EDUCATION COMMISSION OF THE STATES

SPECIAL REPORT
NOV 2025

# Using Essential Questions to Guide Data Collection and Reporting

Liz Glaser and Claus von Zastrow

Decision makers and strategy leaders in states often lack the information they need to make decisions that will support learners' success. Many lack information on what data their states already collect and publicize, and many are unsure of what data might tell a more meaningful story about student success.

Responding to this need, researchers and data experts came together to design the Education-to-Workforce Indicator Framework (E-W Framework), which aims to advance educational and economic opportunity for all through better data collection and use. The framework and its associated implementation tools provide research-based guidance for constructive conversations about how to enhance data collection efforts across agencies and offices within a state.

The E-W Framework offers principles for ethical and effective data use, essential questions and indicators that matter most, ways to disaggregate data to inform action, and evidence-based practices to drive positive change. A core component of the framework is the essential questions, which are questions state leaders often need to answer to understand how students are progressing from early education through their careers. This Special Report will introduce you to the E-W Framework, offer a process for identifying the essential questions you want to answer, help you create or refine your data collection approach, and offer strategies for acting on the answers your data systems provide.



This resource offers a process for identifying the questions you want to answer, designing your data collection approach and acting on the answers your data systems provide.

State leaders are investing in strengthening their data infrastructure. It's key to lead with essential questions before investigating metrics or data sources.

There are often practical limitations to collecting and reporting data. This resource offers a discussion guide on how to mitigate them.

## What Are the Components of the Education-Workforce Indicator Framework?

The E-W Framework has five main components that comprise a cycle from inquiry to action. They include the **essential questions**, **indicators and metrics** that help answer the essential questions, **disaggregates** that illuminate disparities among groups, and **evidence-based practices** for addressing the needs and opportunities the data reveal. Throughout each component, **data equity principles** foster the ethical and effective use of data.

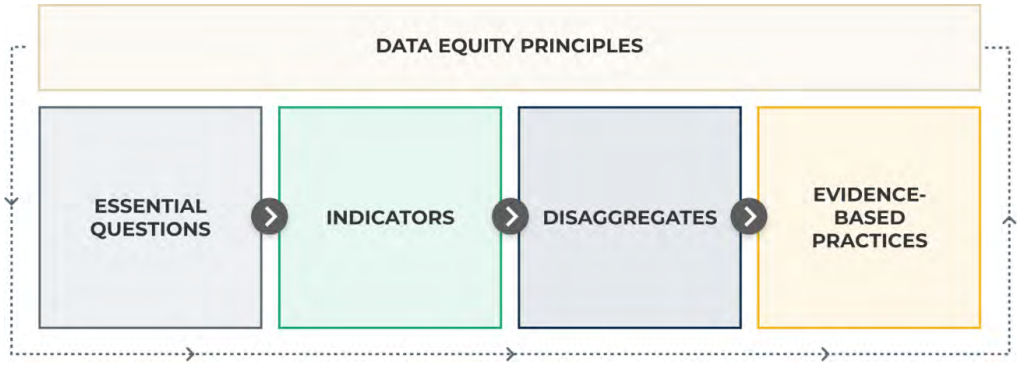


*Image source: Mathematica, 2025.*

**Essential questions**: Critical questions about people's experiences from pre-K to workforce. These are strategic questions about student progress and outcomes that can be answered with indicators and metrics.

**Indicators**: Real-world outcomes and conditions that matter for educational and economic success. Indicators describe outcomes and milestones from early education through career (e.g. high school graduation, career and technical education, and employment), as well as the conditions inside and outside of schools and workplaces that support success for all (e.g. access to full-day kindergarten, safe schools, transportation, food security, and quality jobs).

**Metrics**: Recommendations for how to measure every indicator in the framework. For example, to understand Early College Coursework Completion, the framework recommends measuring the percentage of students who passed at least one Advanced Placement (AP), International Baccalaureate (IB), or dual credit course, as well as the percentage of those students who earned postsecondary credit or a credit-bearing score on an end-of-course test (e.g. a score of three or higher on AP tests or five or higher on IB tests).

Metrics are typically calculated using information from multiple data elements, which are the building blocks of metrics. Data elements may include student course levels, completion of courses, dual enrollment credits awarded, or scores

on AP and IB tests. Many state data systems document their available data elements, typically in data dictionaries or manuals that list each element that is collected, defines the element, and describes how it is measured.

**Data sources**: The likely source for the information needed to measure the indicator. Sources may include administrative data regularly collected in the course of institutions' general operations (e.g. in student information systems and employee performance management systems) or data from assessments, transcripts, and surveys.

# Using Your Data System to Answer Essential Questions

State leaders are investing in modernizing or enhancing their data infrastructure. These efforts require collaboration across agencies and, often, sustained conversation with a broad range of interest holders about shared priorities. The E-W Framework encourages states to lead with essential questions before they begin investigating metrics or data sources. This strategy equips them to:

- Start with consensus on which questions are important across state agencies and offices.
- Develop a strategic data collection approach tailored to these questions.
- Understand what capacity is needed (i.e., across data collection, technology, analytical support and cross-agency collaboration) to identify and address gaps in the data that answer essential questions.

For the best results, state leaders can follow this three-step process for using essential questions.

## Step One*:* Identify the Priority Question or Questions for the State

You can work with leaders in your state to select questions already in the framework's essential questions or design your own. It will be important to include leaders and chief information officers at different state agencies and offices. You may also consider including leaders of community-based organizations and intermediary organizations that represent students, families or educators and other practitioners.

**Considerations for Step One**. It is important to gain a broad understanding of the data landscape in your state. Is there a statewide longitudinal data system? Which agencies or offices are involved in education-to-workforce data collection? What education-to-workforce data are already reported for your state?

**Discussion Guide for Step One**. Once you have familiarized yourself with the data landscape and stakeholders, you can begin identifying the essential questions for your state. One or more of the essential questions can offer a fruitful starting point for collective brainstorming with other state or community leaders. These discussions can occur during strategic planning sessions, public meetings, cross-agency events or other forums designed to allow for constructive conversations. Consider partnering with a convening organization or community-based organization to facilitate larger conversations.

Questions to anchor the discussion could include:

1| What are our priorities? Who is defining these priorities?

2| What outcomes are we hoping to achieve? What might it take to achieve those outcomes?

3| What's already working, and for whom is it working?

4| Does the state have data about the outcomes we hope to achieve?

5| How would more robust data collection related to our priorities support our work?

6| Who must be involved in data collection efforts based on the questions we prioritize?

As you engage in discussions, document themes about priorities, goals and ideal outcomes. Share those themes with participants to reflect ongoing prioritization.

### Step One Example

Imagine you are beginning a strategic planning process. You decide to use an Essential Question to guide the development of the plan. You select "Are students demonstrating satisfactory academic progress, consistent attendance and positive behavior to be considered on track for high school graduation?"

You would use that question as a north star to identify the data you want to collect and analyze statewide. As an immediate next step, you might include that question at the top of your agenda documents or meeting materials for future meetings to discuss progress toward answering the question.

## Step Two*:* Identify Indicators, Metrics and Data Sources

Once leaders have identified key essential questions, it is time to select the indicators and metrics that align with them. Those questions can anchor a strategic plan or research agenda that guide data collection and reporting.

**Considerations for Step Two**. The process for selecting specific metrics can be complex and may take time. We recommend selecting metrics collaboratively and encouraging stakeholders to familiarize themselves with the data systems and sources in their state as they prepare to participate in this step of the process. This may include reviewing data dictionaries or manuals published by various agencies. Education Commission of the States' overview of state data sources can be a useful starting point.

To prepare for Step Two discussions, leaders can also explore the E-W Framework website to understand the indicators and metrics that are recommended for each Essential Question.

**Discussion guide for Step Two**. In discussions about the essential questions, leaders might focus on how to select indicators and metrics aligned with their priority questions. They might also focus on cross-agency discussions about the availability of data and barriers to new data collection.

**Selecting evidence-based indicators and metrics**. Researchers and data leaders can contribute to discussions with policymakers about which indicators and metrics are linked to their essential questions. The discussion questions below can help build consensus to choose metrics and confirm alignment on where to source them.

**Indicators. Which framework indicators are meaningfully related to our essential questions?**

a. Which, if any, are we already reporting on?

**Metrics. Are metrics aligned with the indicators available and valid?**

a. Which metrics are already accessible to me and others? Which metrics are already calculated or tracked but not available to all who need them?

b. Do we need to adjust any metrics we currently use to align better with our Essential Question or evidence base?

c. Which metrics would require new data collection altogether? Are they feasible to collect?

d. Can these metrics be disaggregated so we can analyze disparities among different groups of people?

**Identifying data sources**. After leaders identify relevant indicators and metrics, they will need to identify the data elements they need to calculate them and determine how to collect the data they lack. This can be a complicated process that requires input from data system experts who are closest to their state's data systems.

- State sources. Which data elements are currently available in our state data systems? What data are lacking? In addition to Education Commission of the States' compilation of state data sources, leaders can draw on this AEM Corporation resource that helps data professionals identify data elements and build visualizations from the data in those elements.
- National sources. Which state- or local-level data might be available from national sources? One source for this information is The Education-to-Workforce Framework Data Tool — an Urban Institute dashboard that presents state and local data derived from national sources and aligned to the E-W Framework.
- Is it feasible to add data elements the state does not yet collect? Education Commission of the States' resource, Strengthening State Data on Education-to-Workforce, offers guidance on planning for new data collections.

**Navigating barriers to collecting, analyzing or sharing data**. There are often practical limitations to implementing data collection and reporting efforts. We recommend collectively discussing these challenges and opportunities to mitigate them. The discussion questions below can help:

**What barriers can prevent our agencies from collecting and/or sharing more, better or different data?**

For example:

a. Schools may lack infrastructure that allows them to track and report robust data.

b. States may not require, and therefore not fund, data collection.

c. Legal requirements for different agencies may prevent effective data sharing, or data-sharing agreements may be too narrow or unwieldy.

**Can the state use the data it already collects? The data might not be ready for analysis.**

For example:

a. The data might be incomplete if inconsistently collected or collected only for select programs or one-time projects.

b. The data might be inaccurate or of poor quality, especially if it has never been reported or audited in any way.

c. It may be difficult to extract the data from antiquated technological systems or platforms.

d. It may be difficult to link data across systems if the data lack common individual identifiers or are incompatible for other reasons.

**What can leaders do to address these barriers?**

For example, can they:

a. Provide technical assistance or other support directly to schools or other data collection sites?

b. Advocate for funding or investments that support robust data collection?

c. Bring agency lawyers together in meetings with leaders to transparently discuss legal limitations?

d. Support or draft legislation or regulatory language to support data collection?

e. Encourage or require local school districts to submit data to the state in a common format?

**Which other key players across agencies, systems or organizations can offer buy-in or support with new data collections or analysis?**

**Which changes could be relatively easy to implement, and which require more fundamental changes to data infrastructure, technological systems or policies?**

By engaging in open and transparent discussions with stakeholders about the metrics and barriers to collection, leaders can build consensus and develop a plan to move forward. These plans could be codified in research agendas or strategic plans, which are foundational documents multiple parties can use to guide their next steps. This can be complex and time-consuming work, so leaders should consider how they can use available data and reporting structures to create early successes.

### Step Two Example

If your state focuses on exploring whether students are on track for high school graduation, the framework offers consistent attendance, eighth grade on track, math and reading proficiency in eighth grade, ninth grade on track, GPA, and math and reading proficiency in high school as key indicators. Stakeholders might note that the state collects attendance and proficiency data but lacks critical elements like GPAs, course grades or suspension/expulsion rates. Schools typically collect the full range of metrics but might only report attendance and proficiency scores to the state to satisfy accountability requirements. Next steps might include an effort to explore the feasibility of requiring schools to report all necessary data elements to the state through annual accountability reporting.

## Step Three. Implement Next Steps, Reflect on Progress and Address Barriers

Successful new data collection and reporting efforts may result in updates to state data systems, public dashboards or other reports on education-to-workforce data. Plan to meet regularly with the range of agency and community leaders who support the process. It is important to discuss successes and challenges with data collection and analysis, reflect on findings emerging from the data and explore opportunities to adapt.

**Considerations for Step Three**. Understand the end users of your state reporting mechanisms. If dashboards are publicly available, consider the information you want families or other members of the public to have access to and explain how it can help them. For example, public reporting could help community organizations refine programming based on areas of need that

emerge from the data. Additionally, state boards of education or legislators might use outcomes data to consider funding or policy changes that encourage evidence-based practices.

**Discussion Guide for Step Three**. Ongoing data reflection conversations should support meaningful action to address student needs, respond to trends in outcomes or milestones or consider resource allocation, among other goals. These discussion questions can facilitate important data reflection conversations:

- Are we able to answer our essential questions using reported data? What sub-questions are we able to explore within this question?
- Are our priority audiences for these data sufficiently accessing these systems or reports? How might we engage them more meaningfully to access and engage with the data?
- Which areas of need or concern have emerged from the data?
- How are we prepared to address needs that emerge in the findings? Who might we collaborate with to address those needs?
- What positive trends have surfaced related to student outcomes? How might we continue to support programs that can sustain progress toward those outcomes?

Community leaders and other key stakeholders can regularly reflect on the data together to develop collaborative strategies for ensuring education success and economic mobility for all state residents.

### Step Three Example

As your state begins to report on data about high school graduation, state leaders can identify a subset of schools that report very high graduation rates. As users explore the data, they notice that those schools are also reporting high GPAs and high attendance rates in ninth grade. Leaders connect with those schools to learn more about the practices that may have affected those on-track metrics. The state education agency designs a technical assistance grant for those seeking to implement similar practices and invites the schools reporting strong data to lead a community of practice.

# Final Thoughts

Efforts to improve states' data systems are most effective when they start with the essential questions those systems need to answer. By identifying the indicators, metrics and data that answer those questions, state leaders can create more systematic and efficient strategies for improving their state's information culture.

# About the Authors

## Liz Glaser

Liz is a managing consultant at Mathematica where she specializes on systems-level improvements that help youth to succeed and thrive. Her work focuses the programs and policies that influence a young person's completion of high school and journey through postsecondary education. She is an AmeriCorps alum and a college access mentor. Contact Liz at lglaser@mathematica-mpr.com.

## Claus von Zastrow

As senior policy director, Claus works with his Education Commission of the States colleagues to promote timely and relevant education policy and research. He has held senior positions in education organizations for more than 20 years and has spent much of that time helping diverse stakeholders find consensus on important education issues. Claus is dedicated to ensuring that state leaders have the information and guidance they need to make the best possible decisions affecting young people. Contact Claus at cvonzastrow@ecs.org.

# Acknowledgments

This report is based on research funded by the Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Gates Foundation.