

Putting the “Integrated” Back Into IPEDS:

Improving the Integrated Postsecondary Education Data System to Meet Contemporary Data Needs

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This paper is part of the larger series *Envisioning the National Postsecondary Data Infrastructure in the 21st Century*. In August 2015, the Institute for Higher Education Policy (IHEP) first convened a working group of national postsecondary data experts to discuss ways to move forward a set of emerging options for improving the quality of the data infrastructure in order to inform state and federal policy conversations. The resulting paper series presents targeted recommendations, with explicit attention to related technical, resource, and policy considerations. This paper is based on research funded in part by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the author(s) and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation or the Institute for Higher Education Policy.

Executive Summary

The Integrated Postsecondary Education Data System (IPEDS) is the nation’s most comprehensive source for information on more than 7,500 colleges and universities. However, IPEDS—as it currently operates—is insufficient to answer the emerging critical questions that facilitate college choice, transparency, policymaking, institutional improvement, and accountability, and in some cases answers questions that are no longer relevant. At a time when our national postsecondary data infrastructure absolutely must improve to meet the needs of students and families, policymakers, and institutions, IPEDS has the foundation to fill this gap in the short term. Other approaches, such as creating a federal student-level data system, may offer a more comprehensive solution, but would require more time to implement. We cannot wait for such systems to be built, but must at least improve existing systems to meet immediate needs. In this sense, improving IPEDS serves as a viable interim solution.

In many ways, IPEDS sits at the center of the national postsecondary data infrastructure. It is the only system that collects—and makes publicly available—data on almost every postsecondary institution in the nation, and is the only national system that serves students and families, policymakers, and institutions. However, because IPEDS collects data at the institution level, it also faces several limitations. **Table 1** provides a brief overview of the strengths and weaknesses of IPEDS as a system poised to address the current gaps in our existing data infrastructure.

Improving IPEDS to meet contemporary data needs will require addressing the weaknesses listed in **Table 1**—to the extent feasible—while simultaneously balancing cost, technology, and political considerations. While it is a relatively short-term solution, upgrading IPEDS will require some time and financial resources from postsecondary institutions, as well as the National Center for Education Statistics (NCES), the branch of the U.S. Department of Education (ED) that oversees IPEDS. The recommendations we present in this paper will require approximately one to three years for full implementation, as well as initial investments that may exceed current IPEDS planned expenditures or require shifting of IPEDS-designated funds. However, over the years, the time and money required to maintain an improved IPEDS would decrease. For example, linking other federal data to IPEDS could reduce burden for institutions as compared with the current system. Furthermore, IPEDS changes must take into consideration the need to balance the appropriate role of the federal government in education, protect student privacy and security, and engender intra- and interagency collaboration.

The following five recommendations guide the process for transforming IPEDS into a more robust system:

1. Collect data on key performance indicators that fully reflect 21st century students. IPEDS does not capture several important indicators in the postsecondary education pipeline, including completion rates for all students, academic

TABLE 1: STRENGTHS AND WEAKNESSES OF IPEDS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none">▶ Includes broad coverage of institutions and high compliance rate▶ Subject to rigorous quality control standards, managed by a statistical agency (National Center for Education Statistics [NCES])▶ Offers historical consistency▶ Reduces security concerns through use of aggregate data▶ Informed by regular input from community about metric design▶ Disseminated effectively and made accessible to stakeholders in a variety of formats▶ Provides strong investment in training for data reporting and data use▶ Functions at a relatively low cost, compared with more complete infrastructure redesigns	<ul style="list-style-type: none">▶ Does not flexibly adapt data collection to address changing instructional delivery models, student behaviors, or varying data needs▶ Certain metrics do not reflect all students enrolled at the institution, including part-time and low-income students▶ Does not effectively address student mobility/transfer▶ Fails to capture data on students’ post-college outcomes▶ Requires aggregate reporting by institutions, which can be burdensome for low-resourced colleges▶ Does not facilitate collection of program-level data▶ Difficult to remove or change data elements once added to IPEDS, even if no longer useful

preparedness and student progression, and credential completion efficiency.

Actions:

- ▶ Collect more complete and streamlined completion rates by combining the IPEDS Graduation Rates, Graduation Rates 200, and Outcome Measures components into a single consistent and comprehensive component, and by incorporating the retention rate measure into this component.
- ▶ Add measures to IPEDS to report students' levels of academic preparation, success in developmental coursework, and success in gateway courses in core subjects at each IPEDS institution.¹
- ▶ Add a measure to IPEDS to capture the average number of credits students earn before earning a credential at each IPEDS institution.²

2. Streamline IPEDS components to reduce institutional burden and produce more relevant data. NCES can streamline a number of separate IPEDS components without losing substantial value, while saving time and effort to institutions in the long-term. Additionally, IPEDS contains components that are unlikely to change dramatically annually, and thus should be collected less frequently to reduce the time institutions spend each year on submitting data to IPEDS.

Actions:

- ▶ Combine the Fall Enrollment component and 12-Month Enrollment components to create a single, disaggregated enrollment component that captures all postsecondary students.
- ▶ Reduce the reporting frequency for the Human Resources and Academic Libraries components to every two years.
- ▶ Publicly release IPEDS data usage rates to identify underused elements and inform future IPEDS changes.

3. Create strategic linkages between IPEDS and other systems that already collect valuable data. Federal Student Aid (FSA), the Department of Defense (DoD), the Department of Veterans Affairs (VA), the Department of the Treasury, and the U.S. Census Bureau all collect data that could enrich IPEDS, while reducing institutional burden.

Actions:

- ▶ Link to the National Student Loan Data System to replace or enhance duplicative elements in the IPEDS Student Financial Aid component.
- ▶ Link to the DoD and VA to replace institutionally reported data on military students, veterans, and eligible dependents in IPEDS.
- ▶ Link to the Department of the Treasury, U.S. Census Bureau, Social Security Administration, or other sources to include earnings and employment data in IPEDS.

4. Create a single campus level identifier for every institution of higher education. All colleges and universities have different identification numbers in every federal data system in which they are entered (e.g. IPEDS, FSA, and VA). An institution is defined differently in each system, making it difficult to match data across systems.

Action:

- ▶ Create a unified institutional ID number for use across all federal agencies, and develop procedures for federal agencies to use in adopting a unified ID.

5. Use IPEDS data to simplify institutional reporting on federal grants. Instead of asking institutions to report duplicate data to IPEDS *and* federal grant reports, the ED can pre-populate the reports with IPEDS data, easing the annual reporting process.

Action:

- ▶ Prepopulate Title III and Title V Annual Performance Reports with IPEDS data. Provide feedback reports to institutions using these data.

These recommendations can provide better, more useful data in the mid-term until a more comprehensive data infrastructure is built. To say these improvements are feasible in the mid-term is not to say they will be simple or easy to accomplish. They will require political will, institutional cooperation, and the investment of time and modest funding, but the benefits of an improved IPEDS in the near-term are most certainly worthwhile. As long as IPEDS remains our nation's foundational postsecondary data system, we must find ways to address the cost, complexity, or political challenges to these upgrades to ensure the system meets today's needs and answers more of the important questions that we should be asking—but currently cannot answer—about student access, progression, completion, cost, and post-college outcomes.

Putting the “Integrated” Back Into IPEDS:

Improving the Integrated Postsecondary Education Data System to Meet Contemporary Data Needs

Introduction

Improving the national postsecondary data infrastructure is imperative. Our nation’s students and families, policymakers, and institutions need higher quality, clear, and targeted data to answer the critical questions that facilitate college choice, transparency, policymaking, and institutional improvement and accountability. In particular, higher quality data can allow institutions and policymakers to better serve students of color, low-income students, and other underrepresented populations. While higher education experts have proposed several potential data infrastructure solutions,³ financial, technological, resource, and political considerations call into question what approach is most effective and most feasible. The need for short- and long-term solutions is especially true given the urgent need for better data. Upgrading a longstanding, widely used system seems to be a logical first step in the shorter term, especially when compared with viable, more comprehensive, yet longer-term solutions such as developing a federal student-level data system. One sensible, immediate-term option is to expand the functionality and flexibility of the most expansive federal postsecondary data system, the Integrated Postsecondary Education Data System (IPEDS). While the field continues to develop and implement more expansive and much-needed reforms, policymakers must act now to address some of the greatest deficiencies in our national data infrastructure.

IPEDS, housed in the U.S. Department of Education’s (ED’s) National Center for Education Statistics (NCES), is the most comprehensive publicly available source of data for over 7,500 colleges and universities that participate in federal financial aid programs. Most of the data collected through IPEDS are required by law. However, IPEDS does not now include all of the data measures necessary to answer critical stakeholder questions that have emerged in recent years about student access, progression, completion, cost, and post-college outcomes. For example, IPEDS does not contain the data to provide our students and families, policymakers, and institutions with information to answer key questions like the following:

- ▶ How many low-income, first-generation, adult, transfer, and part-time students, who make up the new majority on today’s campuses, attend each college?
- ▶ Do these students graduate?

- ▶ How long does it take students, particularly students who enter with less academic preparation or fewer financial resources, to complete college?
- ▶ Do students who don’t graduate transfer, or do they drop out?
- ▶ How much do students borrow, and can they repay these loans?
- ▶ Can students find jobs in their chosen field, and how much do they earn?
- ▶ What do students learn in college?⁴

IPEDS was not originally designed to answer all of these questions or serve the broad range of stakeholders that seeks these answers, but rather to provide aggregate statistics on the state of American postsecondary institutions. **Box 1** explores the historical purposes of IPEDS. However, over time, IPEDS has become the default system used for a broader set of purposes, such as compliance, institutional improvement and benchmarking, policy research, consumer information, and accountability. Moreover, because IPEDS houses such rich data and has strong data collection protocols in place, it has the potential to evolve in ways that can more effectively serve these purposes, and meet the data needs of 21st century students, policy visionaries, and institutional innovators. This foundational data system brings a host of strengths, as well as several weaknesses, as summarized in **Table 1**.

Over the past 10 years, a number of voluntary data initiatives have emerged in the field, collecting data from participating institutions and states in an attempt to answer some of the questions that IPEDS currently does not. **Figure 1** shows a framework of the best-in-class measures on which stakeholders should have data to make informed decisions. This framework builds on the efforts of the voluntary data initiatives and other national and state data collections by compiling the broad array of measures collected across these initiatives in one central location. **Figure 1** also notes the degree to which data on each of these measures and metrics are currently available in IPEDS.¹¹ One of the overarching goals of the framework is to encourage all institutions to collect data on all students and all institutions. While it may be overly burdensome to incorporate the *full* framework into IPEDS, IPEDS does serve as a fruitful vehicle for collecting at least some of the key measures that voluntary initiatives already have vetted.

BOX 1: THE ORIGINS, HISTORY, AND PURPOSES OF IPEDS

The federal government has been collecting data from colleges and universities for nearly 150 years, dating back to the 1869-70 academic year, with the first known surveys of college enrollment, earned degrees conferred, and faculty. A more comprehensive data collection began in 1966 with the introduction of the Higher Education General Information Survey (HEGIS) program, which collected data from over 3,000 colleges and universities on institutional characteristics, fall enrollment, earned degrees conferred, finances, faculty salaries, faculty and other professional staff, student charges (tuition and fees, and room and board rates), residence and migration, student financial aid, enrollment for advanced degrees, and engineering enrollments and degrees.⁵ ED administered the first IPEDS survey (Institutional Characteristics) in 1985-86, and over the next three years, IPEDS gradually added surveys, taking the place of HEGIS. The purpose of these early data collections was to provide aggregate data on the landscape of U.S. higher education institutions.

In the 1990s, IPEDS began to serve broader purposes. The 1992 reauthorization of the Higher Education Act (HEA) required all institutions receiving Title IV federal student financial aid to submit data to IPEDS. As a result, we now have annual data on over 7,500 postsecondary institutions. The 1998 HEA reauthorization called for a major IPEDS redesign that included a shift from paper-based surveys to an online format. Additionally, the 1998 HEA reauthorization required institutions to not only collect information on institution price and financial aid, but also make these data available in a consumer-friendly format. The 2008 reauthorization expanded on this previous call for better consumer information on a variety of outcomes, especially price, which led to the development of College Navigator, an online tool that allows users to search and view data for any institution that reports to IPEDS. In recent years, policymakers and advocates have expressed interest in using data to

enhance institutional accountability for student outcomes, placing even greater demands on IPEDS.⁶

Most additions and changes to IPEDS over the past 30 years have come through revisions to HEA or the Education Sciences Reform Act, or through ED action. Most of the data collected in IPEDS are required by statute or regulation.⁷ The U.S. Secretary of Education has the authority to collect more information, but has exercised this authority only on rare occasions.⁸

IPEDS was built as an institution-level data collection. However, many policy questions—especially those related to graduates' post-college employment, earnings, and other outcomes—now require at least program-level measures. Program-level measures can be more easily calculated using student-level data, which IPEDS does not collect. The student-level NCES sample surveys (e.g., National Postsecondary Student Aid Survey, Beginning Postsecondary Students, Baccalaureate and Beyond) do not fill this void because they include only national-level—not institution- or even state-level—estimates. Nonetheless, IPEDS can answer many policy questions at the institution level and can be used to analyze trends over time at the institution, system, state, and national level.⁹

In essence, IPEDS continues to serve its original purpose relatively well. Researchers, policymakers, and institutions seeking aggregate statistics on basic institutional characteristics and measures can access these data readily. Furthermore, IPEDS is one of very few data sets that includes enrollment, completion, and finance data, thus facilitating the calculation of efficiency metrics.¹⁰ IPEDS has served this function well, which is surely one of the reasons why many stakeholders have applied pressure to ask more of IPEDS.

While serving its original purpose well, IPEDS is not equipped to adapt nimbly to changing demands that stakeholders place on it, so recommendations in this paper aim to bring it up to speed with the field's current and future needs. For many years, IPEDS has lagged behind the evolving changes in student characteristics and behaviors. For example, over one-quarter of postsecondary students no longer fall into the first-time, full-time (FTFT) category, and thus are excluded from the key IPEDS graduation rate measure. This is especially problematic when examining public community colleges, where more than one-third of students are not FTFT.¹² The Student Right to Know and Campus Security Act of 1990 built these graduation rates to track student-athlete outcomes and the rates then expanded to include non-athletes. While they served their original purpose, these graduation rates do not meet today's needs to capture a more diverse and mobile student population. They also fail to meet the growing demands to use data more aggressively for accountability, consumer choice, and institutional improvement purposes. Furthermore, IPEDS has not collected data on important outcomes such as student debt

and completion rates of low-income students, even though these additions are well within the scope of IPEDS' original purpose to report national statistics on higher education.¹³ IPEDS could address a wider set of student outcomes if NCES took strategic action to review, add, delete, and revise its data elements on a regular basis to reflect the emerging policy priorities of higher education.

IHEP's 2014 report *Mapping the Postsecondary Data Domain: Problems and Possibilities* made a series of recommendations for incorporating specific missing or incomplete elements into IPEDS.¹⁴ This report takes the next step, to make broader recommendations for re-envisioning IPEDS in ways beyond simply adding elements. A re-envisioned IPEDS must adjust to meet current needs, and, to the extent feasible, should strive to anticipate the future of American higher education, its students, and its corresponding data needs. This is no small task, but it is well worth pursuing. While a thoroughly reformed, sufficiently nimble, and adequately forward-looking national data infrastructure would require more comprehensive change, such as creating a student unit record system,

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IPEDS can be modernized now through worthwhile improvements such as streamlining surveys and adding critical components. The following sections detail the technical, resource, and political enhancements required to move IPEDS from a 20th century data system to one that can serve the needs of today's stakeholders. We present five recommendations for moving IPEDS into the 21st century and maintaining it as a go-to source for policymakers, students and families, and institutions:

1. Collect data on key performance indicators that fully reflect 21st century students.
2. Streamline IPEDS components to reduce institutional burden and produce more relevant data.
3. Create strategic linkages between IPEDS and other systems that already collect valuable data.
4. Create a single campus-level identifier for every institution of higher education.
5. Use IPEDS data to simplify institutional reporting on federal grants.

While implementing these recommendations can make IPEDS more useful, the system still reports aggregate data at the institution level because program-level reporting would require substantial institutional effort. As a result, IPEDS alone does not allow for the flexibility and program-level analyses that policymakers and students need to meaningfully compare and disaggregate key metrics, particularly post-college outcomes. A national student-level data collection could replace substantial portions of IPEDS, using more efficient reporting mechanisms to produce more useful data. As such, improving IPEDS will not serve as a sweeping, complete reform, nor is it the best *long-term* solution to improving our national data infrastructure. However, until a more robust, flexible, comprehensive, and adaptable system is imple-

mented, the existing IPEDS should be improved to provide much-needed benefits to key stakeholders in the interim.

Making improvements to IPEDS will be a very challenging task. While all of the recommendations presented in the following sections are possible, in the past, leaders within and outside of NCES have suggested many of them with only limited success. While recognizing the political hurdles and need for stakeholder buy-in, this paper provides concrete ideas for attainable changes that can promote the use of high-quality data to advance better outcomes for students.

Enhancing and Leveraging IPEDS Data

Improving the student components of IPEDS to meet 21st century data needs will require consolidating, revising, and adding metrics. In the following section, we present five recommendations that, if implemented, will improve the utility of IPEDS data for a broad range of stakeholders, including policymakers, institutions, students, and families. These data enhancements will equip IPEDS users with the data necessary to answer many more questions about student-level outcomes, while improving the overall consistency and quality of IPEDS data. Moreover, NCES should leverage other existing federal data sets whenever possible to create the strongest IPEDS possible, while minimizing the added burden to institutions.

Any discussion of specific recommendations must begin by addressing this related issue of institutional burden, as we seek to improve IPEDS in ways that respect the significant effort institutions invest in annual IPEDS reporting. Additionally, we aim to manage burden so institutions have more capacity to use the data for improvement purposes rather than reporting it only for compliance. Informed by Randy Swing's paper, *Institutional Research Capacity: Foundation of Federal Data Quality*, we define burden as the balance between the value produced

FIGURE 1: AVAILABILITY OF KEY METRICS IN IPEDS

	Key Performance Indicator	Key Performance Indicator Definition
PERFORMANCE	Enrollment	Twelve-month headcount that includes all undergraduate students who enroll at any point during the calendar year
	Credit Accumulation	The percentage of students earning sufficient credits toward on-time completion in their first year
	Credit Completion Ratio	The number of credits completed, divided by the number of credits attempted by first-year students
	Gateway Course Completion	The percentage of students completing college-level, introductory math and English courses tracked separately in their first year
	Program of Study Selection	The percentage of students in a cohort who demonstrate a program of study selection by taking nine credits (or three courses) in a meta-major in the first year
	Retention Rate	The percentage of students in a cohort who are either enrolled at their initial institution or transfer to a longer program at the initial or subsequent institution, calculated annually up to 200% of program length
	Persistence Rate	The percentage of students in a cohort remaining enrolled or earning a credential at their initial or subsequent institution, measured annually up to 200% of program length
	Transfer Rate	The percentage of students in a cohort who transfer into longer programs at the initial or subsequent institution(s), up to 200% of program
	Graduation Rate	The percentage of students in a cohort who earn the credential sought at their initial institution, up to 200% of program length
	Success Rate	The percentage of students in a cohort who either graduate with the credential initially sought at the initial institution or transfer to a longer program at the initial or subsequent institution(s), up to 200% of program length
	Completers	The number of students who complete a credential in a given year
	Net Price	The average cost of attendance for an institution less all grant aid in a given year
	Unmet Need	The average net price for an institution less the average expected family contribution (EFC) in a given year
	Cumulative Debt	The median amount of debt student borrowers incur while attending an institution or program
	Loan Repayment Rate	The percentage of borrowers in a cohort who make at least \$1 of progress on their loan principal in a fiscal year, measured at one, three, five, and 10 years into repayment
	Cohort Default Rate	The percentage of borrowers who enter repayment in a fiscal year and default within three fiscal years
	Graduate Education Rate	The number and percentage of bachelor's recipients enrolling in post-baccalaureate or graduate programs within one, five, and 10 (optional) years of completion
	Learning Outcomes	Public display of student learning goals, assessments, and outcomes using the National Institute for Learning Outcomes Assessment's (NILOA) Transparency Framework
	Employment Rate	The percentage of former students with any reported earnings at one, five, and 10 years after exit from the institution
	Median Earnings	The median annual earnings of former students one, five, and 10 years after exit from the institution (excludes zeros)
Earnings Threshold	The percentage of former students earning more than the median high school graduate salary (\$25,000 in 2014; includes zeros) at one, five and 10 years after exit from the institution	
EFFICIENCY	Expenditures per Student	Education and related expenditures per full-time equivalent (FTE) student based on 12-month enrollment
	Cost for Credits Not Completed	The per-student expenditures for credits attempted but not completed by first-year students
	Cost for Completing Gateway Courses	For all gateway course completers in a given year, the per-student expenditures associated with all developmental and gateway courses attempted before gateway completion, tracking English and math courses separately
	Time to Credential	The average time accumulated from first date of entry to the institution to date of completion for all completers in a given year
	Credits to Credential	The average credits accumulated from the first date of entry to the institution to date of completion for all completers in a given year
	Change in Revenue from Change in Retention	The impact of changes in first-year retention rates from one cohort to another on tuition revenue per student available to the institution
	Cost of Excess Credits to Credential	The per-student expenditures for excess credits to credential for all completers with excess credits in a given year
	Completions per Student	The number of completions divided by the number of FTE students (based on 12-month enrollment) in a given year expressed as completions per 100 FTE
	Student Share of Cost	The percentage of education and related expenditures covered by net student tuition revenue versus public subsidies in a fiscal year
	Expenditures per Completion	Education and related expenditures divided by the number of completions in a fiscal year
EQUITY	Enrollment Status	First-time, transfer-in, or continuing students
	Attendance Intensity	Full time and part time, determined by the institution based on the number of credit hours taken
	Credential-Seeking Status	Certificate-, associate's-, bachelor's-, or noncredential-seeking students
	Program of Study	Six-digit Classification of Instructional Program (CIP) codes and reported for seven meta-majors
	Academic Preparation	Institutions classify students as "not college ready" and "college ready" in math and English as defined by institutional standards
	Economic Status	Pell Grant receipt as proxy for low-income or economic status
	Race/ethnicity	Current IPEDS categories: Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African-American, Native Hawaiian or Other Pacific Islander, White, Two or more races, Nonresident alien, and Race/ethnicity unknown
	Age	Collected by date of birth, if available; otherwise reported by three categories: 19 and under, 20–24, 25 and over
	Gender	Male, female, or other
	First-Generation Status	Students whose parents' highest education level is some college but no degree or below (e.g., some college, no degree; vocational or technical training; high school diploma or equivalent; did not complete high school)

Key: ■ Available with minor modifications needed ■ Available with moderate modifications needed ■ Available with major modifications needed ■ Not available

by data and the time, effort, and financial resources required to comply with data collection and reporting requirements.¹⁵

IPEDS currently includes 12 components, each collected during one of three collection periods over the course of the academic year. As *Institutional Research Capacity: Foundation of Federal Data Quality* notes, reporting requirements should not fall solely on the institutional research office or employee(s) assigned to compliance reporting duties, as many offices across a given college or university campus collect data. IPEDS reporting requires a collaborative effort across these campus offices. This paper's recommendation to add key data elements to IPEDS will require institutional effort, yet all of the recommendations seek to manage burden by appropriately balancing effort required with value added in the form of higher-quality data that can help improve student outcomes. The recommendations aim to manage burden by eliminating unnecessary reporting, ending the practice of duplicative reporting, building consistency across cohorts and survey components, and making the data more relevant to questions often posed to institutional researchers.

Recommendation No. 1: Collect data on key performance indicators that fully reflect 21st century students.

An ideal IPEDS would include all of the metrics in the framework in **Figure 1**, which reflects the current needs of the field. However, incorporating all of these changes into an institution-level collection like IPEDS would require additional institutional reporting capacity because each individual institution must calculate each individual metric and report the results to NCES. ED could use economies of scale to calculate these metrics more efficiently with less institutional burden through a student-level data collection in which institutions report student-level data and ED calculates the needed metrics. In the absence of such a system though, NCES should prioritize a core set of metrics. The following subsections detail the most critical metrics currently missing from IPEDS and provide guidance on how NCES should define these metrics and incorporate them into future data collections. Keeping better pace with the work of voluntary data initiatives that are reflected in the metrics framework would enhance IPEDS' capacity to answer emerging questions about student outcomes, college readiness and progression, and efficiency.

Student outcomes

Critics of IPEDS have cited its inability to report data on all students across all components and measures. More specifically, IPEDS reports enrollment data for full-time, part-time, and transfer students and disaggregates these data by key student characteristics such as race/ethnicity and gender. At the same time, IPEDS disaggregates retention rates by only full-time/part-time status and—as directed by the Student Right to Know and Campus Security Act of 1990—includes only FTFT students in the often-used graduation rate measure. This focus

on FTFT students does not reflect the current American higher education student population. Notwithstanding changes to the statute, the Secretary should use his or her existing authority to make changes to the IPEDS Graduation Rate (GR) component to include data on all students who enroll in, progress through, and graduate from college—while maintaining the FTFT cohort necessary to comply with statute.

Moreover, this recommendation is not new—experts within and outside of ED have been calling for more comprehensive cohorts, especially for graduation rates, for many years.¹⁶ In response to these calls for improved graduation rate cohorts, ED created an entirely new IPEDS component—Outcome Measures—rather than enhancing the existing GR component. The recently-added Outcome Measures (OM) component has the benefit of requiring institutions to provide data on discrete cohorts (full-time, first time; part-time first time; full-time, non-first-time; and part-time, non-first-time), but there are three primary problems with OM's data specifications. First, the reporting cohorts combine students of all credential levels (certificate, associate's, bachelor's), so outcomes at institutions that offer multiple credential levels could be confusing or misleading. Also, unlike the GR component, OM does not disaggregate for race, ethnicity, or gender. (Neither GR nor OM disaggregates the data by Pell receipt or any other indicator of socioeconomic status, although a recent ED proposal creates a fifth cohort that combines all Pell Grant recipients regardless of attendance and enrollment status.) Finally, in the OM component, completion is reported only at the six-year mark, and other outcomes, such as transfer and still-enrolled counts, are reported only eight years after initial enrollment, even for two-year institutions.¹⁷

To provide more useful information for all stakeholders, and with consideration for all institution types, NCES should align the OM component with the graduation rate and retention rate components. Through doing this, NCES should also disaggregate cohorts by credential level sought; report transfers by level of receiving institution; disaggregate by race, ethnicity, gender, and Pell Grant receipt; and report outcomes in earlier increments that at least align with 100 percent and 150 percent of time. As this will add some burden to institutions, NCES may want to consider dropping the eight-year reporting component, especially for two-year colleges at which eight years translates to 400 percent of the expected time to graduation. While collecting data at the eight-year mark may capture students who stop out but earn credentials upon returning to the institution, the burden associated with this additional collection likely outweighs its benefit. In essence, NCES should roll GR, GR200, retention, and OM components into a single component to reduce the number of surveys, enhance consistency within IPEDS, and help manage reporting burden.¹⁸

College readiness and progression

Policymakers and institutions routinely cite the inadequate academic preparation of entering students as a challenge to postsecondary success. However, current data systems do not provide information about how levels of college readiness vary across institutions or about how effectively institutions help less-prepared students progress through and succeed in college. The IPEDS 2015-16 Admissions component asks institutions to report the proportion of FTFT students enrolling in fall 2015 who took the SAT or ACT, and the institutions' 25th and 75th percentile scores. While these are helpful proxies for some institutions, they do not provide a compelling narrative for open access institutions that do not require these entrance exams.

However, all colleges have different standards for determining college readiness, so until a standard definition is universally adopted, IPEDS should, at a minimum, require institutions to report the number and proportion of students who they define as not college-ready and the rate at which these students complete developmental course sequences. They also should report what definition they are using for "college-ready" to allow NCES to investigate the level of consistency across institutions. To further improve our understanding of institutions' success in getting students college-ready and of students' progression through higher education, IPEDS also should collect gateway course completion data, disaggregated by developmental course needs, based largely on the definitions implemented by Complete College America, which has been collecting developmental and gateway course completion data for years.¹⁹ These details about institutional variations in college readiness and institutional success in serving students who are less prepared will answer frequently asked questions from policymakers and allow institutions to benchmark against each other to facilitate improvement.

Efficiency: Credits and time to credential

In an era when college affordability is a major crisis and many students who earn degrees and certificates are not doing so in the most efficient manner, we need comprehensive data on credits and time to credential, which measure the average number of credits or months it takes graduates to earn their degrees or certificates. Many voluntary initiatives collect data on credits to credential to help institutions identify inefficiencies that lead to students taking more credits than necessary in pursuit of their degrees. For example, some colleges have identified and adjusted programs in which students accumulate excessive credits and have expedited student pathways to a credential by reining in course requirements or improving advising and course availability.²⁰ IPEDS should collect these data for all institutions to encourage similar analyses and allow for institutional benchmarking on this key measure, as well as to provide policymakers with data to compare the efficiency with which students earn various credentials at different institutions.

Recommendation No. 2: Streamline IPEDS components to reduce institutional burden and produce more relevant data.

Recommending the elimination of elements from IPEDS is a tricky proposition because virtually every element has its champions. Different stakeholders have different information needs, and all recommendations to remove data from IPEDS are sensitive to the risk of unintentionally creating information barriers. In fact, in 2013 NCES hosted a technical review panel to address reporting burden, in which participants identified elements to suggest for removal from IPEDS. The panel proposed only four changes to the Institutional Characteristics component: (1) eliminate gender breakdowns for number of applicants and admitted students; (2) eliminate estimated fall enrollment; (3) remove categories of weekend and evening college, teacher certification, and subcertification from the list of student services; and (4) eliminate distance education opportunities element, if possible.²¹ However, policymakers and institutions often criticize the amount of burden associated with completing the IPEDS components, so ED should carefully consider eliminating unneeded elements when it is able to do so with minimal negative impact.²² In the subsections below, we discuss opportunities for NCES to combine two current survey components in a similar fashion to our earlier recommendation to combine the GR, GR200, and OM components. We also propose reducing the collection frequency for components that are not needed annually. Finally, we advise NCES to collect and analyze IPEDS Data Center usage statistics to drive future data collection strategy.

Combine Fall and 12-Month Enrollment components

For example, NCES could reduce reporting requirements in the long-term while increasing data utility by streamlining its enrollment data. Currently, IPEDS collects institutional enrollment data twice per year. The first collection, the Fall Enrollment (EF) component, includes only students enrolled at the beginning of the traditional academic year, with data disaggregated by race, ethnicity, gender, age, state of residence, attendance status, degree-seeking status, and major field of study. The second collection, the 12-Month Enrollment (E12) component, captures all students who enroll at any point over the course of an entire calendar year, but is disaggregated only by race and ethnicity.

The E12 component includes far more students, but is less useful because it lacks disaggregates to reflect the diversity of this comprehensive student body. In fact, in 2013-14, almost 5.8 million students from the E12 component were excluded from the EF component.²³ We recommend that NCES phase out the EF component to focus institutional efforts on disaggregating data in the more complete E12 component.

Such a change would not come without some need for adjustment in data usage. The EF data currently serve as the basis

for IPEDS retention and graduation rates for many institutions, as well as some state and institutional funding decisions. To accommodate desires for fall enrollment counts, the revised E12 component could require a disaggregate that identifies the number of students entering in the fall. Institutions would report this single, non-disaggregated, fall enrollment figure early, rather than waiting to complete the full 12-month counts, so the fall count could be used in policymaking if needed. While this accommodation is feasible, the 12-month counts are far more comprehensive, so state, institutional, and federal policymakers should shift toward using them instead of the fall counts. Similarly, under the premise of counting all students, IPEDS' GR component should evolve to adopt a 12-month, rather than a fall, cohort.²⁴ If states and other entities have urgent needs for disaggregated fall enrollment data, they could collect these data themselves.

Finally, in the short-term, changing from EF to E12 will affect year-to-year trend data. This would not be the first time trend data have undergone a needed change. When the U.S. Census Bureau changed race/ethnicity categories for the 2000 Census, IPEDS followed suit, implementing new race/ethnicity categories over a four-year period between the 2007-08 and 2010-11 academic years. During this time, NCES experienced a temporary gap in race/ethnicity trends in the process. NCES, states, and institutions will have to adjust to these changes, but having substantially better enrollment data and eliminating a complete component seems to justify any temporary gap in trend data.

Reduce frequency of Human Resources and Academic Libraries components

Another option for relieving reporting burden with minimal consequences is to change the reporting cycles for the Human Resources (HR) and Academic Libraries (AL) components. These components produce data that are both less focused on student outcomes and unlikely to change radically from year to year. NCES should require institutions to complete these components only every other year, reducing reporting effort. Precedent exists for this reporting schedule, as institutions report data on new hires and full- and part-time employees by occupational activity, race/ethnicity, and gender only every other year.²⁵

Report IPEDS usage statistics

NCES also should publicly release usage rates for all IPEDS data. Doing so would allow stakeholders to see which measures—or even full components—are being used most broadly, as well as those that are not being used. Currently, NCES collects usage statistics, but does not release them, likely because there are many factors that influence these statistics.

Most notably, researchers and other IPEDS Data Center users

may download the entire IPEDS dataset as opposed to choosing specific variables, they may reuse this dataset for a variety of purposes, or they may gain access to IPEDS data through third-party websites or applications that NCES is unable to capture in usage statistics. These challenges could result in statistics that undercount overall usage or mask trends in usage of specific variables. Notwithstanding, even imperfect usage statistics could offer some guiding information about IPEDS trends. To guard against misuse, NCES should clearly state limitations and qualifications for how to interpret the statistics. Also, NCES should engage a contractor to conduct a literature scan to develop a better understanding of the extent to which each IPEDS data element is used in research. Given these known limitations, it may not be feasible to directly link usage rates to data collection policy changes, but making the rates public and learning more about how a growing range of stakeholders use IPEDS data could at least inform future discussions on the direction of IPEDS.

Recommendation No. 3: Create strategic linkages between IPEDS and other systems that already collect valuable data.

College presidents and other postsecondary data experts see value in linking data from currently disparate federal data systems to replace institutionally-reported IPEDS elements or enhance others.²⁶ Doing so could reduce burden on institutions while improving the quantity and quality of information made available to stakeholders. Several federal agencies—within and beyond ED—are already collecting data about postsecondary students. In the absence of a federal student-level data system, IPEDS is the logical place in which data from Federal Student Aid (FSA), the Department of Defense (DoD), The Department of Veterans Affairs (VA), the Department of the Treasury, and the U.S. Census Bureau can be integrated to answer critical cross-cutting questions about student outcomes.²⁷ Below, we provide examples of ways in which NCES can link with data from each of these agencies to strengthen IPEDS while shifting data collection burden away from institutions.

Federal Student Aid linkages

FSA houses a wealth of data on students receiving Title IV student financial aid. At the same time, IPEDS collects data annually through its Student Financial Aid (SFA) component. While IPEDS collects data—at the institution level—on aided and non-aided students, and all of the IPEDS measures and FSA measures do not match identically, there are some areas of overlap between the two data collections. If ED brokered a relationship between NCES and FSA to feed aggregate data from the National Student Loan Data System (NSLDS) into IPEDS, IPEDS would have far more comprehensive data on financial aid recipients than what it currently houses. Additionally, these linkages would reduce institutional reporting requirements in IPEDS.

For example, instead of every institution reporting items in the SFA component such as student counts and award amounts of Pell Grant recipients and federal loan recipients, FSA could query NSLDS and aggregate individual student records to the institution level for IPEDS reporting. FSA is currently equipped to make these calculations for all aided undergraduates with existing data, but if FSA were to report on FTFT students—a standard cohort for financial aid measures, institutions would still need to submit to FSA a list of students in the FTFT cohort, to be matched with NSLDS records on aid receipt. Also, FSA should report cumulative debt amounts and student loan repayment rates annually, disaggregated by completion status, for each IPEDS institution. Given student and policymaker interest in student debt and repayment, these data are of critical importance, but institutions should not be required to report the data when FSA already holds it. The College Scorecard data release has shown such reporting is feasible.²⁸

Several experts have raised concerns about uneven data quality across NSLDS and IPEDS because, at many institutions, the financial aid office may report to NSLDS while another office—often the institutional research office—independently reports to IPEDS. In transitioning to a system where NSLDS data replace some IPEDS elements, institutions may identify inconsistencies. This new process could incent increased coordination across campus offices and improve overall data quality as a result. Furthermore, clean linkages between FSA and NCES definitions of an institution are necessary for these data to be linked across systems in a comprehensive manner. Details on aligning definitions and creating a common coding scheme are discussed below.

Department of Veterans Affairs linkages

IPEDS currently collects basic data on veterans who receive GI Bill financial assistance in the SFA component, but institutions would benefit greatly from linkages with DoD or VA data. For example, the VA could report to IPEDS the amount of GI Bill expenditures and GI Bill beneficiaries at each college, instead of institutions reporting these metrics through the IPEDS SFA component. While these data elements are crucial to painting a vivid portrait of an important, understudied student population, asking colleges and universities to report data already held by the federal government is duplicative and unnecessary. Replacing the reporting requirement with improved linkages, while still housing these data in IPEDS, would alleviate institutional reporting burden while providing consistent information on the over 1 million postsecondary students who are receiving veterans' benefits.²⁹ While this type of aggregate data transfer is legally permissible, it is challenging because VA uses a different classification system for institutions than IPEDS, making this paper's recommendation (detailed below) to align the definition of an institution across federal agencies all the more critical.

Workforce Outcomes linkages

Policymakers, students, and families are eager to have more information on the outcomes of students who attend the nation's colleges and universities. Even given the progress made by the most recent College Scorecard release, our current data systems still fall short of providing comprehensive, ongoing answers to these questions.³⁰ Again, the federal government holds workforce outcomes data, but until the recent College Scorecard release, these data remained disconnected from ED datasets. The new College Scorecard data include two measures of workforce outcomes: median earnings of all employed former students and the percentage of all former students (employed and not employed) with earnings above the typical high school graduate's earnings (\$25,000). These data have been used in numerous analyses since their release, and analysts continue to explore the strengths and weaknesses of the data specifications.

ED has the opportunity to add considerable value to IPEDS by routinizing this linking of federal data on employment and earnings of former students with institutional data and making those data available in the IPEDS Data Center.³¹ This would enable anyone using IPEDS data not only to access institutional enrollment, progression, and completion trends, but also to understand how an institution's former students fare in the labor market. This workforce data linkage requires greater technical capacity than the FSA and VA linkages proposed above because it requires ED (or institutions) to submit student-level data to the Department of the Treasury to allow it to match those records to individual-level earnings data. Treasury would then send aggregate, cohort-level results back to ED to report publicly.

Also, as the data are used, ED should revisit the definitions to consider adjustments, such as disaggregating by completion status. In the future, ED should report these data at the program level, as opposed to the institution level, because labor market outcomes vary by program of study.³² It is important to note that labor market outcomes are only one facet of post-college outcomes, and that American higher education serves purposes beyond workforce preparation, such as contributing to national and local thought leadership, volunteerism, the arts, and more. However, a comprehensive, consistent, and comparable data collection on these outcomes for all college and universities is not yet available. Given our nation's need for more educated workers, and the role of an educated workforce in propelling the American economy, it is imperative that we have the data necessary to make informed policy decisions to ensure that institutions are preparing our students to participate fully and effectively in the workforce. It is also important for students and families to have access to these data as they embark on the college search process.

The recent College Scorecard release was the result of years of planning, and was initiated by a directive by President Barack Obama. Negotiating more permanent, sustainable data linkages will be a challenging task, but it is possible and necessary. Once these financial aid, military, and workforce data are integrated into the IPEDS Data Center, NCES also should provide to institutions annual feedback reports with results. Incorporating all of the College Scorecard data elements together in the IPEDS Data Center will be critical to ease data access and use. Having a well-qualified statistical agency like NCES house these data will ensure consistent data quality.

Recommendation No. 4: Create a single campus-level identifier for every institution of higher education.

One longstanding obstacle to linking IPEDS data and FSA data has been the issue of institutional identification numbers. Every higher education institution that receives Title IV federal student aid has an IPEDS UNITID number, as well as an Office of Postsecondary Education Identifier (OPE ID) number. Institutions sign program participation agreements and ED determines institutional eligibility for Title IV aid at the OPE ID level, while colleges report to IPEDS using different IPEDS UNITIDs, which typically are unique for each branch campus.³³

These numbers are not only different, but also currently assigned in ways that make it difficult for them to be linked. Namely, UNITIDs are six-digit numbers, and universities with multiple branch campuses have unique UNITIDs for each branch campus. Conversely, OPE IDs are both a six-digit and eight-digit number, where institutions with multiple campuses have one OPE ID with two-digit suffixes for each branch campus. However, in existing datasets, not all institutions with multiple campuses appear to follow the same logic when deciding whether to report as one institution or many. As a result, when matching data, a “many-to-one” relationship arises. In a 2011 National Postsecondary Education Cooperative memo regarding the issue of matching campus-level data, one analysis matched a single FSA data file containing 5,505 institutional records (5,505 distinct OPE IDs) to an IPEDS data file (7,055 distinct UNITIDs) and generated only 5,353 matches. That is, several records that appear as a single institution in IPEDS actually matched to records for multiple institutions in the FSA data file. However, it is difficult to discern which non-matching IPEDS institutions align accurately with the non-matching FSA institutions. These matches included many instances in which a single IPEDS UNITID corresponded to multiple OPE IDs. Additionally, the match produced 457 cases in which the FSA data matched to a given IPEDS UNITID produced a number of Pell Grant recipients exceeding the 12-month enrollment reported in IPEDS, indicating both that there is a many-to-one error and that some records include data for more than one school campus.³⁴ Add

to this the fact that each institution has yet another different Federal School Code for Free Application for Federal Student Aid (FAFSA) filing purposes, and each institution has three different identification numbers within ED alone. Other federal agencies that collect data from colleges and universities, such as the National Science Foundation, DoD, and VA also assign unique identification numbers.

In conjunction with the recent College Scorecard data release, ED unveiled a much-anticipated IPEDS UNITID/OPE ID crosswalk document. This crosswalk is an excellent first step in connecting IPEDS data with NSLDS data. However, the most useful, truly seamless data connections require a single institution identifier for use across IPEDS, NSLDS, and other federal agencies. This is an issue that ED has investigated in the past, and given the issues with matching OPE IDs and IPEDS UNITIDs mentioned above, the mechanics of creating even a crosswalk, let alone a unified identifier, are complicated.³⁵

However, the crosswalk now exists, and the next step is to create a nimble single institution identifier for use in both IPEDS and NSLDS. Then, ED can initiate conversations across other federal agencies that collect data from colleges and universities and encourage them to adopt the unified ID number. FSA does have distinct needs for its level of institutional identification, so that level must be maintained in the new coding system. To accommodate the needs of all actors, ED should construct the unified ID in a way that allows branch and satellite campuses to stand individually, but also be rolled up into their parent institution for aggregate reporting purposes. Having a single unit ID for each campus will help researchers and students seeking to identify discrete campuses, but also should simplify comparisons across institutions, helping institutional leaders to benchmark their progress and identify opportunities for improvement.

Recommendation No. 5: Use IPEDS data to simplify institutional reporting on federal grants.

In addition to adding data elements, leveraging other federal data to further strengthen it, and streamlining data collections to reduce institutional burden, IPEDS can be leveraged in other ways to maximize its utility. For example, IPEDS data can, and should, pre-populate a variety of federal government reporting forms, which currently require institutions to input data manually, sometimes duplicating their IPEDS efforts. Using IPEDS data for reporting would not change the goals or uses of any of the programs or their forms, but instead would alleviate duplicative reporting requirements. As IPEDS becomes more equipped to meet contemporary data needs, its data also can allow third-party providers to develop robust applications for consumers that provide comprehensive data about any number of student outcomes. Currently, these providers are using the College Scorecard data for these purposes.³⁶

In November 2015, ED announced a reform to the application process for Title III and Title V Strengthening Institutional Performance Grants. Title III and Title V programs were created to support Minority Serving Institutions (MSIs), as these institutions serve critical student populations that have been historically underrepresented in higher education. To qualify for some of these grants, institutions must either be designated as Historically Black Colleges and Universities or Tribal Colleges and Universities (TCUs), or enroll a minimum percentage of Hispanic, Black, Asian American, Native Hawaiian, or Pacific Islander students. Beginning with the 2015-16 application cycle, eligible institutions will no longer be required to provide evidence of their students' demographics as part of the application process for Title III and Title V grants. Instead, ED will use IPEDS data to automatically identify eligible institutions, saving institutions a step in the process.³⁷ This policy change not only reduces institutional burden, but also increases the likelihood that qualifying institutions receive funding.

ED has an opportunity to further advance this policy by using IPEDS data to pre-populate sections of Title III and Title V Annual Performance Reports (APRs) for most institutions, saving them the trouble of populating these fields themselves. All institutions receiving funds under Title III and Title V are required to submit lengthy compliance reports each

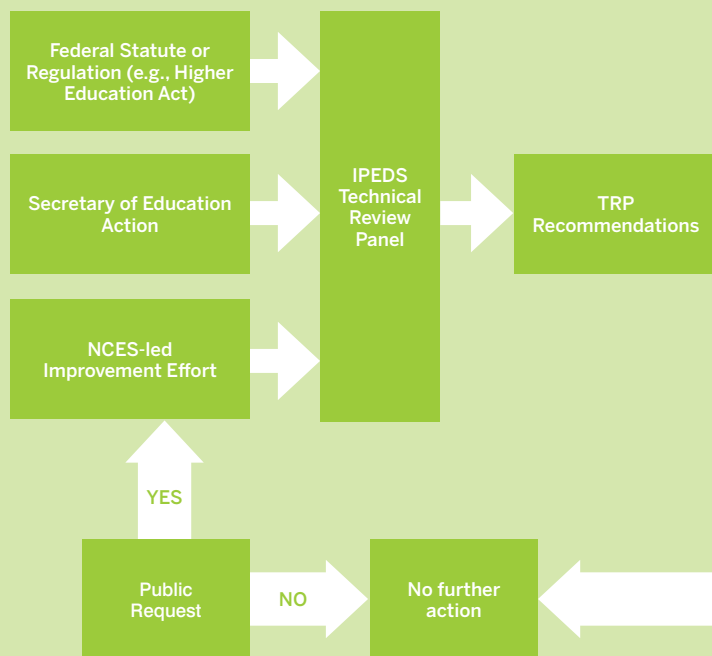
year to explain use of the federal funds. Several questions on these forms address enrollments, completions, and other measures that institutions are currently reporting to IPEDS. With some minor revision of the questions in the APRs, ED would be able to pre-populate responses with IPEDS data for all institutions with an IPEDS ID that is commensurate with the unit that submits these APRs to the Office of Postsecondary Education,³⁸ instead of requiring institutions to input them manually. This change would not comprehensively change the Title III and Title V programs, nor would it change how the data reported in the APRs are used. However, it could have significant impact on the data quality at these institutions, many of which have limited institutional research capacity, and the recent efforts to link IPEDS data to eligibility proves that these linkages are possible.

Technical and Resource Considerations

The recommendations outlined above are fundamentally necessary to move IPEDS toward being a more integrated system that addresses today's postsecondary students. That said, changes of this magnitude come with technical and resource needs. The following section addresses a number of processes, technology needs, costs, and potential political realities that NCES must consider as it works to improve IPEDS.

BOX 2: ANATOMY OF AN IPEDS CHANGE

There are three primary sources for changes to IPEDS data collection and dissemination: (1) federal statutes and regulations, (2) input from the field, (3) and NCES efforts to improve data quality and decrease reporting burden. While the Secretary of Education has the authority to make changes to IPEDS, proposed changes go through several steps to gather stakeholder feedback before adding, deleting, or revising IPEDS data elements.⁴¹ First, a government contractor selected by NCES typically convenes a TRP composed of institutional subject matter experts to discuss the change's benefits and drawbacks and hear feedback from stakeholders. The contractor then makes a summary of the TRP discussion available for public comment before it provides the panel's recommendations and any public comments to NCES. The Secretary has the authority to adopt any, all, or none of the panel's recommendations. Then, all changes to IPEDS must pass the Office of Management and Budget's (OMB's) clearance process and be posted online in the Federal Register for an open public comment period, with NCES subsequently responding to any comments received. Finally, NCES must thoroughly communicate all IPEDS changes to institutions to ensure that institutions accurately report the correct data. NCES already communicates well with institutions through its annual reporting instructions and FAQ features on the IPEDS website, as well as its partnership with the Association for Institutional Research in delivering training programs.⁴² Ideally, NCES will engage all IPEDS institutions throughout the implementation process, inviting institutions to provide feedback and incorporating that feedback into all changes. All in all, changes to IPEDS could take up to three years or more to implement.



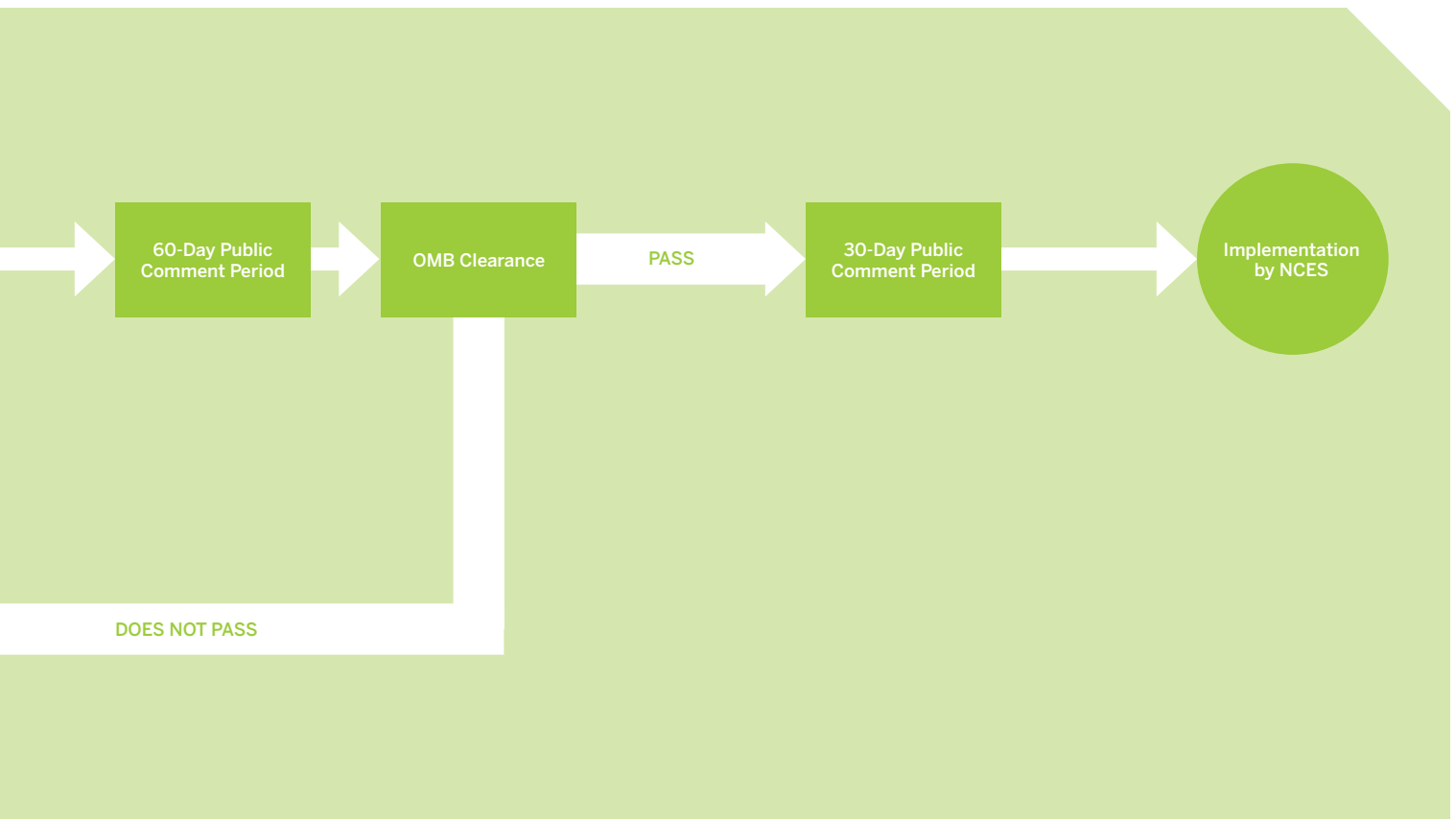
Implementation processes

Despite the urgent need to put better data into the hands of students and families, policymakers, and institutions, making these changes to IPEDS involves a number of important steps. Completing these steps likely will require several years of collaborative effort across many agencies. Working together and completing every step of the process outlined below will ensure that IPEDS will become a much stronger system, fully compliant with federal statutes and regulations and ready to serve all of its stakeholders.

The first step is for NCES to specify definitions for the metrics proposed in this paper. While NCES will need to make the final definitional decisions and take comments from the field into account, IHEP's 2016 technical report, *Toward Convergence*, should serve as the foundation for these decisions. Based on a thorough review of postsecondary data collections, *Toward Convergence* reflects areas of consensus that already have been established on metrics and definitions.³⁹ Special attention may be required when replacing some IPEDS reporting with NSLDS data because definitions sometimes differ across these two systems, which were created for different purposes. NCES will need to engage stakeholders and policymakers to ensure changes align data elements across systems effectively. Leadership from NCES, FSA, and other federal agencies could voluntarily collaborate with one

another and additional data experts to align these data systems. Conversely, Congress could mandate this alignment (see **Box 2**, "Anatomy of an IPEDS Change" for details on stakeholder engagement). Given the scope of this paper's recommendations, a government contractor likely will hold Technical Review Panels (TRPs) related to college readiness, enrollments (12-month and fall), credits to credential, outcome rates (graduation rates and outcome measures), student financial aid (FSA and VA data linkages), and workforce outcomes (**Table 1**), combining related topics into the same TRP whenever appropriate. For the student financial aid and workforce outcomes TRPs, representatives from other federal agencies or offices within ED will need to participate.⁴⁰

Furthermore, regarding data linkages, some institutional research offices may be resistant to report data they collect and report to IPEDS with data from external sources like NSLDS. To ease the transition from reporting data to linking it, institutions should facilitate dialogue between their IR staff and financial aid offices, which are the keepers of NSLDS data. NCES can play an additional role in mitigating institutions' concerns about relinquishing full control of their data by articulating the long-term decrease in burden that would result from linking to other federal data. Additionally, NCES should put into place clear and robust quality control protocols to ensure the quality and reliability of these incoming



data and offer institutions the opportunity to review their data and suggest corrections, as appropriate. Along those lines, any student-level data must be protected with airtight security controls to ensure that data remain secure as they are used to calculate aggregate metrics. For most of this paper's recommendations, however, individual-level data will not be transferred, but rather agencies will calculate and transmit aggregate metrics to NCES. NCES is a statistical agency that pays careful attention to issues related to data privacy, security, and confidentiality. Other offices and agencies, such as FSA and the VA, also must take care to secure any data they use as well, to ensure compliance with all applicable agency- and dataset-specific laws and regulations.

Technology needs

The existing IPEDS system is on strong technological footing, but creating a more integrated, fully robust IPEDS will require technology upgrades within NCES as well as other federal agencies. NCES should examine its current technology infrastructure and develop a way to add non-institutionally reported elements to the IPEDS Data Center, which will allow measures generated by FSA and others to be populated in the Data Center for easy download and analysis alongside other IPEDS elements. In other words, aligning a series of currently disparate federal data systems will require making adjustments to ensure that other data systems can “talk” with IPEDS. Also, technology enhancements will be needed to pre-populate the federal grant reports with IPEDS data and to generate the feedback reports for these institutions that show trends over time.

In addition to IPEDS upgrades, FSA may need to upgrade NSLDS, which financial aid administrators and other postsecondary data experts frequently cite as being archaic, rigid, and difficult to link to other datasets outside of FSA. Like IPEDS, NSLDS was not designed to serve a broad variety of data purposes and stakeholders.⁴³ However, despite being primarily used to track students' receipt of federal financial aid, NSLDS has a wealth of data that are currently being underused. Even without the need to expand the reach of NSLDS data, the system should be upgraded to continue to better serve students and financial aid administrators.⁴⁴

Cost estimates

Any recommendations for re-envisioning a large data system are going to come with a price tag to both the entity that creates and manages it, as well as the institutions that provide its data. Table 2 provides an overview of the cost considerations and potential long-term savings associated with our recommendations. Improving IPEDS entails not only making the data system better, but also equipping institutions to report and use its data more easily. To improve IPEDS as a system, NCES, other federal agencies, and institutions will need to invest financial resources in order to build the

21st century data system that we desperately need. Building from the foundation of an existing system likely makes these enhancements more cost effective and timely than other more far-reaching proposals (although those proposals may offer more comprehensive and usable data and are also worth full consideration). A more nimble, robust IPEDS will make the investment absolutely worthwhile in the long-term.

The federal government spends just under \$10 million per year on IPEDS.⁴⁵ To implement the recommendations in this paper, the federal government will incur additional one-time and recurring costs. One-time costs to NCES include paying a government contractor to host TRPs to engage experts in discussions about the specific additions and deletions of data measures and refinement of data definitions that we outline in this paper's recommendations, as well as added NCES staff time to design the new reporting structures. In a sense, much of the costs are already allocated through existing staff salaries and contracts with government contractors, although the contracts may need to be enhanced or staff augmented to expedite the changes. Ongoing costs to NCES and other federal agencies include cleaning and analyzing data, transferring data between agencies, training institutions about IPEDS changes, and enhancing the IPEDS Help Desk to accept a greater number of queries. Together, these recommendations are designed for long-term, sustainable improvements to IPEDS, but they certainly do not have to be implemented simultaneously.

Institutions will also face short- and long-term costs as they implement the recommended changes to IPEDS. With each added element comes the costs of staff time for cleaning and submitting data. Cost estimates for the current three-year funded cycle for IPEDS reporting suggest that each survey component requires between three and 33 hours of response burden per institution, depending on the complexity of the component. In the 2015-16 academic year, an estimated 1,049,870 hours and over \$40 million will be spent on IPEDS reporting across approximately 7,500 institutions.⁴⁶ While this level of effort may seem high at first, it translates to an average of only \$5,410 per institution. Time estimates vary based on institution type and IPEDS keyholder experience, ranging from 47-77 hours for returning keyholders at less-than-two-year institutions to 189-351 hours for new keyholders at four-year institutions. Even the greatest level of burden requires fewer than nine weeks of time. The costs associated with any changes to IPEDS outlined in this paper should be marginal. In the short-term, institutions will need to attend trainings to learn how to implement the various reporting changes, and may need more staff time to devote to implementation in the first year or two. Once NCES has phased in all of the recommended changes, institutions should expect for their overall time and effort related to reporting and checking data to return to a level not substantially different from what they experienced

before the changes, as the recommendations that involve adding elements will add effort, while recommendations related to streamlining components will alleviate it. Working with linked

data instead of collecting original data will require an adjustment to both institutions and NCES procedures, and budget estimates should reflect this adjustment.

TABLE 2: ASSOCIATED COSTS AND SAVINGS TO IPEDS CHANGES

Recommendation	Actions Required	Agencies Involved	Cost to Federal Government	Annual Cost or Savings to Institutions
Add measure(s) for academic preparation.	Define measure(s), Convene TRP, Obtain OMB clearance, Train institutions, Institutions report data	NCES	TRP cost (already included in NCES' current contractor agreements) ⁴⁷ Training costs (already included in NCES contracts with the Association for Institutional Research) ⁴⁸	Cost of additional staff time for collecting, cleaning, and submitting data.
Add measure for gateway course completion.	Define measure, Convene TRP, Obtain OMB clearance, Train institutions, Institutions report data	NCES	TRP costs Training costs	Cost of additional staff time for collecting, cleaning, and submitting data
Add measure for credits to credential.	Define measure, Convene TRP, Obtain OMB clearance, Train institutions, Institutions report data	NCES	TRP costs Training costs	Cost of additional staff time for collecting, cleaning, and submitting data
Combine GR, GR200, retention rate, and OM components into one more consistent and comprehensive component.	Revise survey instrument, Convene TRP, Obtain OMB clearance, Train institutions, Institutions report data	NCES	TRP costs Training costs	Long-term savings of submitting one component each year instead of three each year
Link to NSLDS to replace/enhance some student financial aid data elements.	Converge on data definitions, Convene TRP, Obtain OMB clearance, FSA clean data, FSA feed data to IPEDS	NCES, FSA	TRP costs Training costs	Initial cost for staff to transition from collecting data to checking linked data, long-term savings of staff time for less data collection
Link to DoD/VA to replace institutionally reported data on military students, veterans, and eligible dependents.	Converge on data definitions, Convene TRP, Obtain OMB clearance, DoD/VA clean data, DoD/VA feed data to IPEDS	NCES, DoD, VA	TRP costs Training costs	Initial cost for staff to transition from collecting data to checking linked data, long-term savings of staff time for less data collection
Link to Treasury for earnings and employment data.	Convene TRP to evaluate College Scorecard workforce outcomes measures specifications, Obtain OMB clearance, Treasury clean data, Treasury feed data to IPEDS	NCES, Treasury	TRP costs Training costs	Nominal cost for importing data from Treasury
Create a unified institutional ID number for use across all federal agencies.	Convene interagency working group, Determine methodology, Obtain OMB clearance, Train institutions on new ID number system, Institutions implement new ID number	NCES, FSA, OPE, other federal agencies	Recoding systems Training costs	Nominal cost for staff time for training to implement new ID number system
Combine EF and E12 components.	Revise survey instrument, Convene TRP, Obtain OMB clearance, Train institutions, Institutions report data	NCES	TRP costs Training costs	Long-term savings of submitting one component each year instead of two each year
Change reporting cycles for HR and AL components.	Revise survey instrument, Convene TRP, Obtain OMB clearance, Train institutions	NCES	TRP costs Training costs	Savings due to less frequent reporting
Prepopulate Title III and Title V APRs with IPEDS data. Provide feedback reports to institutions.	NCES and OPE discuss timeline for reporting and possible adjustments to questions, Link IPEDS data to OPE forms, communicate changes with institutions	NCES, OPE	Nominal costs for data linkages	Savings for MSIs related to decrease in number of questions to answer on APR forms
Publicly release IPEDS data usage rates.	Create protocols for data release, Communicate data release with stakeholders	NCES	Nominal costs for data analysis and communications efforts	n/a

Political landscape

Politics will play a major role in any initiative to improve our national postsecondary data infrastructure, and upgrading IPEDS is no exception. Four primary concerns must be managed to make data improvement proposals feasible and politically palatable: balancing the appropriate role of the federal government in education, managing reporting burden for institutions, protecting student privacy and security, and engendering intra- and interagency collaboration.

The federal role in education is under constant debate and refinement. A recent report commissioned by the Senate Health, Education, Labor, and Pensions (HELP) Committee questioned ED's role in collecting postsecondary data, encouraging ED to require institutions to report only minimal data for consumer information purposes.⁴⁹ On the other hand, postsecondary data experts and institutions have called for *better* data at the federal level, noting the importance of federal data in informing federal policy and allowing for state and institutional benchmarking.⁵⁰ While we need high-quality data on college access, progression and success, cost, and outcomes at the federal level, the federal government does not need to, nor should it, hold all data on higher education. State longitudinal data systems should remain more expansive than federal data systems, as they play a pivotal role in informing state policy and institution and system practices.⁵¹

Institutional reporting burden is a real concern—both politically and practically. When institutional researchers spend large amounts of time reporting data for compliance purposes, they have less time available to use data to improve student outcomes. To the extent feasible, reporting burden should be managed. In states and systems that have designated IPEDS coordinators, institutions should work closely with these coordinators to report relevant data already housed in the state longitudinal data system to IPEDS on the institutions' behalf. In some states and systems, this is already the common procedure. More states and systems may want to invest in a coordinator to reduce the responsibility placed on institutions. However, regardless of the assistance by state coordinators or other entities, it is not realistic to say that institutional burden will be eliminated entirely. In return for federal funds, it is fair and necessary for the federal government to expect performance data back from institutions of higher education, and those information collections will require time and effort. A recent Vanderbilt University analysis of a cross-section of 13 four-year institutions found that IPEDS reporting comprises less than 0.1 percent of the median institution's non-research expenditures, making it far from the most burdensome compliance requirement facing institutions.⁵² Similarly, in recent interviews, college presidents noted that IPEDS is not overly burdensome, but rather, ad-hoc state- and system-level data requests prove more difficult to manage.⁵³

Student data privacy, security, and confidentiality must be carefully protected in any data system. IPEDS' challenges for protecting student privacy are less pronounced than those of student-level data collections because most of its data are reported in aggregate form.⁵⁴ However, as additional administrative data from other federal sources (e.g. FSA, Treasury, VA) are incorporated into IPEDS, ED must work with those agencies to build the appropriate data protection protocols, especially for student-level data as it is transformed to aggregate-level data for inclusion in IPEDS.

Compared with some other potential data infrastructure solutions, IPEDS is less politically contentious, mainly because the system has existed for decades and its data are reported in aggregate form.⁵⁵ Notwithstanding, policymakers will still need sound rationale before endorsing any policy that adds new data elements, which is why this proposal attempts to leverage other data systems and eliminate elements to manage institutional burden wherever possible. IPEDS data are currently self-reported by institutions, which leaves them vulnerable to erroneous reporting. Despite the rigorous quality control processes at NCES, an institution may still—purposely or inadvertently—submit inaccurate data to IPEDS. Linking to other data systems reduces this risk to a degree.

Interagency politics, priorities, and funding also pose a challenge to improving IPEDS. In order to make the best use of data across federal agencies, the leaders of those agencies must be able to understand the power of uniting and must be willing to invest the commensurate time and effort in the cause. Given the countless responsibilities faced by every federal agency just to fulfill its own mission, it will take extra effort and possibly support for agencies outside of ED to come to the table to work through the challenges of linking to postsecondary education data. Now is the time to realize the value in an improved IPEDS, cut through any red tape that has prevented agencies from sharing their data in the past, and create data linkage solutions.

Conclusion

With the enhancements proposed here, IPEDS has the potential to answer the most important questions about postsecondary student outcomes and can empower students and families, policymakers, and institutions with the information they need to make key decisions. As the majority of its data are reported at the institution level, IPEDS will never be as nimble as a student-level data system, but in the absence of such a system, IPEDS is poised to better meet the needs of a contemporary national postsecondary data infrastructure, at least until a more robust system is implemented.

Putting the “Integrated” back into IPEDS means not only better integrating its various existing survey components, but also adding data measures and disaggregates across its components to fully integrate our 21st century students into the national data landscape, integrating data from other sources, and leveraging the existing data in other federal reports to alleviate institutional burden. No one is saying that this work will be easy. But, the field desperately seeks higher-quality data, the existing IPEDS system is well-positioned to provide it, and our students are undoubtedly worthy of the effort.

Endnotes

- 1 For definitions of the specific measures of academic preparation we propose adding to IPEDS, see Janice, A., & Voight, M. (2016). *Toward convergence: A technical guide for the Postsecondary Metrics Framework*. Washington, D.C.: Institute for Higher Education Policy.
- 2 For a detailed definition of credits to credential, see Janice & Voight (2016).
- 3 Rorison, J., & Voight, M. (2015). *Weighing the options for improving the national postsecondary data infrastructure*. Retrieved from Institute for Higher Education Policy website: <http://www.ihep.org/research/publications/weighing-options-improving-national-postsecondary-data-infrastructure>
- 4 The field has not achieved consensus on the best way to measure student learning. As a result, this paper does not provide specific recommendations for ways to add data to IPEDS to measure learning outcomes.
- 5 Fuller, C. (2011). *The history and origins of survey items for the Integrated Postsecondary Education Data System*. Washington, D.C.: National Postsecondary Education Cooperative. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=NPEC2012833>
- 6 Slack, M. (2013, August 22). President Obama explains his plan to combat rising college costs [Web log post]. Retrieved from <https://www.whitehouse.gov/blog/2013/08/22/president-obama-explains-his-plan-combat-rising-college-costs>; Dannenberg, M., & Nguyen Barry, M. (2014, June). *Tough love: Bottom-line quality standards for colleges*. Retrieved from Education Trust website: http://edtrust.org/wp-content/uploads/2013/10/ToughLove_0.pdf
- 7 See Fuller (2011) for more information about statutory requirements for IPEDS reporting, including authority given to the U.S. Secretary of Education.
- 8 For example, ED added distance education status to the Fall Enrollment Component in 2012, in response to requests from the higher education community. While the addition of this element went through the full process for IPEDS changes (e.g., Technical Review Panels, Office of Management and Budget package), it was not mandated by statute.
- 9 For more detailed information on the evolution of IPEDS, see Institute for Higher Education Policy (2015). *National Data Initiatives: Integrated Postsecondary Education Data System (IPEDS)*. Retrieved from: http://www.ihep.org/sites/default/files/uploads/postsecdata/docs/resources/ipeds_final.pdf
- 10 This paper does not offer recommendations related to the current IPEDS Finance Survey. Despite its central role in the current IPEDS system, its data do not primarily focus on student outcomes, and thus discussing them at length is beyond the scope of this paper.
- 11 Engle, J. (2016). *Answering the call: Institutions and states lead the way toward better measures of postsecondary performance*. Retrieved from Bill & Melinda Gates Foundation website: <http://postsecondary.gatesfoundation.org/wp-content/uploads/2016/02/AnsweringtheCall.pdf>; for more detailed information on specific definitions of measures, please see Janice & Voight (2016).
- 12 IHEP analysis of IPEDS 2013 Fall Enrollment and 12-Month Unduplicated Headcount Enrollment data.
- 13 In March 2016, NCES announced plans to add a Pell Grant recipient cohort to the IPEDS Outcome Measures component. While this addition will provide some information on the success of low-income students, its design faces substantial limitations. For more information, see Postsecondary Data Collaborative (2016). *PostsecData letter on Pell graduation rates*. Retrieved from: http://www.ihep.org/sites/default/files/uploads/postsecdata/docs/resources/postsecdata_comment_on_ipeds_pell_in_outcome_measures_apr_2016.pdf
- 14 Voight, M., Long, A., Huelsman, M., & Engle, J. (2014). *Mapping the postsecondary data domain: Problems and possibilities*. Retrieved from Institute for Higher Education Policy website: <http://www.ihep.org/research/publications/mapping-postsecondary-data-domain-problems-and-possibilities>
- 15 Swing, R. (2016). *Institutional research capacity: Foundation of federal data quality*. Tallahassee, FL: Association for Institutional Research.
- 16 Committee on Measures of Student Success. (2011). *A report to Secretary of Education Arne Duncan*. Retrieved from <https://www2.ed.gov/about/bdscomm/list/cmss-committee-report-final.pdf>

- 17 Postsecondary Data Collaborative. (2014). *Letter to RTI's report and suggestions from IPEDS Technical Review Panel 45: Outcome Measures*. Retrieved from http://www.ihep.org/sites/default/files/uploads/docs/press/postsecdata_comments_on_ipeds_outcome_measures_trp_dec_2014.pdf
- 18 For a more thorough explanation of this proposal, see Postsecondary Data Collaborative (2014).
- 19 See Janice & Voight (2016) for specific definition. For a comprehensive list of voluntary data initiatives and the measures included in their data collection, see Institute for Higher Education Policy (2015). *Initiatives & Data Measures Crosswalk*. <http://www.ihep.org/postsecdata/resources/measures-crosswalk>
- 20 Complete College America. (2015). *The game changers*. Retrieved from <http://completecollege.org/pdfs/CCA%20Nat%20Report%20Oct18-FINAL-singles.pdf>
- 21 RTI International. (2013). *Report and suggestions from IPEDS Technical Review Panel #41: Managing reporting burden*. Retrieved from https://edsurveys.rti.org/IPEDS_TRP_DOCS/prod/documents/TRP41_Suggestions.pdf
- 22 See Sidebar “Anatomy of an IPEDS Change” for more information on the process for eliminating elements from IPEDS.
- 23 Postsecondary Data Collaborative (2014).
- 24 Fourteen organizations supported this shift to 12-month cohorts for graduation rate reporting in a letter to ED about IPEDS OM. See Postsecondary Data Collaborative (2014).
- 25 National Center for Education Statistics (2015). 2015-16 data collection schedule. Retrieved from <https://surveys.nces.ed.gov/ipeds/ViewContent.aspx?contentid=15>
- 26 Rorison & Voight (2015); American Council on Education. (2015). *Recalibrating regulation of colleges and universities: Report on the Task Force on Federal Regulation of Higher Education*. Retrieved from <https://www.acenet.edu/news-room/Documents/Higher-Education-Regulations-Task-Force-Report.pdf>
- 27 For more information on linking federal data, see Bergeron, D. (2016). *Leveraging what we already know: Linking federal data systems*. Washington, D.C.: Center for American Progress Education Policy.
- 28 U.S. Department of Education. (2015). *Using federal data to measure and improve the performance of U.S. institutions of higher education*. Retrieved from <https://collegescorecard.ed.gov/assets/UsingFederalDataToMeasureAndImprovePerformance.pdf>
- 29 IHEP analysis of 2012 National Postsecondary Student Aid Study (NPSAS:12).
- 30 Rorison & Voight (2015); Engle, J. (2016).
- 31 The College Scorecard used Treasury data to report earnings and employment outcomes. However, the Scorecard also used data from FSA, NSLDS, Office of Postsecondary Education (OPE) and IPEDS.
- 32 Carnevale, A., Strohl, J., & Melton, M. (2011). *What's it worth?: The economic value of college majors*. Washington, D.C.: Center on Education and the Workforce. Retrieved from <https://cew.georgetown.edu/report/whats-it-worth-the-economic-value-of-college-majors/>
- 33 National Center for Education Statistics. Glossary: Program Participation Agreement (PPA). Retrieved from <https://nces.ed.gov/ipeds/glossary/index.asp?id=839>
- 34 Steele, P. (2011). *Suggestions for improvements to the collection and dissemination of federal financial aid data*. Washington, D.C.: National Postsecondary Education Cooperative. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=NPEC2012834>
- 35 RTI International. (2014). *Report and suggestions from IPEDS Technical Review Panel #43: Defining an IPEDS institution (Part 2)*. Retrieved from https://edsurveys.rti.org/IPEDS_TRP_DOCS/prod/documents/TRP_43_Report_and_Suggestions.pdf
- 36 Postsecondary Data Collaborative (2016). Letter to the technological community on College Scorecard data. Retrieved from: http://www.ihep.org/sites/default/files/uploads/postsecdata/docs/data-at-work/scorecard_api_tech_provider_joint_letter_march_2016_-_final.pdf.
- 37 Eligibility designations and applications for waiver of eligibility requirements; Programs under Parts A and F of Title III of the Higher Education Act of 1965, as amended (HEA), and programs under Title V of the HEA. 80 Fed. Reg. 72,422 (November 19, 2015).
- 38 Some Title III and Title V eligible institutions exist as part of a larger institution's IPEDS UNITID. The prepopulation solution proposed here will not work for the institutions with Title III or V eligibility that does not align with their IPEDSIDs, so they will need to continue reporting data on their APRs manually.
- 39 Janice & Voight (2016).
- 40 RTI International currently holds a contract with NCES, which includes, among other tasks, convening TRPs and responding to IPEDS Help Desk inquiries.
- 41 The Office of Management and Budget's approval process for all proposed IPEDS changes, which includes holding public comment periods, is mandated by the Paperwork Reduction Act of 1995, 44 U.S.C. § 3506(c)(2)(A) (1995). Retrieved from <https://www.law.cornell.edu/uscode/text/44/3506>. While law does not specifically require NCES or its contractors to hold TRPs, the OMB clearance package requires NCES to “consult with members of the public and affected agencies.” TRPs meet this requirement.
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- 43 Institute for Higher Education Policy. (2015). *National data initiatives—National Student Loan Data System*. Retrieved from http://www.ihep.org/sites/default/files/uploads/postsecdata/docs/resources/nslds_final.pdf
- 44 For more details on recommendations for improving FSA data systems, see Soldner, M. & Campbell, C. (2016). *Using – and improving – FSA data systems to support policy analysis*. Washington, D.C.: American Institutes for Research.

- 45 National Center for Education Statistics. (2013). Integrated Postsecondary Education Data System (IPEDS) 2014–16 and 2013 carry over: Supporting statement part A. OMB Paperwork Reduction Act submission (OMB No. 1850-0582 v. 13). Retrieved from Office of Management and Budget website: http://www.reginfo.gov/public/do/PRAViewDocument?ref_nbr=201312-1850-001
- 46 National Center for Education Statistics (2013).
- 47 Technical Review Panel costs include travel expenses for participants, independent contractor's staff time, and preparation of materials.
- 48 AIR/IPEDS training costs include honoraria and travel expenses for trainers, training for trainers, AIR staff time, and technology expenses.
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- 51 For more information, see Armstrong, J., & Zaback, K. (2016). *Assessing and improving state data systems*. Boulder, CO: State Higher Education Executive Officers Association.
- 52 Examples of regulatory areas that require greater effort than IPEDS compliance include programmatic and regional accreditation, financial aid, and the Family Educational Rights and Privacy Act (FERPA) compliance. Vanderbilt University. (2015). *The cost of federal regulatory compliance in higher education: A multi-institutional study*. Retrieved from <http://news.vanderbilt.edu/files/Regulatory-Compliance-Report-Final.pdf>
- 53 Rorison, J. & Voight, M. (2016) *Leading with data: How senior institution and system leaders use postsecondary data to promote student success*. Washington, D.C.: Institute for Higher Education Policy.
- 54 Grama, J.L. (2016). *Understanding information security and privacy in postsecondary education data systems*. Washington, D.C.: EDUCAUSE.
- 55 Rorison & Voight (2015).

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