LEVERAGING DATA FOR COLLEGE COMPLETION

As policymakers consider strategies to increase college completion and further economic growth, it is critical that statewide longitudinal data systems be viewed as a necessary tool. This report highlights the role of data systems in improving the completion of postsecondary education, and provides recommendations and tangible examples for policymakers and other education stakeholders seeking to utilize data as a catalyst for policy change.

Introduction

The difficulties of America's current economic climate underscore how important it is that policymakers and postsecondary leaders have access to the data, analytical tools, and informational resources necessary for sound policy development. Policy development includes decision making aimed at increasing the rate at which all students, regardless of race, ethnicity, or socioeconomic status, complete a high-quality degree or credential with value in the marketplace. Recent workforce projections indicate that occupations that usually require a postsecondary degree or award are expected to account for nearly half of all new jobs from 2008 to 2018 and one-third of total job openings (Bureau of Labor Statistics 2009). Yet, while access to college in the United States has greatly increased in recent decades (National Center for Education Statistics [NCES] 2009b), completion rates have failed to keep pace, particularly among students from low-income and racial/ethnic minority communities.

As an example, between 2000 and 2008, the proportion of low-income young adults enrolled in postsecondary education increased by 5 percentage points for Blacks and 8 percentage points for Hispanics, compared to 3 percentage points for Whites and Asians, yet the percentage of low-income young adults earning postsecondary degrees has stayed the same

(Institute for Higher Education Policy [IHEP] 2011). To bolster overall completion rates, more underrepresented groups must graduate. This circumstance is prompting the education policy community to revisit the need for improved postsecondary data—particularly in light of the current emphasis on evidence-based policy decisions in a resource-strained environment. This report seeks to document how state systems and institutions are utilizing longitudinal data to improve the academic success of students and provides recommendations to policymakers on how to use data to inform policy and programmatic decisions. The report is divided into three sections:

1. Seizing the Moment to Use Longitudinal Data for Postsecondary Student Success
2. The Dimensions and Challenges of Data-Informed Policymaking
3. Recommendations for Effective Data Use

In this report, the term "data" refers to student-level longitudinal data (i.e., data collected on individual students that can be linked over time to help assess student progress), unless otherwise indicated.

Throughout this report are leading examples of how states have utilized data to inform decision making and assess the effectiveness and effi-

ciency of policies and practices in order to bolster postsecondary completion at the state level. For additional resources on collecting, managing, and using data for informed policymaking, see the resources section at the end of the report.

Education Data Primer

Education data systems have traditionally been designed and developed for the collection of administrative data and thus are used primarily for operational and transactional purposes. The two *levels* of data collected by these systems that are of most concern to policymakers are student- and aggregate-level data; while the two *types* of data of most concern are snapshot and longitudinal.

- **Student-level data are collected on individual students and can include enrollment status (e.g., full time), completed coursework (e.g., math 101), and demographic information (e.g., race/ethnicity).**

- **Aggregate-level data refer to broad cohorts or categories of students and consist of either information initially collected in the aggregate or summaries of student-level records.**

- **Snapshot data (also called cross-sectional data) refers to data collected at a particular point in time.**

- **Longitudinal data refer to data that can be linked over time. In education, such data can consist of either student-level or cross-sectional data. The latter refers to a collection of the same type of information over time and may not necessarily consist of the same individuals.**

Seizing the Moment to Use Longitudinal Data for Postsecondary Student Success

Across the policymaking spectrum, the push to use longitudinal data more systematically for decision making continues to gain momentum. The Obama administration, state governments, and many of the nation's major foundations have all emphasized the need for evidence-based reform in higher education, presenting an extraordinary opportunity for policymakers to take advantage of this momentum for development and use of longitudinal data

systems. Prominent among the numerous factors spurring efforts to bolster the systematic use of data in higher education policymaking is a considerable increase in federal and state support. The federal government, through the American Recovery and Reinvestment Act, included the creation of "pre-K through postsecondary and career data systems" as one of its four reform areas (U.S. Department of Education 2009b) and dedicated $250 million to help support this work (NCES 2009a). President Obama has also emphasized the importance of using data to monitor and facilitate student success as part of his call to increase the number of postsecondary graduates by the year 2020 (White House 2009c). In a similar vein, the U.S. Department of Education proposed amending the Family Educational Rights and Privacy Act to reduce regulatory barriers to the implementation of statewide longitudinal data systems (U.S. Department of Education 2011b), recognizing the importance of ensuring timely access to longitudinal data while maintaining privacy protections. Most recently, the Obama Administration announced the request for applications for FY12 Student Longitudinal Data System (SLDS) competition. Applications may apply for funds to carry out projects to address one of the three following priorities:

- To design, develop, and implement a statewide, longitudinal kindergarten through grade 12 (K-12) data system,
- To develop and link early childhood data with the State's K-12 data system, and/or
- To develop and link postsecondary and/or workforce data with the state's K-12 data system.

Similarly, through their membership in initiatives such as IHEP's Project Win-Win, Complete College America, the National Governors Association's (NGA) Complete to Compete, Achieving the Dream, and Education Trust's Access to Success Initiative, many states are demonstrating a commitment to using postsecondary data to measure student progress. Much of this work further emphasizes the need to track student populations, including immigrant, rural, adult, low-income, and racial/ethnic minority groups, throughout college.

Yet despite growing momentum, the use of longitudinal data is challenged in the current economic climate as states, seeking to rein in budget costs, have cut funding for student data initiatives viewed as ineffective. It is therefore critical that state policymakers understand the elements that constitute effective systems, and see the benefits of state longitudinal data for longterm economic improvement. When properly analyzed, data become meaningful information that can help policymakers and education practitioners in multiple ways:

1. To **INFORM** and drive policy and programmatic decisions;
2. To **ASSESS** the effectiveness of particular policies, programs, or administrative and instructional practices; and
3. To **MODIFY** existing policies, programs, or practices to foster student success.

The following sections illustrate the dimensions and challenges of data-informed policymaking. The report concludes with recommendations for state policymakers to increase the use of longitudinal data.

The Dimensions and Challenges of Data-Informed Policymaking

Data can be used in multiple ways to inform decision making and subsequently drive policy and programmatic change. Regardless of the area under consideration, however, it is important to take into account the three dimensions of data-informed policymaking:

1. Data collection
2. Data management
3. State capacity for data analysis and use

Although skilled staff are necessary to address technical, system, and process issues, state policymakers and postsecondary leaders must play a central role in guiding the development of these systems by setting expectations for data use and providing financial and political support.

The Three Dimensions for Data Informed Policymaking
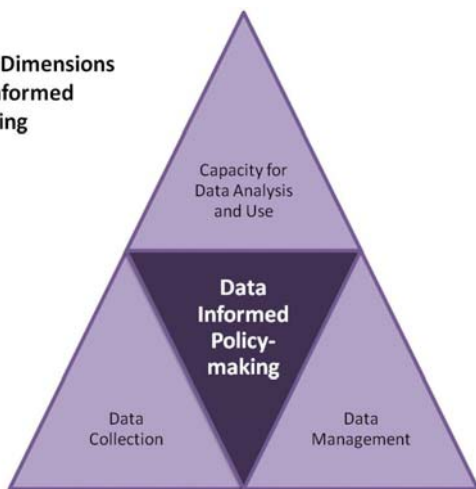
Data Collection

The purpose of data collection is straightforward: To obtain information. Yet since education data can be collected for various reasons and in various ways, it is important that policymakers, institutional leaders, and practitioners identify the policy, programmatic, and operational issues they would like to address before using the data that are collected.

A significant challenge to data collection is gathering the right data elements. Decision makers need access not just to data, but to the *right* data. Not all data are useful for decision making, and some of the data that would be most helpful in addressing particu-

Project Win-Win: Leveraging Data to Increase College Completion

Project Win-Win began in 2009 as a pilot project, led by IHEP and Education Trust, with nine community colleges committed to identifying and awarding degrees to students who had obtained enough credits but had yet to be awarded a credential. Since then, the project has expanded to encompass 35 community colleges across seven states, with more expected to join. Results from the first seven months of the pilot proved promising—the original nine community colleges awarded nearly 600 associate's degrees and identified nearly 1,600 students who were close to degree completion (i.e., fewer than nine credits short of a degree) (IHEP 2011). As a result, states not only increased the total number of students with postsecondary degrees but also improved the labor market prospects of individual graduates through newly awarded credentials.

lar policy issues are not being collected at all. The right data elements may not be available for policy and programmatic decision making for a number of reasons:

- *The policy and programmatic questions are poorly framed.* State-funded programs often submit data to state agencies as a means of compliance. Such data may not satisfy the issues of most concern to policymakers. For example, if a state is interested in determining the effects of a summer bridge program intended to improve postsecondary success for underrepresented students, policymakers should move beyond asking for first-order descriptive statistics, such as participation and completion rates, and pose more nuanced questions: *How many students who participated and completed the program are enrolled in a postsecondary institution today, and in what academic programs are they enrolled? How do program participants differ in terms of credit accumulated compared with similar students who did not participate in the program?* Policymakers should also ask evaluative questions to assess the alignment of the program with state policy and budgetary priorities. Such "deeper-dive" questions can help policymakers determine whether programming is meeting its goals.

- *Unlinked data.* Unlinked data create information gaps that can make it difficult to address complicated policy and programmatic concerns. For example, states that have yet to

connect their postsecondary and workforce data may find it difficult to assess the effectiveness of state-supported training programs designed to meet regional workforce needs.

- *Uncollected data.* A recent, comprehensive review conducted by the State Higher Education Executive Officers (SHEEO) on the types of data that states collect and maintain at the postsecondary level revealed that many states have stopped short of securing "enabling" data elements, or data that allow for more nuanced analyses of education and workforce challenges (Garcia and L'Orange 2010).

Data Management

Proper data collection is important for ensuring proper analysis. Data management, on the other hand, can ensure the accuracy of the data collected, as well as proper data analysis. Any decisions informed by analysis of the data will, therefore, be based on sound information (NCES 2010b). Among the components that contribute to good data management are having robust data governance structures in place and addressing issues of data access, privacy, and security.

Two key challenges inhibit effective data management. The first is uncertainty regarding how to interpret and implement state and federal privacy rules and regulations (Government Accountability Office 2010; Ewell and Boeke 2006). At the state level, this uncertainty can inhibit the sharing of data across agencies; at the institutional level, it can affect data sharing between administrative units. The negative impact of this uncertainty on linking and sharing data makes it more difficult to assess student movement through the P—20/workforce spectrum, especially when states are attempting to target particular student and workforce populations.

The second challenge is the issue of data access. To make informed decisions, stakeholders need access to the appropriate level of data at the appropriate times. If data privacy rules and regulations are not understood clearly or are interpreted too narrowly, access to the data may be unnecessarily restricted.

Capacity for Data Use and Analysis

Collecting the right data and ensuring their accuracy are basic to data-informed policymaking. Equally critical, however, is the capacity to analyze and use these data. This capacity is important for (1) hiring staff with the right set of data skills and policy and program knowledge to conduct and interpret the analysis; and (2) the ability of policymakers and institutional leaders to integrate findings into their decision-making processes. In sum, using data

Amending FERPA to Support State Longitudinal Data Systems

In April 2011, the U.S. Department of Education proposed amendments to the Family Educational Rights and Privacy Act (FERPA). Through these amendments, the department sought to further safeguard student privacy and facilitate the development of state longitudinal data systems by clarifying regulations on the permissible disclosure of personally identifiable information. Key changes relating to data expansion include: (1) Allowing access to student information for the purpose of auditing or evaluating government-supported education programs, (2) allowing data sharing between postsecondary institutions and K–12 officials/data systems, (3) broadly defining education programs to include non-state and non-local education agencies (e.g., early childhood education), and (4) allowing data disclosure for research purposes.

The Data Quality Campaign and supporting signatories responded to the department's solicitation for comments with recommendations to more clearly define "education program," clarify punitive procedures for FERPA noncompliance, and clarify the legality of sharing data across state lines.

For additional information on the proposed FERPA amendments and the Data Quality Campaign, visit http://www.dataqualitycampaign.org/resources/topics/13.

effectively at the policymaking level requires investing the time and effort to look at the analysis and assess the implications, and being willing to create or adjust policies based on the findings.

Many states have made significant investments in the development of their postsecondary student unit record systems, but data systems alone—no matter how robust—cannot inform policymaking. The challenge is to identify and address strengths and deficiencies in data analysis capacity and use at all levels, but particularly in the availability of staff to analyze and interpret data for policymakers to use.

Tennessee: Redesigning Developmental Education for Student Success

In 2005, the Tennessee Board of Regents (TBOR) identified developmental coursework as a significant challenge to college persistence and degree completion. According to TBOR (2005), more than 40 percent of first-time freshman attending universities, and more than 74 percent of first-time freshman attending two-year institutions, required some form of remediation. Heightening the urgency of this issue is the large number of underrepresented students in developmental education and the cost of offering the required breadth of developmental coursework. Furthermore, enrollment in TBOR institutions is projected to increase by 30 percent over the next 20 to 30 years, particularly by first-generation, low-income, and racial/ethnic minority students (TBOR 2009).

In light of these challenges, TBOR sought to increase postsecondary success by reviewing data on student retention and success and program cost, resulting in a redesign of the state's developmental studies program. Initial results of redesign were promising with "three of the six pilot projects reporting improvement in learning and retention, as well as reduced costs" (Tennessee Developmental Studies Redesign 2011). It is estimated that four of the successfully implemented projects reduced costs by an average of 36 percent (NCAT 2011). Lessons learned from this pilot project influenced Tennessee's policy landscape in several notable ways:

1. TBOR developed clear achievement benchmarks for developmental education on each of its campuses;
2. TBOR instituted policies that would empower institutions to develop their own evidence-based course redesigns; and
3. The Tennessee state legislature incorporated TBOR's achievement benchmarks for developmental education into its Complete College Tennessee Act's performance funding model (Vandal 2011).

Just as important, Tennessee's participation in this initiative helped policymakers understand that developmental studies are intended to help prepare students for the academic challenges of postsecondary education, not just to function as a remediation tool (Tennessee Developmental Education Redesign 2011).

Recommendations for State Policymakers

Since the use of longitudinal data for policymaking is a somewhat recent development, the following recommendations seek to address the challenges that have been identified thus far. More important, they are intended to provide a blueprint to build and foster a culture of data use that enables policymakers and other stakeholders to access appropriate data and act effectively on their analysis and findings.

Data Collection

- *Collaborate with stakeholders to determine key policy questions and appropriate measures of postsecondary success.* To ensure that the right data are collected, policymakers and institutional leaders must be clear about what they want to measure and why. Policymakers, state agencies, and postsecondary leaders should work together to identify key policy questions, achievable goals, and measures necessary to assess the progress of students attending the state's postsecondary institutions. With this guidance, data stewards will find it much easier to determine

what data to collect, how to collect them, and how to report them. The design and development of state data systems must not be left to the discretion of technical staff, but must be guided by the needs of multiple stakeholders.

- *Leverage existing data to inform policy and practice through linking the appropriate systems.* Not all policy questions require new data collection. Policymakers and institutional leaders can use existing data collection efforts—those in different institutional departments/offices, in different state agencies, or in different states. Given the scope and depth of existing data collection, many questions can be readily answered by combining different data sets rather than creating new collections. When new data collection is necessary, policymakers can draw on existing data to develop interim or proxy measures to assess student progress until better data are available. However, all parties should be cautious in interpreting these measures, as they are approximate at best.

Ohio: Encouraging Data-Driven Outcomes with Performance-Based Funding

The Ohio Board of Regents developed a *Strategic Plan for Higher Education* with the goal of improving the "overall educational attainment level of Ohio's workforce" by increasing the total number of degrees awarded per year, keeping graduates in Ohio, and attracting more talent to Ohio with degrees.

The Board of Regents implemented new funding formulas for its two- and four-year institutions, providing incentives and resources to achieve set targets aimed at improving student academic attainment and enhancing Ohio's economic prosperity (Fingerhut 2010). All three formulas include either a student success (i.e., credit accumulation) or a student completion (i.e., credential earned) component, and factor in additional formula weights for students who may require additional support to succeed—determined by family income, academic preparation, race/ethnicity, age, or a combination of these factors—thereby rewarding those institutions that demonstrate gains for many underrepresented students.

- Main campus funding is based on course and degree completion rates and each campus's contribution to the Ohio's *Strategic Plan for Higher Education.*
- Regional campus funding is based on course completion rates and each campus's contribution to Ohio's *Strategic Plan for Higher Education.* In the future, degree completion rates will also be included as a part of the formula.
- Community college funding will be based, in part, on a student success measure called "success points," which is intended to provide information on how a student is progressing toward degree attainment.

Community colleges will receive points for the number of students who—
- Progress from remedial to college-level courses;
- Earn 15 semester credit hours for college-level courses;
- Earn 30 semester credit hours for college-level courses;
- Earn at least one academic degree; and
- Complete at least 15 semester credit hours and subsequently enroll for the first time at a four-year college or university in Ohio (Fingerhut 2010; Smith 2011; OH BOR 2009a, 2009b, 2010).

Furthermore, all University System of Ohio institutions are participating in the Association for Public and Land Grant Universities' and American Association of State Colleges and Universities' Voluntary System of Accountability, making publicly available to stakeholders data regarding "price, financial aid, degree programs, retention and graduation rates, campus safety, student satisfaction, and student learning outcomes" (OH BOR 2008).

- *Develop robust postsecondary data systems that collect relevant information at relevant times.* If relevant data are not currently being collected, states should review their data needs (with particular reference to the policy and programmatic questions developed by stakeholders) and prioritize which data to collect and when. A robust data system will provide analysts with the data they need to begin addressing questions related to immediate policy concerns and help policymakers refine or create long-term strategies for assessing the access, progress, and success of all postsecondary students.

Data Management

- *Clarify privacy rules and regulations to enable data sharing and linking.* According to 2004–2005 U.S. Census data, an estimated 14 percent of the U.S. population moved within a one-year period; about 19 percent of movers relocated to a different state. This high mobility rate and the need to understand the "stock and flows of skills and abilities" of the nation's students and workforce (Western Interstate Commission for Higher Education 2011) underscore the importance of sharing educational data across state borders, particularly in addressing the challenges of ensuring access for un-

derrepresented students in multistate metropolitan regions (Center for American Progress 2010). To facilitate collaboration and data sharing across states, state agencies, state institutions, and state and federal policymakers need to clarify state privacy rules and regulations. Policymakers also should work to ensure that regulations are consistently interpreted and applied across state agencies and postsecondary institutions.

- ***Establish governance structures that support data sharing, linking, and use.*** Given the complexity of postsecondary systems, state policymakers should ensure that data governance structures provide a systematic infrastructure for communicating and collaborating across offices, institutions, and agencies. Just as important, these structures should include a process for gathering input, making decisions, identifying and resolving issues, implementing changes, and, as appropriate, elevating unresolved issues. These structures can also serve as a forum to help clarify privacy rules and regulations and identify barriers to data sharing.

- ***Develop policies that ensure sufficient data access by key stakeholders.*** The data needs of stakeholders vary. For example, longitudinal student-level data that cannot be attributed to a particular student can be used for program and policy analysis and should be accessible to institutional researchers, while aggregate-level longitudinal data should be accessible to postsecondary leaders and state policymakers. Given the concurring needs to use data in decision making at different levels and to protect student privacy, state policymakers and institutional leaders should implement data access policies that address issues such as (1) who will be given access to data; (2) what level of data will be shared; (3) how the data will be secured; (4) how the data will be accessed; (5) the appropriate uses for the data; and (6) how the data will be maintained and, as appropriate, destroyed.

Capacity for Data Use and Analysis

- ***Bolster staff expertise in data analytics and data use.*** Because data alone do not provide the information that policymakers and institutional leaders need, it is critical that states, postsecondary systems, and institutions be able to transform data into usable information. In addition to hiring staff with the appropriate analytical skills and policy knowledge, states can use existing resources. For example, Colorado's postsecondary system partnered with the state's education agency to tap resources from the statewide longitudinal data systems grant, expanding the state's capacity to collect, analyze, and use postsecondary data. Programs such as the Harvard Strategic Data Fellowship offer opportu-

Maine: Using Cross-Sector Partnerships to Build Data Capacity

In 2009, the Maine Department of Education, University of Maine System, Maine Community College System, and Maine Department of Labor, along with other stakeholders, collaborated on drafting and submitting two important grant proposals: The American Recovery and Reinvestment Act Statewide Longitudinal Data System (ARRA SLDS) and the U.S. Department of Labor Workforce Data Quality Initiative (WDQI).

Through this joint effort, the university and the community college system were able to leverage external resources to expand their capacity for cross-agency data sharing and use. An awarded ARRA SLDS grant then provided funding to the university system for staff time to help facilitate cross-agency data sharing, as well as resources for the development of an electronic transcript exchange system (Maine Department of Education 2009). WDQI funding allowed expanded collaboration between Maine's labor department and two-year college system, improving the tracking of community college graduates within the state workforce.

nities for states to draw from external resources to help fill expertise gaps in the short term until more permanent arrangements can be made.

- ***Train policymakers on data findings.*** To effect policy change, policymakers and institutional leaders should incorporate data analysis into their decisions. Given data limitations and the variation in data models, however, staff must be trained to understand and interpret findings.

Changing the Culture around Data Use

- ***Create the conditions for more effective data use.*** Ensuring appropriate data access alone will not lead to systematic change. Improving flexibility and responsiveness across the system is essential to making timely and efficient decisions. To achieve desired outcomes, policymakers should seek to enhance the ability of postsecondary leaders to act on data findings, where appropriate.

South Dakota: Utilizing Data to Target Adult Completion

In 2009, South Dakota joined the Western Interstate Commission for Higher Education project, *Non-Traditional No More: Policy Solutions for Adult Learners.* As a result, South Dakota was able to identify its "ready adult" population—degree-seeking students who earned more than 90 credits—and leverage its data to pinpoint the central issues impeding their completion (South Dakota Board of Regents 2010). Specifically, South Dakota was able to discern "stopped-out" trends in its ready adult population, assess their academic preparedness, and determine the geographic distribution of the adult population compared with the availability of postsecondary services. Based on its analyses, the South Dakota team offered policy recommendations to the state's Board of Regents to improve the re-entry and completion rates for the growing population of nontraditional students. Since the release of its recommendations, the board has added a general studies degree program at four institutions (Argus Leader 2010) to provide ready adult students with additional flexibility, and is working to address existing student financial holds that discourage re-entry (Michelau 2011).

- *Leverage reporting requirements and use findings to improve policy.* Policymakers should be willing to refine existing policies in response to new and ongoing data analysis. When instituting a new policy or program, for example, policymakers should consider including a requirement for periodic reviews and analysis of effectiveness. Policymakers should also enhance existing reporting requirements by asking questions that will illustrate a program's effectiveness. For example, rather than asking, "How many students graduated this year?" policymakers may ask, "How many students graduated this year with a four-year degree who started four years prior or transferred two years prior? For those who have yet to graduate, how close are they to graduation and what are the potential barriers to further credit accumulation?" Policymakers are wise to view reporting requirements as tools to help improve systems, not just as mechanisms to ensure compliance. Most important, policymakers must be willing to modify policy based on the data analysis produced in response to their inquiries.

Conclusion

Through proper data collection, good data management, and robust data analysis, policymakers can tackle the postsecondary completion challenge equipped with the information they need to identify key issues, make informed decisions, and accurately measure results. Data-informed decision making, however, demands that policymakers address existing data limitations and work to change the culture around data use by:

1. Supporting efforts to collect and link data;
2. Clarifying privacy rules and regulations;
3. Helping develop staff capacity for data analysis; and
4. Integrating data use as part of their decision making.

The need to increase postsecondary success is clear and urgent. With access to relevant data, policymakers and key stakeholders in higher education can shine a light on inequities in college-going and completion and develop policies that create strong incentives for postsecondary systems and institutions to prioritize completion for all students. 〽

Resources

American Association of Community Colleges—The primary advocacy organization for community colleges at the national level, it works closely with directors of state offices to inform and affect state policy. Resources include the recent policy brief, *Moving Success from the Shadows: Data Systems That Link Education and Workforce Outcomes.*
Web site: http://www.aacc.nche.edu/Publications/Briefs/Documents/successshadows_03162010.pdf

American Youth Policy Forum—A nonpartisan professional development organization based in Washington, D.C., AYPF, in collaboration with the Data Quality Campaign, has hosted a number of learning exchanges and field trips for policymakers on leveraging longitudinal data to improve the lives of young people.
Web site: http://www.aypf.org/

Complete College America—A national nonprofit that offers guidance on collecting and using data to inform progress toward completion goals, CCA directs the Alliance of States, which has committed to setting substantial goals, measuring progress uniformly, sharing results publicly, and reinventing higher education in order to smooth paths to completion.
Web site: http://www.completecollege.org/alliance_of_states/

Data Quality Campaign—A national, collaborative effort to encourage and support state policymakers to improve the availa-

The 15 Essential Characteristics of a Postsecondary Data System

The 15 essential characteristics and required functionality of a postsecondary data system, as identified by the State Higher Education Executive Officers, are as follows:

1. **A unique statewide student identifier**
2. **Student-level enrollment, degree completion, and demographic data for all public colleges and universities**
3. **Student-level financial aid data**
4. **Student-level transfer data**
5. **Student-level persistence and graduation data**
6. **Student-level (1) remediation data and (2) developmental education participation and success data**
7. **Student-level course/transcript-level data**
8. **Student-level data on accessed academic achievement**
9. **Privacy protection for all individually identifiable student records**
10. **The ability to match student records with data on K–12 education activities**
11. **The ability to match student records with data on employment**
12. **Inclusion of independent and for-profit institutions of higher education**
13. **A single state-level student unit record system for all public institutions**
14. **Data audit system assessing data quality, validity, and reliability**
15. **Alignment with broader state goals, demonstrated usability, and sustainability**

For additional information on the 15 elements, visit www.sheeo.org

bility and use of high-quality education data to improve student achievement, DQC provides a number of timely resources on building and utilizing robust longitudinal data systems.
Web site: http://www.dataqualitycampaign.org/

Getting Past Go—A national initiative, directed by the Education Commission of the States, that helps education policy leaders align state and system policy to increase the college success of the large percentage of students enrolled in postsecondary education who require remedial and developmental education. Resources include a working group on data use and reporting and a policy database of developmental education policy levers.
Web site: http://gettingpastgo.org/?loggedin=true

National Center for Higher Education Management Systems—Nonprofit organization whose mission is to improve strategic decision making in higher education for states and institutions in the United States and abroad. The NCHEMS Information Center provides state policymakers and analysts timely and accurate data and information that are useful in making sound higher education policy decisions. The Information Center is a comprehensive "one-stop-shop" for state-level higher education data and information, and a leader in coordinating the collection of missing data and information that are crucial for higher education policy analysis.
Web site: http://www.nchems.org/

National Governors Association Center for Best Practices, Education Division—Supports state efforts to increase access, learning, and degree attainment among youth and adults through research, technical assistance, and customized projects. Relevant resources include *From Information to Action: Revamping Higher Education Accountability Systems* and *Complete to Compete: Common College Completion Metrics & Technical Guide.*
Web site: http://www.nga.org/cms/center/edu

State Higher Education Executive Officers—A nonprofit, nationwide association of the chief executive officers serving statewide coordinating boards and governing boards of postsecondary education. Resources include the recently published brief, *The State of Postsecondary Data Systems*, which describes state systems and outlines 15 essential elements to enable effective data use.
Web site: http://www.sheeo.org/sspds/default.htm

Western Interstate Commission for Higher Education—Works with 15 member states to improve access to higher education and ensure student success. WICHE is currently managing a multistate longitudinal data working group and houses a number of publications on data use, including *A Framework for a Multi-State Human Capital Development Data System.*
Web site: http://www.wiche.edu/

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Acknowledgments

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The Pathways to College Network is an alliance of national organizations that advances college oppor-tunity for underrepresented students by promoting evidence-based policies and practices across the K–12 and higher education sectors. Pathways promotes the use of research-based policies and practices; the development of rigorous and actionable new re-search; and the alignment of efforts across middle school, high school, and higher education in order to promote college access and success for all students. To learn more about the Pathways to College Net-work, visit www.pathwaystocollege.net.

The Institute for Higher Education Policy (IHEP) is an independent, nonprofit organization that is dedicated to increasing access and success in postsecondary education around the world. Established in 1993, the Washington, D.C.-based organization uses unique research and innovative programs to inform key deci-sion makers who shape public policy and support economic and social development. IHEP's Web site, www.ihep.org, features an expansive collection of higher education information available free of charge and provides access to some of the most respected professionals in the fields of public policy and research.