department, while continuing to run a compliance and technical assistance program. It is challenging to continue to run basic operations, while redesigning processes and building for the future.

While we continued to make considerable strides in FY 2015, we still face an inherent challenge regarding inquiries seeking guidance on issues for which the Department has no answer. For example, video recording is increasingly being utilized in the educational arena (e.g., for surveillance, or remote classroom observation), and application of the regulatory framework to these situations is complicated. The Department, specifically the OCPO, will continue to use the biweekly meetings with the Department's Office of the General Counsel (OGC) and OPEPD to examine those issues that may require regulatory or statutory change to provide answers. Now having senior support for increased resources, there is the hope that even greater strides will be realized moving forward into FY 2016 with the addition of these resources and as part of a contract recompetition, to transform and restructure PTAC from an external, contractor-run TA center, to an integral part of the OCPO. The new contract, awarded in September 2015 will improve the Department's privacy technical assistance by leveraging and integrating the

expertise and support of PTAC's contractor subject-matter experts with the legal and policy expertise of the Department's federal staff.

Objective 5.3: Research, Evaluation, and Use of Evidence

Explanation and Analysis of Progress:

Systemic improvement requires research and evaluation so that decision makers at the national, state, and local levels have reliable evidence to inform their actions. While the Department's research programs are its primary driver for learning what works, the Department also seeks to build evidence by incorporating grantee-led evaluations into other programs. Requiring that more discretionary grants build on and generate evidence of effectiveness will increase the likelihood that scarce program dollars have a positive impact on student outcomes. A list of evaluations completed in FY 2015, as well as a summary of other relevant upcoming evaluations, can be found in appendix E.

The Department's Evidence Planning Group (EPG) continues to identify opportunities for discretionary grant programs to use evidence-related priorities or selection criteria in competitions. In FY 2015, a total of eight competitions in OII, OESE, and OPE encouraged evidence-based projects through eligibility requirements, competitive preference priorities, and selection criteria. In addition, nine competitions in OII, OESE, and OPE asked that applicants design evaluations of their proposed projects that will produce evidence. The Department surpassed the FY 2015 performance target for programs rewarding evidence in grant competitions. In addition, the EPG has met with each of the Department's grant-making offices to discuss appropriate uses of evidence in FY 2016 competitions. The Department projects that over 10 competitions will reward evidence in their FY 2016 competitions.

The metric above tracks the Department's progress in incentivizing applicants to build on evidence of "what works" and to generate new evidence in the course of their grants. Two other metrics—one related to the WWC and one to ERIC—track the Department's progress in reviewing studies of education effectiveness against rigorous standards and in making high-quality education research widely available and easily accessible. The Department believes that progress in these metrics will contribute to the information flow that is essential to promoting promising areas of education research and development.

The WWC reviews and summarizes studies of the effectiveness of education interventions. During FY 2015, the WWC surpassed the Department's target by reviewing more than 600 studies. Reviews of studies submitted by applicants to Department grant competitions contributed to the larger-than-anticipated number of studies reviewed. In addition to its regular reviews of IES-funded research studies, in FY 2015 the WWC also began to review studies produced by the i3 program's first cohort of grantees. These grantees, originally funded in 2010, began to share their results of the independent evaluations of their projects this past year. The WWC also expanded its capacity to review higher volumes of studies by offering additional reviewer training and awarding a new contract for grant-related study reviews.

Likewise, in FY 2015, ERIC continued to prioritize acquisition of peer-reviewed, full-text education research and secured many new agreements with content providers to enable ERIC to acquire the full text of peer-reviewed research articles supported with FY 2012 or later research funding from IES. This work contributed to surpassing the FY 2015 annual performance target by more than 5,000 full-text, peer-reviewed resources. ERIC also has incorporated a search function that allows users to identify studies in the ERIC database that were reviewed by the WWC and that met standards. In this way, the greater integration of the

Department's WWC and ERIC investments contributes to the "virtuous cycle" of using and producing research evidence.

Challenges and Next Steps:

The process to collect data and track progress against the goal is iterative, and properly using evidence to award competitive grants entails a shift in culture and capacity building across the Department. Building evidence into competitions is also resource-intensive in terms of program staff capacity, grantee capacity, availability of sufficient numbers of WWC-certified reviewers, and the review process. Grantees vary in their comfort with and understanding of evaluation and use of evidence, yet the Department has limited resources to support grantees in conducting rigorous evaluations that would produce evidence of effectiveness. Finally, targets for this objective are based on reasonable projections about which competitive grant programs may make new awards in this fiscal year, but the actual dollar amount awarded will depend on final appropriation amounts and other funding decisions and trade-offs, so performance targets may not increase in a linear fashion each year.

The Department's leadership will continue explaining to internal stakeholders how the new evidence framework in Education Department General Administrative Regulations (EDGAR) can be used in upcoming discretionary grant competitions to reward evidence. For example:

- EPG is meeting with program offices throughout the Department to identify ways to incorporate evidence into discretionary grant competitions.
- EPG is also exploring ways to support program offices that choose to incorporate evidence and build capacity departmentwide. For example, EPG worked to establish a departmentwide contract that would provide for technical assistance to grantees on their evaluations, particularly impact evaluations that are intended to produce studies that meet WWC standards. This contract vehicle is now operational for programs planning FY 2016 competitions. Additionally, IES has collaborated with program offices to recruit peer reviewers familiar with the WWC standards, which will increase scrutiny of applicants' proposed plans for rigorous evaluations. Finally, OII and IES are providing training to Department staff on logic models and other elements of the evidence framework to better inform our work at the Department and to provide better assistance to our grantees.
- IES continues to use its various resources intentionally to support program design and evaluation. For example, in FY 2015, IES managed the development of a guide for planning and conducting strong quasi-experiments and offered a webinar on the topic. Regional Educational Laboratory Southeast will offer a five-part webinar series FY 2016 on designing strong studies of the impact of professional development. The series is geared toward applicants to the Department's discretionary grant programs that require evidence.

To increase the number of individuals who are certified WWC reviewers, the WWC has been developing an on-demand online reviewer certification course. Previously, all training was held in-person and offered a few times per year. Demand is high for this credential, and the WWC has not been able to train all interested individuals. This new approach will allow anyone to take the training online and complete a multiple-choice exam on WWC standards. This system will allow many more individuals to receive training, at a considerably reduced per-person cost.

Objective 5.4: Technology and Innovation

Explanation and Analysis of Progress:

The Department, in consultation with OMB, has determined that performance toward this objective is making noteworthy progress. The Department made many successes during FY 2015, including a call to the country's 16,000 superintendents who lead district, charter, and private schools to join the Department in taking the Future Ready District Pledge. By taking this pledge, superintendents commit to develop, implement, and share technology plans with other districts so they can learn from successes and challenges along the way. The Future Ready District Pledge offers a roadmap to achieve successful personalized digital learning for every student and affirms a commitment by districts to move as quickly as possible toward the shared vision of preparing students for success in college, careers, and citizenship.

To support the work of the superintendents, the Department collected a series of best practices for connecting schools, providing devices, and preparing teachers to use technology effectively. These practices were published in guides released at the "ConnectED to the Future" superintendent summit: *Future Ready Schools: Empowering Educators through Professional Learning* and *Future Ready Schools: Building Technology Infrastructure for Learning*. The Department also issued a Dear Colleague letter to state and local superintendents to clarify that technology and digital learning can be an allowable use of more than $27 billion in federal funds under the ESEA and IDEA. Moreover, the Federal Communications Commission (FCC) modernized School and Libraries (E-rate) program, raising the E-rate cap an additional $1.5 billion per year and reprioritizing internal connectivity. With that added funding, E-rate will now provide up to $3.9 billion per year to schools and libraries for both connectivity to and bandwidth within these institutions.

In April 2015, former Secretary Duncan announced the release of the Ed Tech Developer's Guide: A Primer for Developers, Startups and Entrepreneurs—the first guidance from the Department specifically for developers of educational software. This guide addresses key questions about the education ecosystem and highlights critical needs and opportunities to develop digital tools and apps for learning that will help close equity gaps in our schools. Written with input from knowledgeable educators, developers, and researchers who were willing to share what they have learned, the guide is designed to help entrepreneurs apply technology in smart ways to solve persistent problems in education. The release was followed by a national Ed Tech Developers Tour, spawning more than twenty events around the country to promote the guide and highlight administration priorities regarding the creation and use of educational technology in schools. This guide is now the most downloaded publication from the Department's Office of Educational Technology.

In September 2015, the Department announced the hiring of the first ever open education adviser to lead a national effort to expand schools' access to high-quality, openly licensed learning resources. In support of the President's ConnectED goal for high-quality, low-cost digital learning resources, the open education advisor will focus on helping both P–12 and higher education connect with teaching, learning and research resources in the public domain that are freely available to anyone over the web. With this position filled, the Department is able to work with tool providers and developers, district and state leaders, and educators to expand the use of openly licensed educational resources at scale in districts and states. Open educational resources are an important element of an infrastructure for learning and ranges from podcasts to digital libraries to textbooks and games.

Also in September, the Department awarded a contract to develop approaches for evaluating educational apps to help schools and parents make evidence-based decisions when choosing which apps to use with their students. This project will establish a standard for low-cost, quick turnaround evaluations of apps, and field test rapid-cycle evaluations to understand how to improve outcomes of ESEA and now ESSA programs. In addition to generating evidence on specific apps, the project will help develop protocol tools for conducting rapid cycle evaluations of apps that practitioners, developers, and researchers can use beyond the scope of this evaluation.

Challenges and Next Steps:

In November 2015, Education Superhighway, a nonprofit dedicated to reaching the President's connectivity goal, released data based on application data from the FCC's E-rate program. It includes data from 6,781 public school districts, representing over 25 million students in approximately 49,000 schools. It estimates that 59 percent of schools have reached the President's connectivity goal this year. This estimate falls within 4 percentage points of that reported by the Consortium for School Networking (CoSN) survey. It further points out that future roadblocks to progress include access to needed fiber, especially in rural areas; affordability of broadband, especially in smaller districts that are not buying large quantities; and fully utilizing E-rate funds, since districts have to provide a percentage match to every E-rate dollar they receive. Each of these barriers could slow the rapid deployment of broadband to schools in coming years, since to varying degrees they fall outside the direct control of schools.

Several challenges remain in meeting the goals of this objective, including the need to educate the public about privacy and data security (leading to setbacks in the ability to use data to create personalized learning systems), difficulty measuring effectiveness without a robust evaluation program, and difficulty showing impact without data collection.

Selected Strategies to Achieve Goal 5

Several themes run across Goal 5 implementation strategies. Collaboration will be a key strategy needed to implement all objectives, including collaboration within the Department, collaboration within government, and collaboration with the education community as a whole. Sufficient resources are also key to all objectives in Goal 5, both federal resources and (in the case of the SLDS program) state resources as well. Privacy is both a stand-alone objective and a theme in other objectives. The Department must address valid privacy concerns and dispel privacy myths.

Another theme for success in Goal 5 is developing sustainable, scalable solutions for using data and evidence in decision-making, which will require the Department to be both efficient and effective. Building off Department resources, the Department is working to identify ways to make its data more accessible and actionable for the public. The recent release of the College Scorecard has shown the power of both user-friendly data tools and improved data access for researchers and developers through Application Program Interfaces. Department staff will leverage existing resources to improve the way that key datasets are located, accessed, and made usable. Another vital information resource is the WWC, helping identify the quality of various studies. Carefully reviewing studies against WWC standards is painstaking work and challenging to carry out at scale and in a short time frame. The Department is taking deliberate steps to increase the number of reviewers who are certified to carry out WWC reviews and to procure contracts that allow the Department to act nimbly to obtain these reviews.