# DISTRICT CONTINUOUS IMPROVEMENT: REVIEW OF LITERATURE AND PRACTICE

Prepared for Nebraska Department of Education

August 2021

HANOVER RESEARCH

# TABLE OF CONTENTS

# INTRODUCTION

Increasingly, state-, district-, and school-level leaders are using components of a Continuous Improvement (CI) cycle to support student achievement and achieve school improvement goals. While some may view it as a trend driven by directives from the Every Student Succeeds Act (ESSA), the core components of CI have been shown to produce meaningful and sustainable positive change in K12 settings.[1]

CI in K12 settings represents a shift and evolution from previously favored "what works" and researcher-driven improvement methods. While research-based approaches remain a part of CI, those working in school improvement are "beginning to favor good practice over best practice, local proofs over experimental evidence, adaptation over faithful implementation, and focus on practitioners' problems over researchers' solutions."[2] Similarly, the Carnegie Foundation for the Advancement of Teaching frames CI as the process of "mov[ing] away from initiative fatigue and toward building the capacity to function as relentless learning organizations."[3] CI provides a roadmap for schools and districts working to achieve both short- and long-term improvement goals that are meaningful, context-specific, and sustainable.

This report summarizes both literature on CI and details on the practice of using CI within K12 settings. In particular, this report is designed to support decision-making and planning around the Nebraska Department of Education's (NDE) framework for district-level CI and the accompanying guidance and resources to support district use and implementation. Whenever possible, this report highlights practical examples and insights from the perspective of State Departments of Education. This report covers the following topics across three sections:

- **Section I: Continuous Improvement Methods and Approaches** – The report begins with an overview of methodologies for CI within K12 settings generally, as well as additional details on the overlap and integration of equity within a CI approach.
- **Section II: Continuous Improvement Guidance and Resources** – The second section provides details on how other State Departments of Education have approached providing guidance and resources around the CI process to build skills for carrying out CI. This section specifically focuses on Comprehensive Needs Assessments (CNA), triangulation, and peer review to support NDE's planning efforts.
- **Section III: Continuous Improvement Success Factors** – The final section discusses several closely related factors shown to influence the outcomes and success of CI within organizations – leadership, culture, and mindset.

[1] [1] Sparks, S.D. "A Primer on Continuous School Improvement." *Education Week*, February 6, 2018. https://www.edweek.org/policy-politics/a-primer-on-continuous-school-improvement/2018/02 [2] Park. S. et.al. "Continuous Improvement in Education." Carnegie Foundation for the Advancement of Teaching, 2013. https://www.carnegiefoundation.org/wp-content/uploads/2014/09/carnegie-foundation_continuous-improvement_2013.05.pdf

[2] Yurkofsky, M.M., et al. "Research on Continuous Improvement: Exploring the Complexities of Managing Educational Change." *Review of Research in Education*, 44, March 2020, p. 403. https://journals.sagepub.com/doi/full/10.3102/0091732X20907363

[3] Dixon, C. J. and S. N. Palmer. "Transforming Educational Systems Toward Continuous Improvement." Carnegie Foundation for the Advancement of Teaching, March 2020. https://www.carnegiefoundation.org/wp-content/uploads/2020/04/Carnegie_Transform_EdSystems.pdf

# RECOMMENDATIONS

Based on our findings, Hanover Research suggests that NDE consider the following recommendations.

- **Develop a four-to-six step standard process for conducting CI using the Plan-Do-Study-Act (PDSA) cycle as a basis**. The PDSA cycle is the most commonly used CI approach and can achieve many different goals within K12 settings. Require or recommend a separate Comprehensive Needs Assessment (CNA) as a precursor to any new CI processes. Develop a suite of guidance and templates for each step of the CI and CNA process, including examples and templates for planning, data collection and analysis, and reporting results.

- **Use training and professional learning to build leadership capacity and mindset to support successful CI**. In addition to the technical details of planning and carrying out a CI process, those leading the process require a transformational mindset that is open to and supports change within their organization. There may be additional opportunities for leadership development outside of CI-specific training, such as through principal or leadership development programs.

- **Expand and update the NDE Continuous Improvement Toolkit and website to include access to additional on-demand resources and training.** While the NDE toolkit and website reflect many of the features found in other states, there are opportunities for greater depth of content and usability. For example, several states offer recordings of past webinars and trainings for educators to view on-demand as well as additional interactive features to organize and provide access to resources (e.g., clickable visuals of the CI process steps). NDE may also consider developing a set of editable templates or fillable forms that districts can use across each step of the CI process.

# KEY FINDINGS

- **The Plan-Do-Study (or Check)-Act (PDSA) cycle is the most common approach to continuous improvement (CI) both within and outside of education**. The PDSA cycle offers a systematic approach to planning for, implementing, and analyzing change to achieve improvement over time. The cycle ends with a decision point to continue, alter, or abandon the change, with a new PDSA cycle initiated to test the decision.

- **Many State Departments of Education (DOEs) have developed a recommended or required CI process for schools and districts, with most using a variation of the PDSA cycle as a basis**. States typically outline a four to six-step process for CI. CI process steps typically emphasize the tasks and actions that should occur during the "Plan" phase of the PDSA cycle. For example, most states list two or three distinct steps related to planning. These planning steps often call for a needs assessment, defining of goals or purpose, and the selection of interventions to implement. The remaining PDSA steps are typically compressed in state DOE-developed CI processes. For example, many combine aspects of the "Study" and "Act" phases into one consolidated step for data analysis and reflection.

- **Some state DOE-developed CI processes highlight key conditions and factors necessary for success by situating or relating the CI cycle within a larger framework**. Some states leverage externally-developed frameworks for school improvement while others develop or use internal frameworks or rubrics, such as those for accountability or school quality. Common elements include leadership, stakeholder engagement, and other goals or standards for high-quality instruction or student success.

- **While most states provide at least one guidance document outlining their CI process steps and expectations, some states also offer more extensive resources and supports through a dedicated CI website**. CI-related resources typically include links to specific guidance documents for each step in the CI process, archived webinars and professional learning training materials, templates and examples for use during the CI process, and access to technical assistance through FAQs and contact lists.

- **Many states include a specific step in the CI process for a Comprehensive Needs Assessment (CNA) and also offer targeted guidance and support for conducting a CNA**. The CNA is often described as a systematic process for building understanding of current conditions, analyzing data, and outlining key priorities and needs, which may culminate in or feed into a larger CI process or cycle. State resources for CNAs typically include recommended steps or actions in the process, lists of available datasets for use in CNAs, guidance on conditions for a successful CNA (e.g., context-specific focus and stakeholder engagement), and templates for documenting the CNA process and results.

- **Leadership is a critical factor in the success of CI.** Leaders who are open and supportive of change and transformation create an environment conducive to CI. Additionally, leaders need to think about problems and solutions from a systems level, recognizing and understanding how different aspects of their organization are intertwined. Leaders are also responsible for setting a clear vision for CI and creating a culture that supports and values CI.

- **An organization with a culture of CI has both the technical skills and adaptive characteristics to support change.** Staff training should focus on building capacity to undertake the technical aspects of CI, including strategic visioning, root cause analysis, development of evaluation, data collection, and action plans, and facilitation of collaborative decision making. Additionally, organizations require certain foundational practices and values that support a culture of CI. Such practices include a shared commitment and support for professional learning, inquiry, transparency and inclusion, and communities of practice.

# SECTION I: CONTINUOUS IMPROVEMENT METHODS AND APPROACHES

Continuous Improvement (CI) is broadly defined as the process of ensuring ongoing improvement "through incremental and breakthrough improvements."[4] Another framing of CI defines it as "the act of integrating quality improvements into the daily work of individuals in the system."[5] The term and concept come from the field of quality control and assurance and are commonly used across many sectors and industries and for many goals within an organization. W. Edwards Deming is cited as the founder of the modern CI cycle and philosophy. After working in Japanese manufacturing, Deming introduced CI to an American audience through his 1982 book Out of the Crisis. Deming is also credited with introducing the Plan-Do-Study-Act (PDSA) process within CI, often referred to as the Deming Cycle.[6]

CI initially made its way to the education sector in the 1990s, however even into the 2000s, CI was generally viewed as a rarity in K12. Some argue that CI historically has not been prevalent in education due to the rapidly shifting policy landscape, prioritization of quick solutions to meet high-stakes accountability, and fragmented organizational structures.[7]However, more recently, K12 leaders, researchers, and practitioners recognize both the relevance and potential for meaningful positive change that comes from CI processes. CI has been cited as an alternative to prior failed standards-based accountability measures that critics believe lead to innovation without long-term impacts on student outcomes and a fruitless search for "silver bullets" that can solve the complex challenges inherent to teaching and learning.[8]

## CONTINUOUS IMPROVEMENT METHODS

**Most CI methods and strategies use a version of the Plan-Do-Study (or Check)-Act (PDSA) cycle**. This cycle provides a continuous feedback loop driven by data collection and analysis for groups to test out and refine strategies that lead to positive change or improvement. The PDSA model is designed to be iterative, with multiple back-to-back PDSA cycles occurring as the group moves from development to refinement to implementation to widespread use. These cycles allow for systemic, sustainable change that adjusts for the demands and specific contexts at each level of implementation.[9] The following two figures provide examples of commonly referenced and used PDSA cycles – the first (Figure 1.1) illustrates the ongoing nature of CI with multiple PDSA cycles to achieve progressively comprehensive implementation or success in a given area, while the second (Figure 1.2) illustrates how guiding questions can be used to ground and direct a PDSA cycle.

[4] "Continuous Improvement." ASQ. https://asq.org/quality-resources/continuous-improvement

[5] Park. S. et.al. "Continuous Improvement in Education." Carnegie Foundation for the Advancement of Teaching," Op. cit., p. 5.

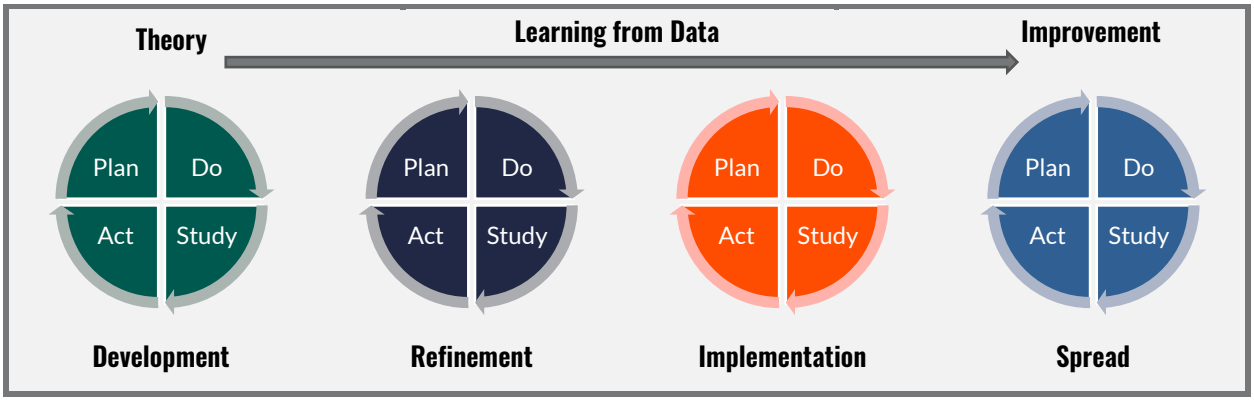
[6] [1] "PDSA Cycle." The W. Edward Deming Institute. https://deming.org/explore/pdsa/ [2] Yurkofsky, et al. "Research on Continuous Improvement: Exploring the Complexities of Managing Educational Change," Op. cit., p. 408. [3] Deming, W.E. Out of the Crisis. MIT Press, 1982. https://mitpress.mit.edu/books/out-crisis

[7] [1] Park. S. et.al. "Continuous Improvement in Education," Op. cit., p. 7. [2]

[8] [1] Gallagher, H.A., and B. W. Cottingham. "Learning and Practicing Continuous Improvement: Lessons from the CORE Districts." Policy Analysis for California Education, October, 2019. p.1. https://edpolicyinca.org/sites/default/files/R_Gallagher_Oct19_0.pdf [2] Yurkofsky, et al. "Research on Continuous Improvement: Exploring the Complexities of Managing Educational Change," Op. cit., p. 403-408. [3] Klein, A. "Q&A: Making the Most of 'Continuous Improvement' in State ESSA Plans." *Education Week*, June 27, 2018. https://www.edweek.org/policy-politics/q-a-making-the-most-of-continuous-improvement-in-state-essa-plans/2018/06

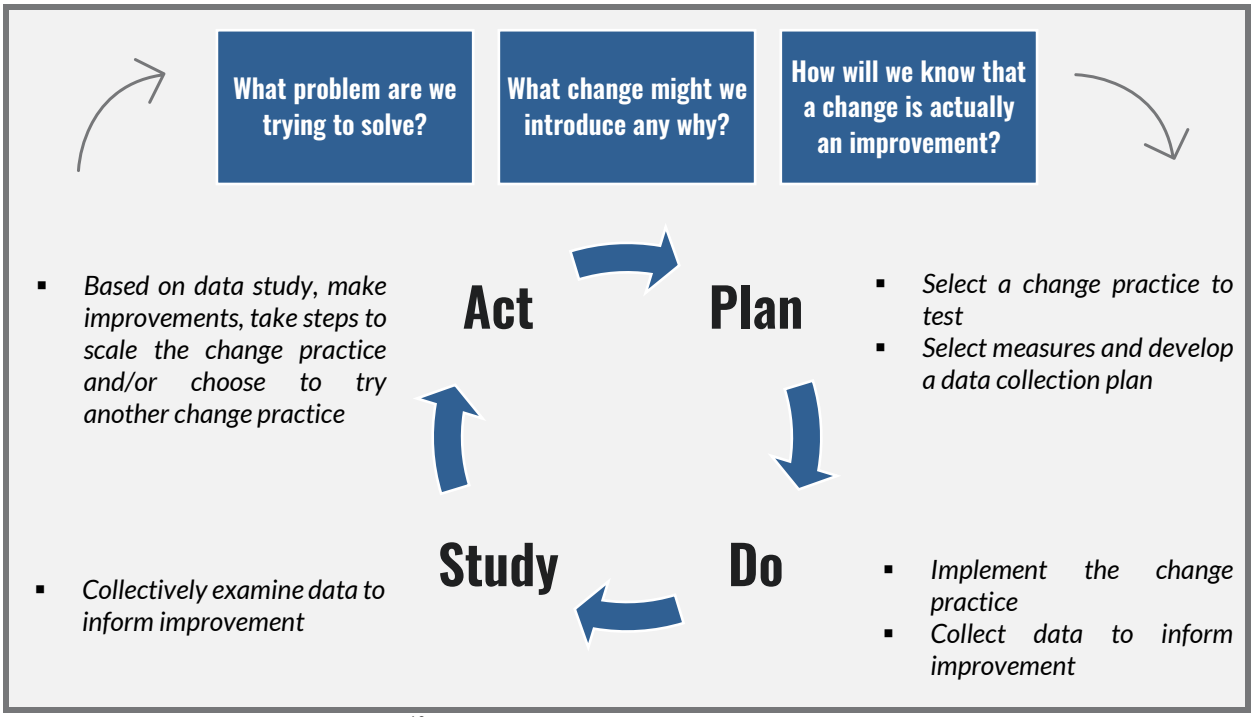
[9] Tichnor-Wagner, A., et. al. "Continuous Improvement in the Public School Context: Understanding How Educators Respond to Plan-Do-Study-Act Cycles." *Journal of Educational Change*, 2017. https://files.eric.ed.gov/fulltext/ED578662.pdf

**Figure 1.1: Example Cycles of PDSA**




Source: *Journal of Educational Change*

**Figure 1.2: Example PDSA Cycle with Foundational Questions**




Source: Institute of Education Sciences[10]

**While PDSA cycles are ubiquitous within CI, in practice, CI comes in many forms and with many terms,** which may lead to an over-use of CI and subsequently a "watering down" of the core components and features of CI. Further, some make a distinction between different uses and contexts for defining CI – as a culture, cycle, or methodology. A CI *culture* relates to the groups' underlying assumptions or approaches to improvement. A CI *cycle* describes a structured approach to taking specific actions to achieve improvement. A CI *methodology* is a specific set of tools or practices for problem-solving or improvement (e.g., Six Sigma or Networked Improvement Communities).[11]

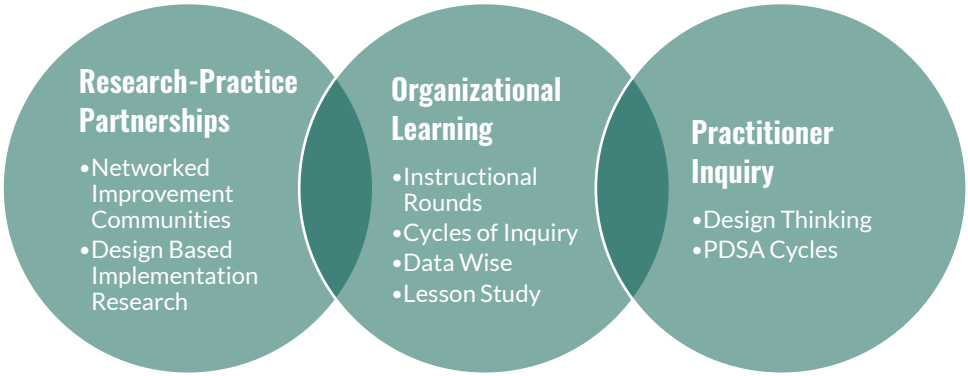
[10] Figure adapted from: Shakman, K., et. al. "Continuous Improvement in Education: A Toolkit for Schools and Districts." Institute of Educational Sciences, October 2020, p. I-17. https://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL_2021014.pdf

[11] Hough, H., et. al. "Continuous Improvement in Practice." PACE, 2017, pp. 5-6. https://edpolicyinca.org/sites/default/files/CI%20in%20Pratice.pdf

A 2020 review of CI processes for educational change identified and grouped CI methods into three broad, overlapping categories of research-practice partnerships, organizational learning, and practitioner inquiry, summarized in the following figure. A complete list of examined CI methods with descriptions can be viewed here. Researchers also identified two factors that often define the goals and approach for a CI method – the scope of CI (e.g., classroom-, school-, or district-level) and the reliance on external researchers or experts to support the CI process (from limited to extensive involvement). While there are many approaches to CI in K12 settings, researchers found that they often share the same overarching goals:[12]

- To move away from top-down policy,
- To help teachers and school leaders embrace evidence and work more scientifically,
- To change the relationship between researchers and practitioners, and
- To surface and confront deep underlying issues of inequity.

**Figure 1.3: Categories of Continuous Improvement Used in K12 Education**




Source: *Review of Research in Education*[13]

## STATE-DESIGNED CONTINUOUS IMPROVEMENT PROCESSES

Hanover reviewed State Department of Education (DOE) websites to understand how other states use and frame CI for districts and schools within their jurisdiction. At least 18 different states have developed a specific CI process for school and district leaders. In some cases, these CI processes are offered as guidance for schools and districts seeking to implement CI, while others are a part of required school improvement planning or designations, or less commonly as part of state accreditation.

**These state-developed CI processes all reflect aspects of the PDSA cycle described above**. Most add or change some aspects of the PDSA cycle to meet their specific needs or contexts or to provide greater clarity on expectations for how schools and districts should carry out the CI process. States vary in the level of detail provided on each of the individual steps within the process; however, all states provide guidance on how to conduct a CI. A complete list of the states and CI process steps reviewed for this analysis can be viewed in the Appendix of this report.

**State CI processes often expand upon the actions and steps that should occur during the "Plan" phase of the PDSA cycle**. All the CI process cycles reviewed include two or three distinct steps that relate to the planning phase. Common planning phase steps are listed below, with examples provided. In addition to the steps below, nearly all CI processes also include a distinct step for planning for implementation (or similar).

[12] Bullet points quoted from: Yurkofsky, et al. "Research on Continuous Improvement: Exploring the Complexities of Managing Educational Change," Op. cit., p. 425.

[13] Figure adapted from: Yurkofsky, et al. "Research on Continuous Improvement: Exploring the Complexities of Managing Educational Change," Op. cit., p. 407.

Notably, most states emphasize the importance of completing a specific needs assessment analysis at the beginning of the CI cycle. This component of CI is discussed in greater detail in Section II of this report.

**Figure 1.4: CI "Plan" Phase Process Steps**

| Assess Needs | Define Goals or Purpose | Select Interventions |
|---|---|---|
| •Identify Local Needs<br>•Assess/Identify Needs | •Set Direction and Purpose<br>•Define the Problem of Practice | •Select Evidence-Based Solutions<br>•Select Interventions |

Source: State Departments of Education

**Compared to the planning phase, the remaining PDSA steps are typically compressed.** Four states combine aspects of the "Do" and "Study" phases into a combined implementation and monitoring step. Most states combine the "Study" and "Act" phases (e.g., "Examine, Reflect, Adjust" or "Self-Reflect and Adjust"). However, some states only include an implied reference to the "Act" phase (e.g., "Evaluating" or "Examine Progress" as the final step in a cycle). Only three of the states reviewed include a distinct "Act" step (e.g., "Adjust Course" or "Action Plan").

**While most states follow a similar formula for their CI process, some take slightly unique approaches.** For example, Wisconsin's CI Process includes a distinct "Readiness" step leading into a more typical PDSA cycle. The readiness step recognizes that certain conditions will lead to a successful CI process. Relatedly, Wisconsin's CI process framework is visualized with reference to stakeholder collaboration at the center.[14] Several other state DOE CI processes similarly recognize and reference factors outside of the CI steps that remain important to the process itself. These factors are often visualized in a larger CI framework.

**Wisconsin's "Readiness" Step**

> "Ensure readiness at the beginning and throughout the multi-year continuous improvement process. Establish the values and beliefs, structures and processes necessary to improve adult practices and student outcomes.

## CONTINUOUS IMPROVEMENT FRAMEWORKS

**Several state DOE-developed CI processes are situated within a larger CI or school improvement framework.** These frameworks typically include references to conditions or factors necessary for successful CI or school improvement and are designed to guide school and district leaders as they plan for and use the CI process. Some states leverage existing frameworks for school improvement or success as a basis for their CI framework, while others either develop their own framework or utilize other internal frameworks or rubrics already in place. For example, Utah's System of Support for School Improvement uses a CI cycle for the specific purpose of school improvement, as outlined in the state's Every Student Succeeds Act (ESSA) requirements. The CI cycle is organized around the Center for School Turnaround's Four Domains for Rapid School Improvement: turnaround leadership, talent development, instructional transformation, and culture shift.[15] Alternatively, Oregon's School and District Continuous Improvement Process is one component of the larger Oregon Integrated Systems Framework, which includes five domains, each with specific indicators of

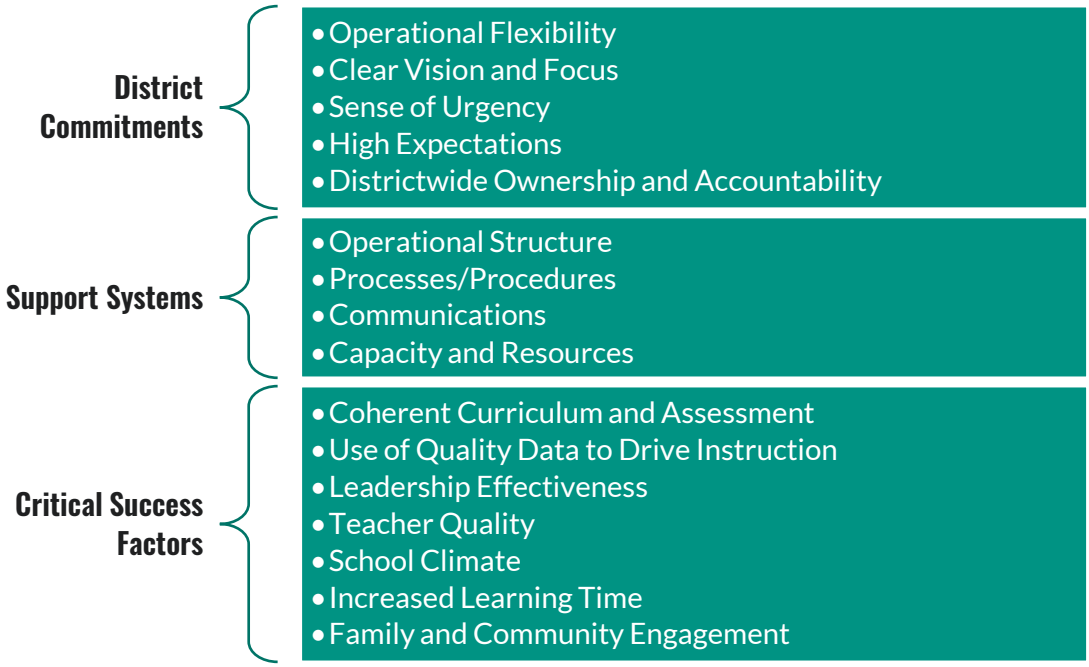
[14] "Continuous Improvement Process Criteria and Rubric." Wisconsin Department of Public Instruction, September 2020, p. 1. https://dpi.wi.gov/sites/default/files/imce/continuous-improvement/pdf/CIP_rubric_draft.pdf

[15] [1] "Utah System of Support for School Improvement." Utah Department of Education, 2018, p. 1. https://www.schools.utah.gov/file/0661922d-d4dc-419f-b462-01acae3b070b [2] "Four Domains for Rapid School Improvement a Systems Framework." The Center on School Turnaround, 2017, p. 3. https://csti.wested.org/wp-content/uploads/2018/04/CST_Four-Domains-Framework-Final.pdf

success: leadership, talent development, stakeholder engagement and partnerships, well-rounded coordinated learning principles, and inclusive policy and practice.[16]

Texas is among the most extensive examples that Hanover identified. The four-step CI process is visualized at the center of the state's larger Framework for Continuous District and School Improvement. The framework includes an array of conditions and factors that support CI, listed in the figure below, including those stemming from both district and school levels. [17]

**Figure 1.5: Texas Continuous Improvement Framework Components**




Source: Texas Education Agency[18]

Georgia's Systems of Continuous Improvement also includes additional components that influence and relate to the success of the CI process overall. The state describes these components as "the systems and structures (the "what") that must be in place for sustained improvement to student outcomes." [19] Like others noted above, Georgia's CI framework includes references to leadership and stakeholder engagement. The CI framework is also visualized with the "Whole Child" at the center, another trend also seen in other states, to highlight the goal of ensuring that students and their success are at the center of the CI process.[20]

[16] [1] "Oregon Integrated Systems Framework Domains and Indicators 1-Pager." Oregon Department of Education. https://www.oregon.gov/ode/schools-and-districts/grants/ESEA/IA/Documents/1-Page%20Oregon%20Integrated%20Systems%20Framework%20Domains.pdf [2] "Continuous Improvement Process and Planning." Oregon Department of Education. https://www.oregon.gov/ode/schools-and-districts/Pages/CIP.aspx

[17] "Texas Continuous Improvement Framework." Texas Education Agency. https://tea.texas.gov/sites/default/files/ACCT_TAIS%20Continous%20Improvement%20Framework%20Brochure_18.pdf

[18] Figure text quoted from: Ibid., p. 2.

[19] "Georgia's Systems of Continuous Improvement." Georgia Department of Education. https://www.gadoe.org/School-Improvement/Pages/Georgia%E2%80%99s-Systems-of-Continuous-Improvement.aspx

[20] Ibid.

**Figure 1.6: Georgia's Systems of Continuous Improvement Components**


Source: Georgia Department of Education[21]

## EQUITY AND CONTINUOUS IMPROVEMENT

Educational equity is often closely intertwined with CI methods, as both include similar goals of identifying and then addressing challenges or problems that may be limiting achievement (e.g., systemic inequities). However, CI on its own may not successfully or fully address inequities within a system; those leading CI must take intentional steps to ensure that equity has a central role in both the process and resulting outcomes. Successful CI requires a capacity for understanding and reflecting on educational equity. Those leading and participating in a CI process should be "driven by a moral imperative to eliminate disparities in achievement and to turn the tide towards equity in educational outcomes." In this way, equity and CI can be viewed as two interdependent mindsets for achieving change. [22]

WestEd conducted an interview study of educational leaders to understand approaches and experiences using CI processes to support larger educational equity goals. Leaders identified three key aspects of CI that can be leveraged to achieve equity-related goals:[23]

- Identifying Inequities and "Seeing the System,"
- Amplifying the Voices of Stakeholders Experiencing the System, and
- Shifting Mindsets.

The researchers also identified five promising practices to support these shared goals, summarized in the figure below.[24]

[21] Figure text quoted with minor edits from: Ibid.

[22] [1] Valdez, A., et. al. "Getting Better and Getting More Equitable." WestEd, March 2020. https://www.wested.org/wp-content/uploads/2020/03/Continuous_Improvement__Equity_Report_FINAL_508.pdf [2] Dixon, C.J. and S.N. Palmer. "Transforming Educational Systems Towards Continuous Improvement: A Reflection Guide for K12 Leaders." The Carnegie Foundation for the Advancement of Teaching, April 2020. https://www.carnegiefoundation.org/wp-content/uploads/2020/04/Carnegie_Transform_EdSystems.pdf [3] "Building a Culture of Continuous Improvement." Education Development Center, 2019, p. 16, 21. https://www.edc.org/sites/default/files/uploads/EDC-Building-Culture-Continuous-Improvement.pdf

[23] Valdez, "Getting Better and Getting More Equitable," Op. cit., pp. 5-10.

[24] Ibid., pp. 6-11.

**Figure 1.7: Promising Practices for Using Continuous Improvement to Support Equity**

| Practice | Description |
|---|---|
| **Disaggregating Data by Student Identifying Characteristics** | Disaggregated data can be used to facilitate the identification of inequities and in root cause analyses to understand and question inequities within the district or school. |
| **Equity Audits** | Equity audits, which may come in a range of forms and scales, support greater understanding of systemic inequities and may also provide leaders and stakeholders with data and background to facilitate equity-related work. |
| **Empathy Exercises** | Empathy exercises, which often come in the form of an interview, are used to build greater understanding of the experiences and perspectives of those who are most impacted by inequities. |
| **Equity Pause** | Equity pauses can be used to specifically prompt those engaged in CI processes to reflect on, discuss, and consider equity and challenge assumptions related to factors that contribute to inequities. |
| **Including Historically Underserved Voices** | CI processes should be viewed as an opportunity to intentionally engage with groups and individuals that are historically underserved and those with "nontraditional ways of thinking" that may bring new perspectives and solutions. |

Source: WestEd[25]

**Collecting, analyzing, and using data is a key component of CI that can include an intentional focus on equity**. Hanover offers two toolkits specifically on this topic, which can be viewed through the links at the end of this section (HR Digital login required). The Education Resource Center also offers guidelines for maintaining a focus on equity within the CI process. These guidelines focus on the "Study" and "Act" phases of the PDSA cycle and include a range of themes and considerations related to this aspect of CI.

**Figure 1.8: Guidelines for Maintaining a Focus on Equity**

| | |
|---|---|
|  | **Gather data that breaks down information on access and success by subgroup** – including ethnicity, economic status, gender, and other relevant attributes. |
|  | **Consider who is represented in the data study process** to ensure the inclusion of multiple perspectives and voices. |
|  | **Address possible patterns of implicit bias** in a safe and constructive way during data study, and support cultural competence of staff. |
|  | **Make explicit connections between findings and equity drivers** in your theory of change. |
|  | **Examine systemic, structural, and historic barriers** to equity and equal justice, including policies and norms. |

[25] Figure text adapted from: Ibid.

| | |
|---|---|
| | **Disaggregate all data** (e.g., test scores, grades, graduation and dropout rates, discipline referrals, suspensions, school climate surveys, attendance, etc.) by subgroups. |
| | **Collect data to understand the root causes of inequities** using methods that are effective in understanding the conditions that contribute to inequities (e.g., shadowing students, student focus groups, parent interviews) |
| | **Create a safe space for data discussions** so uncomfortable topics can be addressed openly and constructively. |

Source: Education Development Center[26]

**Links to Related Hanover Resources**

**Equity Data Review Protocol Toolkit**

**Re-Envisioning Data Processes for Educational Equity**

Note: Requires HR Digital login

[26] Figure text quoted with minor edits from: "Building a Culture of Continuous Improvement." Education Development Center, Op. cit., pp. 78-79.

# SECTION II: CONTINUOUS IMPROVEMENT GUIDANCE AND RESOURCES

This section details how other state DOEs have approached providing guidance and resources around the CI process and specifically focuses on Comprehensive Needs Assessment (CNA), triangulation, and peer review.

## STATE-PROVIDED GUIDANCE AND RESOURCES

At a minimum, state DOEs with a CI process provide a document, website, or presentation that offers school and district leaders an overview of CI in general and their recommended or required CI process steps. However, many states provide significant additional guidance and support for those responsible for completing CI. Broadly, this guidance comes in the following formats:


Hanover's review of state DOEs identified the following examples of especially robust guidance and resources for school and district leaders undertaking a CI process. The table below summarizes notable aspects of each state's approach to providing CI guidance and resources and includes a link to view the state's main CI resource website.

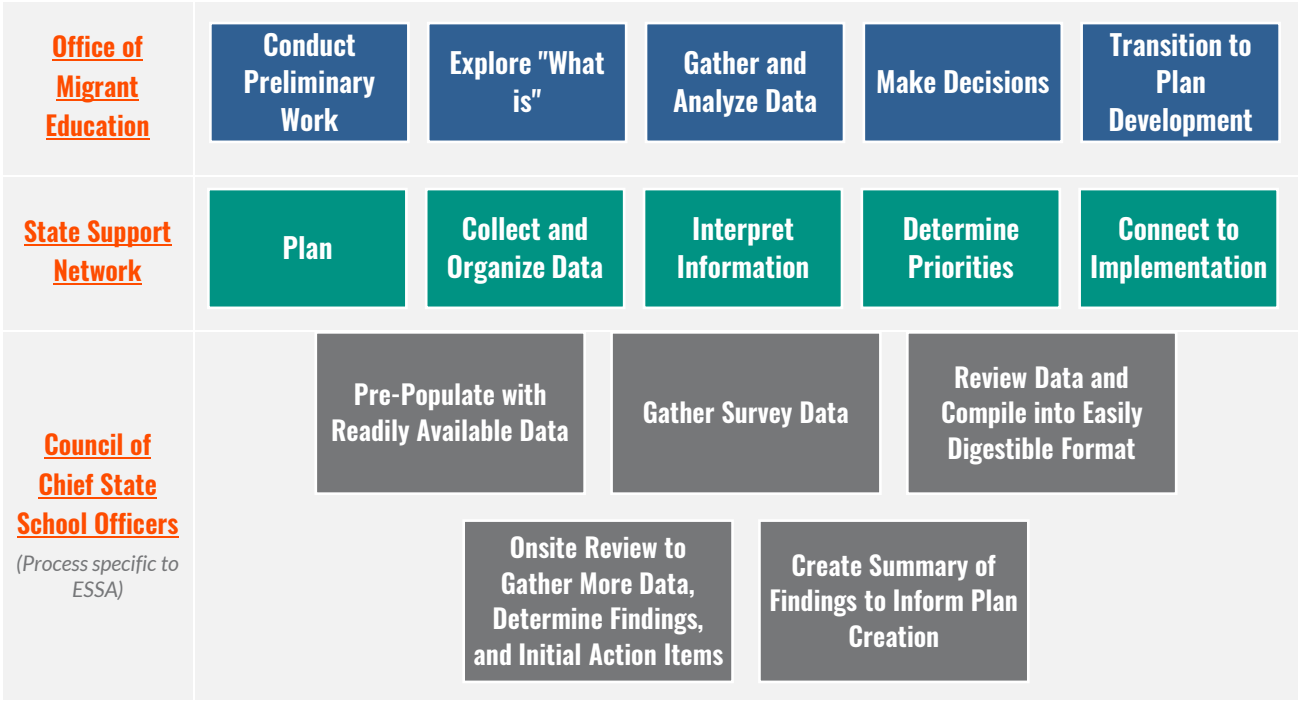
**Figure 2. 1: Example State DOE Continuous Improvement Guidance and Resources**

| | |
|---|---|
| **Michigan** | ▪ Resources and guides for CI steps and processes, including templates and timelines<br>▪ Archived training and professional learning videos and presentations<br>▪ FAQ documents<br>▪ Archived *Continuous Communication* eNewsletters |
| **Georgia** | ▪ Individual webpages with descriptions and resources for each component of Georgia's Systems of Continuous Improvement<br>▪ Archived webinar series presentations<br>▪ CI toolbox with evidence-based interventions and related resources to support effective schools and instruction |
| **Ohio** | ▪ Individual webpages with descriptions and resources for each component of Ohio's Improvement Process<br>▪ Links to CI-related processes and resources, including the state's School Improvement Diagnostic Review<br>▪ Links to resources on vulnerable youth, aligned with ESSA's emphasis on educational stability for these groups<br>▪ Information on funding and grants to support CI processes<br>▪ FAQs on available state support |

## COMPREHENSIVE NEEDS ASSESSMENTS

**As highlighted in the previous section, many states include a specific step in their CI process that seeks to identify and prioritize needs for improvement**. This step typically involves a Comprehensive Needs Assessment (CNA) and, in some contexts, may relate to requirements in ESSA for conducting needs assessments.[27] The CNA is often described as a systematic process for building understanding of current conditions, analyzing data, and outlining key priorities and needs, which may culminate in or feed into a more extensive CI process or cycle. While there is no PDSA-equivalent for CNA, several education organizations and agencies have suggested a standardized CNA process that may be applicable to many K12 settings. Three such examples are compared below. Each includes a slightly different approach and focus; however, they all begin with data collection and review and end with decision making and prioritization that can subsequently inform a CI process.

**Figure 2.2: Comparing CNA Process Steps**




Source: See links above

**Guidance on conducting a CNA often stresses the importance of ensuring that the process is context-specific**. The CNA process should be designed to reflect local circumstances, such as "factors contributing to organizational health, implementation of initiatives, and local influences that can impact outcomes."[28] The CNA process may also include a specific opportunity to recognize and include contextual variables within the CNA documentation. This context-specific approach should also carry through to the data collection and analysis, prioritization, and reporting that takes place during the CNA.[29]

[27] [1] "Conducting a Needs Assessment in Response to ESSA requirements." Leadership for Learning, April 17, 2018. https://www.leadershipforlearning.org/articles/conducting-a-needs-assessment-in-response-to-essa-requirements [2] Cuiccio, C. and M. Husby-Slater. "Needs Assessment Guidebook." State Support Network, May 2018. https://oese.ed.gov/files/2020/10/needsassessmentguidebook-508_003.pdf

[28] Cuiccio and Husby-Slater, "Needs Assessment Guidebook," Op. cit., p. 5.

[29] [1] Ibid. [2] Corbett, J. and S. Redding. "Using Needs Assessments for School and District Improvement." Council of Chief State School Officers, 2017. https://ccsso.org/sites/default/files/2017-12/Using%20Needs%20Assessments%20For%20School%20and%20District%20Improvement.pdf

**Inclusion and stakeholder engagement is another common theme in guidance on ensuring a successful CNA process**. For example, two of the four Elements for Successful Needs Assessment from the State Support Network relate to inclusion: (1) stakeholder engagement and (2) collaborative identification of improvement. All four of the elements are summarized in the following figure.

**Figure 2.3: Four Elements for Successful Needs Assessment**

**Needs-Driven and Context-Specific Approach**

- Design and scope should be built around an organizing framework that defines the problems, topics, and questions to be addressed
- The design and data inputs must reflect the local context for the work

**Rigorous Data Analysis**

- Uses diverse data sets with multiple data types, including both qualitative and quantitative data, reflecting multiple viewpoints
- Uses high-quality, data collected using valid and reliable methods and deemed clean and trustworthy
- Uses input data, output data, and demographic or community context data to allow for triangulation

**Stakeholder Engagement**

- Process should be undertaken with (or by) local stakeholders rather than completed entirely by a small group of leaders or an outside entity
- Stakeholders should be engaged in each phase of the process.

**Collaborative Identification of Improvement Needs**

- Priorities should be identified collaboratively with stakeholders

Source: State Support Network[30]

**State DOEs frequently provide specific guidance around conducting a CNA as part of their larger CI process**. This guidance generally includes information around:

- The individual steps suggested to complete a CNA
- Resources and datasets available to facilitate the CNA
- Conditions and considerations for a successful CNA
- Templates for documenting the CNA process and results
- Example tools and strategies for use during CNA, in particular, tools for conducting a root cause analysis

Three examples of state guidance for CNAs are listed in the figure below, with details on notable aspects and features of the guidance and related resources available.

**Figure 2.4: Example State DOE CNA Guidance and Resources**

| | |
|---|---|
| Georgia | ▪ School- and district-level CNA templates<br>▪ CNA Data Profile Guide |

[30] Figure text quoted with minor edits from: Cuiccio and Husby-Slater, "Needs Assessment Guidebook," Op. cit., pp. 5-7.

| | |
|---|---|
| Oregon & Arizona | ▪ CNA Guide (consolidated document)<br>▪ Templates for CNA tools and reports |
| Maine  | ▪ Archived CNA trainings<br>▪ Technical assistance resources<br>▪ CNA templates and rubrics |

### ROOT CAUSE ANALYSIS

**Root cause analysis strategies and tools are commonly used during the CNA process and are also common themes found in state DOE guidance.** While often discussed in the context of a CNA, root cause analysis is also used during CI cycles as a problem-solving strategy. In both instances, the goal is to understand the systemic and foundational causes of an identified challenge or issue. The resulting "cause" in a root cause analysis must be something that a school or district has control or influence over.[31] To achieve this goal, many state DOEs provide templates and examples for leaders to reference. In particular, the following root cause analysis tools are often offered for use during either a CNA or larger CI process:

- Fishbone Diagrams
- Five Whys

**Example Guidance: Colorado**

Colorado Department of Education offers a dedicated website to root cause analysis background and resources, including data sources, planning guides, templates, and analysis strategies.

## TRIANGULATION

**Triangulation can be used in both the CI and CNA processes to bring together data from multiple sources in order to validate their results.** Triangulation is a methodology used across social science and qualitative research to build greater confidence in findings and conclusions by examining a question from multiple perspectives or using multiple methodologies. Triangulation can be applied in several ways based on the sources and goals of the analysis, summarized below. Methodological and data triangulation are the most commonly used forms of triangulation.[33]

- **Data Triangulation** – using data from multiple sources with the same methodology

**Triangulation**

"A rigorous method of comparing multiple data sources to substantiate conclusions reached, resulting in greater confidence in identified successes to be leveraged and challenges to be addressed.

Source: State Support Network[32]

[31] [1] "Using Root cause Analysis as Part of the Continuous Improvement Process in Education." Office of Elementary and Secondary Education. https://oese.ed.gov/resources/oese-technical-assistance-centers/state-support-network/resources/using-root-cause-analysis-part-continuous-improvement-process-education/ [2] "Purpose of Root Cause Analysis in School Improvement Planning." Office of Elementary and Secondary Education. https://oese.ed.gov/resources/oese-technical-assistance-centers/state-support-network/resources/purposes-root-cause-analysis-school-improvement-planning/

[32] Cuiccio and Husby-Slater, "Needs Assessment Guidebook," Op. cit., p. 6.

[33] [1] Ibid. [2] Bullet point text adapted from: Gurion, L. A. "Triangulation: Establishing the Validity of Qualitative Studies." University of Florida Extension, September 2002. https://sites.duke.edu/niou/files/2014/07/W13-Guion-2002-Triangulation-Establishing-the-Validity-of-Qualitative-Research.pdf

- **Investigator Triangulation** – using multiple evaluators to study and collect data using the same methodology and approach
- **Theory Triangulation** – using multiple researchers or professionals with differing perspectives and backgrounds to analyze the same dataset
- **Methodological Triangulation** – using multiple quantitative and qualitative methodologies to collect information
- **Environmental Triangulation** – using data from multiple locations, times, or settings to understand underlying environmental influences

While many states reference the importance of triangulation in data analysis phases of CI and CNAs, specific guidance on triangulation methods or strategies is not typically provided by state DOEs.

## PEER REVIEW

**Peer review is a common strategy for supporting school and teacher improvement, though it is less commonly discussed in the literature on district CI specifically.** However, there is research to suggest the potential value in peer review as a part of larger school improvement initiatives. Of particular note, some suggest that peer reviews may reduce "top-down" accountability mindsets and generate greater practitioner-driven innovations.[34] Several states utilize peer review as part of their larger school quality, accountability, or accreditation processes, though peer review is rarely linked to a broader CI process. In our review of state DOE guidance, Hanover identified a small number of states with information on peer review processes; however, none of these examples are specifically focused on CI.

**Figure 2.5: Example State DOE Peer Review Processes**

| | |
|---|---|
| Wyoming  | ▪ Peer review is required every five years as part of an ongoing accreditation process<br>▪ Peer review workbook, presentation example, and stakeholder survey provided |
| New Hampshire  | ▪ The state's PACE assessment and accountability system includes a peer review component, with a main focus on assessment quality<br>▪ Technical manual provides additional details on peer review |

[34] Godfrey, D. "From Peer Review to Collaborative Peer Enquiry: Action Research for School Improvement and Leadership Development." *London Review of Education*, 18:3, November 2020. https://www.scienceopen.com/hosted-document?doi=10.14324/LRE.18.3.04

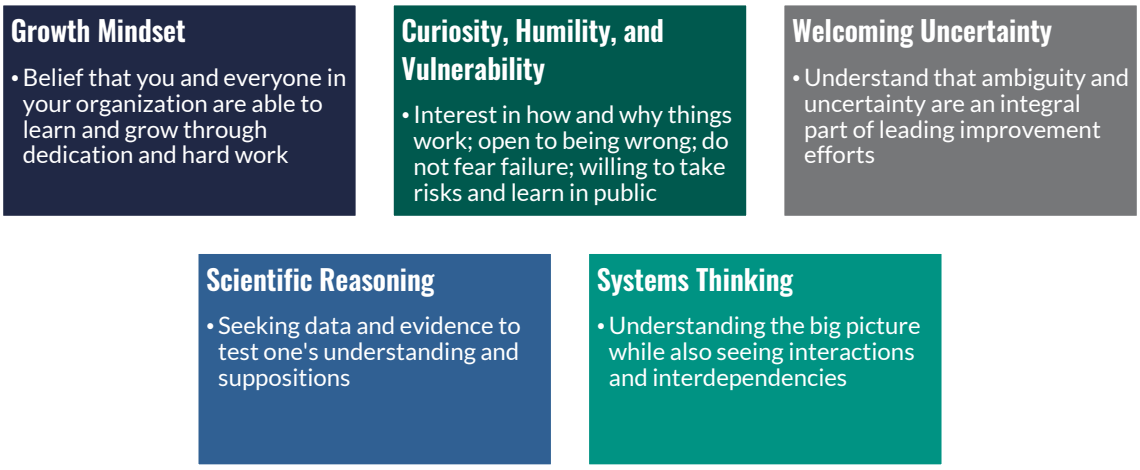
# SECTION III: CONTINUOUS IMPROVEMENT SUCCESS FACTORS

Many K12 agencies and organizations provide guidance on considerations or conditions for ensuring a successful CI process. While there is no definitive set of best practices, or further a single approach to CI, this section highlights commonly cited and related factors shown to be critically important to CI success – leadership, culture, and mindset.

## LEADERSHIP

**Leadership is commonly cited as among the most important factors in determining the success of CI within an organization or group.** Leaders and their mindset and openness to CI are critically important factors that influence the overall vision and approach to CI across the organization.[35] Leaders who are open and supportive of change and transformation create an environment conducive to CI. These "transformational" leaders often share the following characteristics that support CI.[36]

**Figure 3.1: Key Dispositions of Transformational Leaders**




Source: The Carnegie Foundation for the Advancement of Teaching[37]

Researchers at the University of Virginia developed a framework for understanding the important role of leadership in creating conditions for successful CI and school improvement. They highlighted several factors related to how leaders think about challenges and solutions, what actions leaders take, and where leaders focus efforts that lead to conditions that support embedded, districtwide CI and subsequently lead to "sustained, accelerated improvement toward district-wide goals for improving student outcomes."[38] This framework, reproduced below, overlaps with several of the key dispositions of transformational leaders above, including systems thinking.

---

[35] Best, J. and A. Dublap. "Continuous Improvement in Schools and Districts: Policy Considerations." McREL International. https://files.eric.ed.gov/fulltext/ED557599.pdf

[36] Dixon, C.J. and S.N. Palmer. "Transforming Educational Systems Towards Continuous Improvement: A Reflection Guide for K12 Leaders." The Carnegie Foundation for the Advancement of Teaching, April 2020. https://www.carnegiefoundation.org/wp-content/uploads/2020/04/Carnegie_Transform_EdSystems.pdf

[37] Figure text quoted from: Ibid., pp. 5-7.

[38] Dixon, C. J. and D. Eddy-Spicer. "System Leadership for Continuous Improvement: The Role of District Leaders in Creating the Conditions for System-wide Improvement." Leading Holistically, 2018. https://education.virginia.edu/sites/default/files/k12-advisory-council/6-b.%20Leadership%20of%20Continous%20Imp%20(D.%20Eddy%20Spicer).pdf

**Figure 3.2: Framework for District-Level Leadership for Continuous Improvement**


Source: Leading Holistically[39]

## CAPACITY, CULTURE, AND MINDSET

While leaders have the potential to set the overall tone and vision for CI within an organization, everyone in the organization must develop a culture of continuous improvement to ensure that the practices and improvements coming out of a formal CI process are implemented and sustained over time. Those responsible for conducting a CI process also require a capacity (or skills) for carrying out this work. This section provides an overview of these interrelated factors.

**Those leading CI require both technical skills and adaptive characteristics to create an organizational culture that supports CI.** Broadly, the technical skills necessary for CI relate to building standards of practice for the work of planning and carrying out CI and implementing quality improvement methodologies.[40] Specific technical skills related to CI are listed below.

**Figure 3.3: Technical Skills Needed for Continuous Improvement**


Source: Education Development Center[41]

**CI also requires certain shared organizational values and practices that drive a culture of CI and the opportunity and willingness to seek out change.** CI thrives in organizations and groups that have a

[39] Figure text quoted from: Ibid., p. 2.

[40] [1] Myung, J. "Building the Capacity for Districts to Continuously Improve." The Carnegie Foundation for the Advancement of Teaching, January 30, 2014. https://www.carnegiefoundation.org/blog/building-capacity-for-districts-to-continuously-improve/ [2] "Building a Culture of Continuous Improvement." Education Development Center, Op. cit., p. 15.

[41] Figure text quoted with minor edits from: "Building a Culture of Continuous Improvement." Education Development Center, Op. cit., p. 15.

commitment to improvement, are collaborative, support shared decision-making, are transparent and inclusive, and have a strong shared vision. Like the qualities of a "transformational" leader described above, organizations need certain "adaptive" qualities to facilitate CI, summarized below.[42]

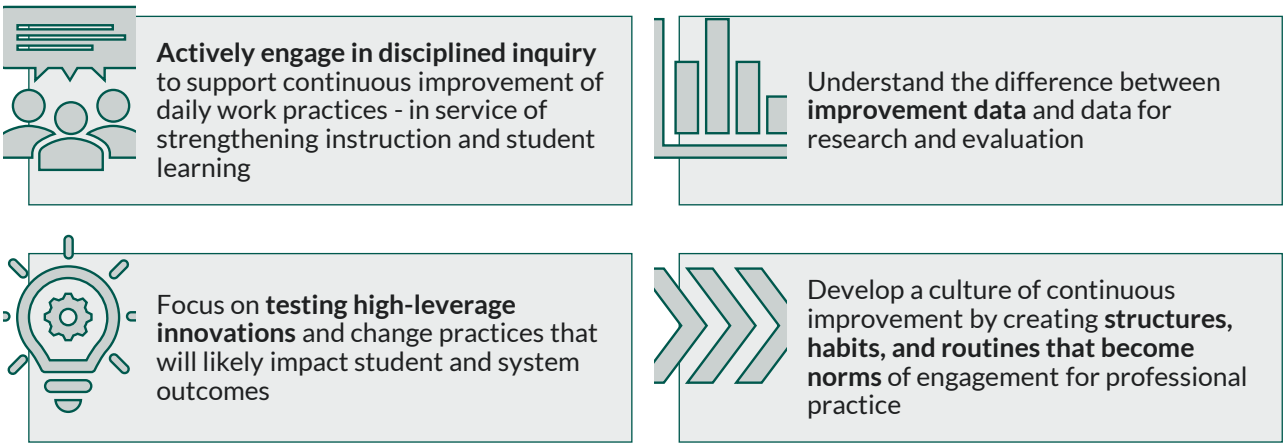
**Figure 3.4: Adaptive Qualities to Support Continuous Improvement**

| | |
|---|---|
| ☑ | **Creating and maintain a culture of collaboration** |
| ☑ | **Supporting professional learning and improvement** |
| ☑ | **Fostering a culture of critical reflection, inquiry, and problem solving** |
| ☑ | **Facilitating communities of practice** |
| ☑ | **Contributing to shared decision-making** |
| ☑ | **Supporting systems alignment and cohesion of practice and policies** |
| ☑ | **Ensuring a transparent, inclusive process that involves multiple perspectives and stakeholders** |
| ☑ | **Managing the change process and generating a sense of common purpose and ownership** |

Source: Education Development Center[43]

A CI "mindset" is commonly referenced in literature and best practices for supporting CI. Broadly, a CI mindset is described as always looking for and open to opportunities to enact positive changes or improvements and the belief that small, incremental changes can lead to meaningful improvements over time. In the context of K12 education, CI mindset "look fors" include the use of innovative practices, data to inform decision-making, and cycles of inquiry to strengthen instruction. Specific indicators of a CI mindset among educators and administrators are listed in the following figure.

**Figure 3.5: Indicators of Continuous Improvement Mindset**




Source: Education Development Center[44]

[42] [1] Myung. "Building the Capacity for Districts to Continuously Improve," The Carnegie Foundation for the Advancement of Teaching, Op. cit. [2] "Building a Culture of Continuous Improvement." Education Development Center, Op. cit., p. 15.
[43] Figure text quoted from: "Building a Culture of Continuous Improvement." Education Development Center, Op. cit., p. 15.
[44] Figure text quoted from: Ibid., p. 23.

# APPENDIX

**Appendix A: State-Developed Continuous Improvement Process Steps**

| State | Plan | Do | Study | Act |
|---|---|---|---|---|
| California (5 Steps) | Set Direction & Purpose<br>Assess Local Needs & Determine Causal Factors of Greatest Need<br>Plan for Improvement: Select Evidence-Based Strategies Responsive to Greatest Needs | | | |
| | | Implement & Monitor Work | | |
| | | | Reflect & Adjust Course | |
| Georgia (5 Steps) | Identify Needs<br>Select Interventions<br>Plan Implementation | | | |
| | | Implement Plan | | |
| | | | Examine Progress | |
| Kansas (5 Steps) | Collect and Examine Current Data<br>Determine Goals | | | |
| | | Begin Implementation<br>Continue Implementation | | |
| | | | Analyze Results and Begin New Cycle | |
| Maryland (4 Steps) | Define the Problem of Practice<br>Select Evidence-Based Solutions | | | |
| | | Implement a Plan | | |
| | | | Adjust, Continue, or Stop Solution | |
| Michigan (5 Steps) | Assess Needs<br>Plan | | | |
| | | Implement | | |
| | | | Monitor | |
| | | | Evaluate | |
| Minnesota (5 Steps) | Establish a Leadership Team<br>Assess Needs and Set Priorities<br>Select Strategies and Create a Plan | | | |
| | | Implement the Plan and Get Better | | |
| | | | Reassess Needs, Priorities, and Strategies | |
| Mississippi (5 Steps) | Identify Local Needs<br>Select Relevant Evidence-Based Interventions<br>Plan for Implementation | | | |
| | | Implement | | |
| | | | Examine and Reflect | |
| North Dakota (4 Steps) | Envisioning<br>Planning | | | |
| | | Implementing | | |
| | | | Evaluating | |

| State | Plan | Do | Study | Act |
|---|---|---|---|---|
| Ohio (5 Steps) | Identify Critical Needs<br>Research and Select Evidence-Based Strategies<br>Plan for Implementation | | | |
| | | Implement and Monitor | | |
| | | | Examine, Reflect, Adjust | |
| Oklahoma (5 Steps) | Identify Local Needs<br>Select Relevant, Evidence-Based Practices and Interventions<br>Plan for Implementation | | | |
| | | Implement | | |
| | | | Examine and Reflect | |
| Oregon (5 Steps) | Set the Direction/Vision<br>Assess Needs<br>Create Strategic Plan | | | |
| | | Implement Strategic Plan | | |
| | | | Monitor Work, Adjust, and Feedback Loops | |
| South Carolina (6 Steps) | Diagnose<br>Select<br>Plan | | | |
| | | Implement | | |
| | | | Monitor & Evaluate | |
| | | | | Revise |
| South Dakota (5 Steps) | Set Direction<br>Identify Needs<br>Action Plan | | | |
| | | Implement & Progress Review | | |
| | | | Self-Reflect & Adjust | |
| Texas (4 Steps) | Needs Assessment<br>Improvement Planning | | | |
| | | Implement & Monitor | | |
| | | | Data Analysis | |
| Utah (6 Steps) | Set the Direction<br>Assess Needs<br>Create Plan | | | |
| | | Implement Plan | | |
| | | | Monitor Plan | |
| | | | | Adjust Course |
| Wisconsin (5 Steps) | Readiness<br>Plan | | | |
| | | Do | | |
| | | | Study/Check | |
| | | | | Action Plan |

Source: State Departments of Education *(see hyperlinks in the first column)*

# ABOUT HANOVER RESEARCH

Hanover Research provides high-quality, custom research and analytics through a cost-effective model that helps clients make informed decisions, identify and seize opportunities, and heighten their effectiveness.

## OUR SOLUTIONS

### ACADEMIC SOLUTIONS

- College & Career Readiness:
  Support on-time student graduation and prepare all students for post-secondary education and careers.
- Program Evaluation:
  Measure program impact to support informed, evidence-based investments in resources that maximize student outcomes and manage costs.
- Safe & Supportive Environments:
  Create an environment that supports the academic, cultural, and social-emotional needs of students, parents, and staff through a comprehensive annual assessment of climate and culture.

### ADMINISTRATIVE SOLUTIONS

- Family and Community Engagement:
  Expand and strengthen family and community relationships and identify community partnerships that support student success.
- Talent Recruitment, Retention & Development:
  Attract and retain the best staff through an enhanced understanding of the teacher experience and staff professional development needs.
- Operations Improvement:
  Proactively address changes in demographics, enrollment levels, and community expectations in your budgeting decisions.

### LEADERSHIP SOLUTION

Build a high-performing administration that is the first choice for students, parents, and staff.

## OUR BENEFITS

**EXPERT**
200+ analysts with multiple methodology research expertise

**FLEXIBLE**
Ongoing custom research agenda adapts with organizations' needs

**DEDICATED**
Exclusive account and research teams ensure strategic partnership

**EFFICIENT**
Annual, fixed-fee model shares costs and benefits

HANOVER RESEARCH

www.hanoverresearch.com