

EDC

Education
Development
Center



Building a Culture of Continuous Improvement

GUIDEBOOK AND TOOLKIT



About Us

Education Development Center (EDC) is a global nonprofit that advances lasting solutions to improve education, promote health, and expand economic opportunity. Since 1958, we have been a leader in designing, implementing, and evaluating innovative programs, in collaboration with public and private partners. From in-depth research endeavors to district- and country-wide reform initiatives, our programs provide individuals, families, and communities with the knowledge, skills, and support they need to achieve a better future.

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Foreword

At EDC, we believe in the value of organizational learning and improvement. We have long been committed to supporting schools, districts, state agencies, community organizations, and other partners in designing, implementing, and sustaining effective practices, programs, and policies. To that end, EDC provides tools, resources, and services to help partners build capacity for a working culture of collaboration, reflection, inquiry, problem solving, and improvement toward equitable outcomes. We focus on both the technical and adaptive qualities of systems reform, which we consider to be necessary for transformational change.

This guidebook is designed for learning organizations that are committed to empowering practitioners and leaders to improve conditions in complex education systems. The conceptual framework and design of this guidebook is rooted in research and experience. We build on scholarship from implementation science, systems change, continuous improvement, and scale. EDC also engaged in an iterative design process and used lessons learned from our education partners to inform the final design of this guidebook.

We would like to thank the Nellie Mae Education Foundation for supporting our work and giving us an opportunity to develop this resource. We are also eternally grateful to educators, administrators, leaders, community partners, and others who provided meaningful feedback throughout the various stages of development.



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WHAT IS CONTINUOUS IMPROVEMENT?

How can it help your organization?

Can you integrate it in the context of systems change?

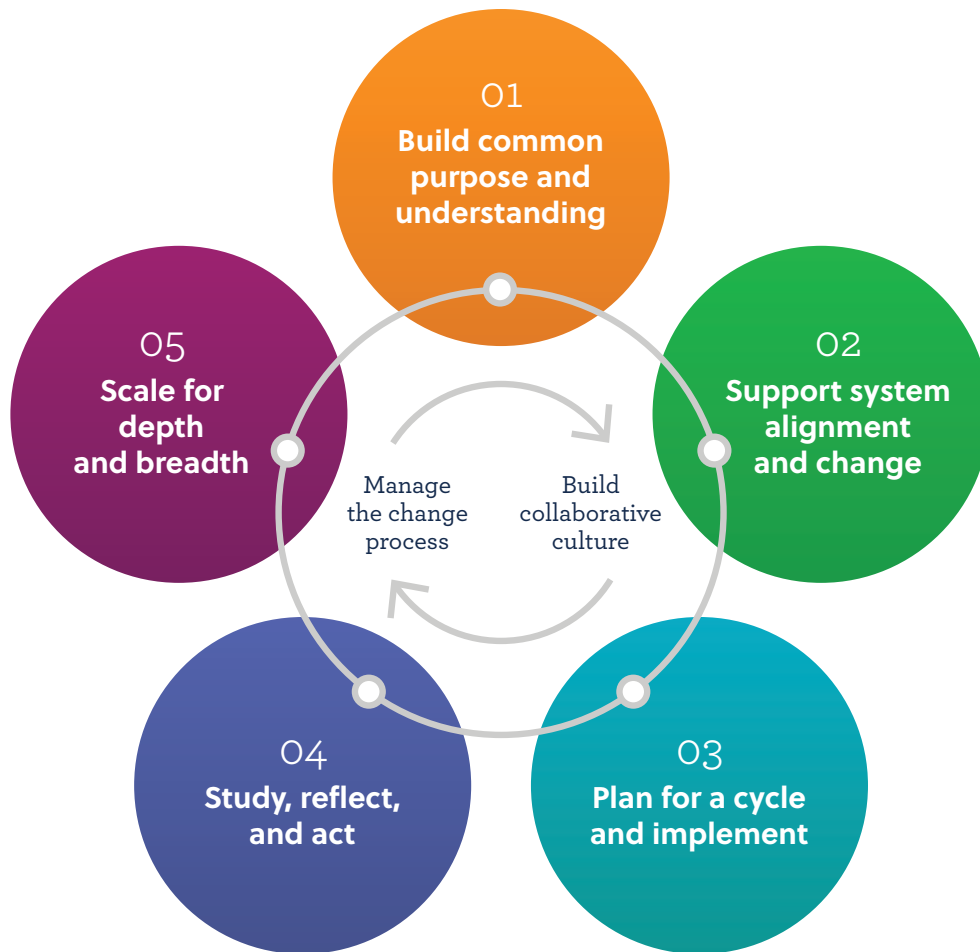
How can you work collaboratively to promote learning and improvement?



Introduction

What is continuous improvement? How can it help your organization? How can you integrate continuous improvement in the context of systems change? How can you work collaboratively to promote organizational learning and improvement? This guidebook is designed to demystify continuous improvement and help you build capacity to effectively engage in the process.

This guidebook is organized around five key phases as illustrated below. EDC's integrated continuous improvement model reflects an iterative process and supports a holistic, comprehensive approach to change.



Before outlining each chapter in detail, here are a few things to know about how this guidebook is organized:

- **Case studies and examples are included** to make it easier to understand information and bridge theory with practice. The examples provided are based on the real experiences of schools, districts, and state agencies.
- **Templates are provided** to guide your work, and you may adapt them to meet your needs.
- **Short exercises are embedded** within the chapters to help you reflect and retain new ideas.
- **Tips and highlights appear** in the guidebook to help you think about how you can apply strategies to your local context.
- **Synthesis of research literature is included** throughout the guidebook to provide background information or a rationale for an approach.
- **Specific frameworks and approaches are provided**, and you may adapt ideas to your local context.
- **When the term “you” is used**, it refers to you the reader.

Look for these symbols



Tool

Indicates a helpful tool or exercise.



Tip

Used to offer tips and key takeaways.

This guidebook includes five chapters:

Overview: Principles to Guide Continuous Improvement, synthesizes EDC's philosophy concerning continuous improvement, capacity building, systems change, and introduces key terms.

Chapter 1: Build Common Purpose and Understanding, explains the initial stages of the continuous improvement process – including problem identification and developing a theory of action, which helps to build common understanding of the vision and purpose for change.

Chapter 2: Support System Alignment and Change, provides strategies for system alignment of policies, practices, programs, and people across different levels of the system. Also included are guidelines for managing organizational culture change in the context of continuous improvement.

Chapter 3: Plan for a Cycle and Implement, provides processes for implementing innovations through iterative improvement cycles, along with tools for creating a data collection plan, including what types of data to collect.

Chapter 4: Study, Reflect, and Act, provides steps to analyze and interpret data in a collaborative setting and synthesize findings to inform decision-making and action steps for improvement.

Chapter 5: Scale for Depth and Breadth, includes a rubric for scaling effective practices through four elements: depth, shift, spread, and sustainability. This chapter discusses key considerations for scale that encourage teams to revisit the theory of action and strategies for systems change.

Overview:

Principles to Guide Continuous Improvement



Introduction

This section is intended to help you understand EDC's principles concerning continuous improvement. We emphasize both the technical and adaptive qualities for change. These principles will help you, as leaders and practitioners committed to learning and improvement, build capacity toward a culture of reflection, inquiry, and improvement systemwide. We introduce you to key concepts and terms, and provide concrete examples along the way.

A What is Continuous Improvement?

B An Integrated Model for Improvement

C The Importance of Culture and Human Capital

D Guiding Principles for Continuous Improvement



Tool: Continuous Improvement Organizational Self-Assessment Survey



Tool: Building Capacity of Education Professionals for Deep Learning and Continuous Improvement

A What is Continuous Improvement?

Continuous improvement is an applied science that emphasizes innovation, rapid and iterative cycle testing in the field, and scaling in order to generate learning about what changes produce improvements in particular contexts (Institute for Healthcare Improvement, 2015). The outcomes of each cycle inform the revision, development, and fine-tuning of practices.

You might be familiar with similar approaches such as practitioner-action research or instructional rounds. An equivalent approach in the corporate sector is six-sigma. The commonality across continuous improvement methods is that you are essentially creating and testing solutions to address problems as you try to get better at improving your daily work practices.

Continuous improvement explores three essential questions:

- **What problem are we trying to solve?**

In order for a school, district, community organization or other institution to improve, leaders and practitioners must set clear and firm intentions. These intentions are derived from identifying a problem or issue that requires attention. In prioritizing and defining the problem, the participants hone in on the goal they intend to accomplish.

- **What changes might we introduce and why?**

Continuous improvement requires key participants to develop, test, and implement an innovation, which comprises a suite of interrelated change practices. Selecting, testing, and implementing these changes is at the core of continuous improvement.

- **How will we know if a change is actually an improvement?**

An essential part of the work of continuous improvement is to clearly examine how a change has addressed the problem and made some meaningful improvement. Having clear and specific measures to capture both the processes and outcomes are at the heart of continuous improvement.

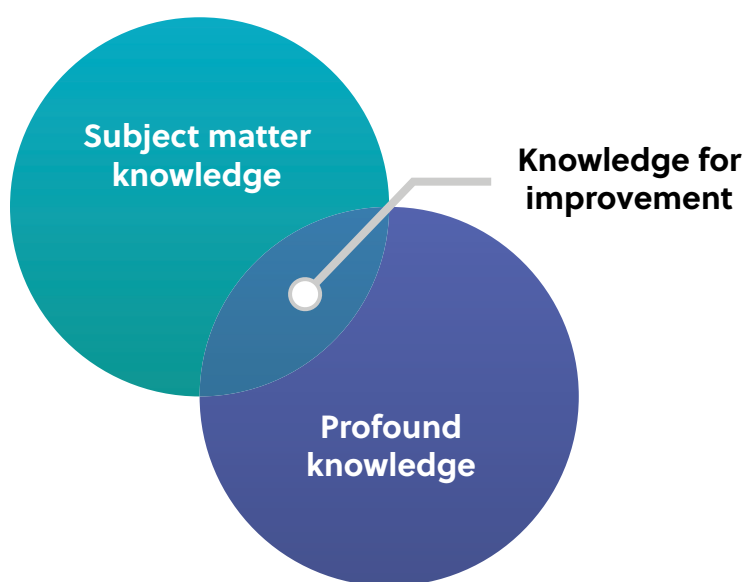
The purpose of continuous improvement is to help change organizational processes, policies, and practices. Therefore, continuous improvement should be embedded in day-to-day work, in a systemized, organic way. You can think of the cyclical process as a formative assessment of the ideas being tested.

B An Integrated Model for Improvement

Types of Knowledge That Support Continuous Improvement

William Edwards Deming, who popularized the continuous improvement process, developed a theory of knowledge that is grounded in systems theory. It is based on the principle that each organization is composed of interrelated processes, people, and units that make up system components. His theory included two types of knowledge—subject matter and profound.

Improvement Science: Two Types of Knowledge



Improvement: Learn to combine subject matter knowledge and profound knowledge in creative ways to develop effective changes for improvement.

W. Edwards Deming Theory of Knowledge

Subject matter knowledge includes a deep understanding of the ideas or changes being implemented. Subject matter knowledge can be based on 1) research literature and 2) local best practices. For example, if a school is shifting to student-centered approaches, participants need to have knowledge of pedagogical strategies for personalized and competency-based teaching, learning, and assessment.

Profound knowledge includes knowledge of multiple elements that can lead to systems change such as systems thinking, change management, implementation science, research on knowledge transfer from theory to practice, and principles of capacity building. For example, profound knowledge is important when implementing and aligning new student-centered policies and practices in different levels of the education system and communicating decisions to multiple stakeholders.

Knowledge for improvement: Deep learning for improvement lies in the intersection between subject matter knowledge and profound knowledge, and often translates to an individual and collective culture of continuing learning and transformation. If you apply this framework to the educational context, consider that administrators need to deeply understand the pedagogical principles of student-centered learning and how educators enact innovations in classrooms. Teachers, on the other hand, need to develop an understanding of the system and structures that are necessary to implement and sustain changes in practice.

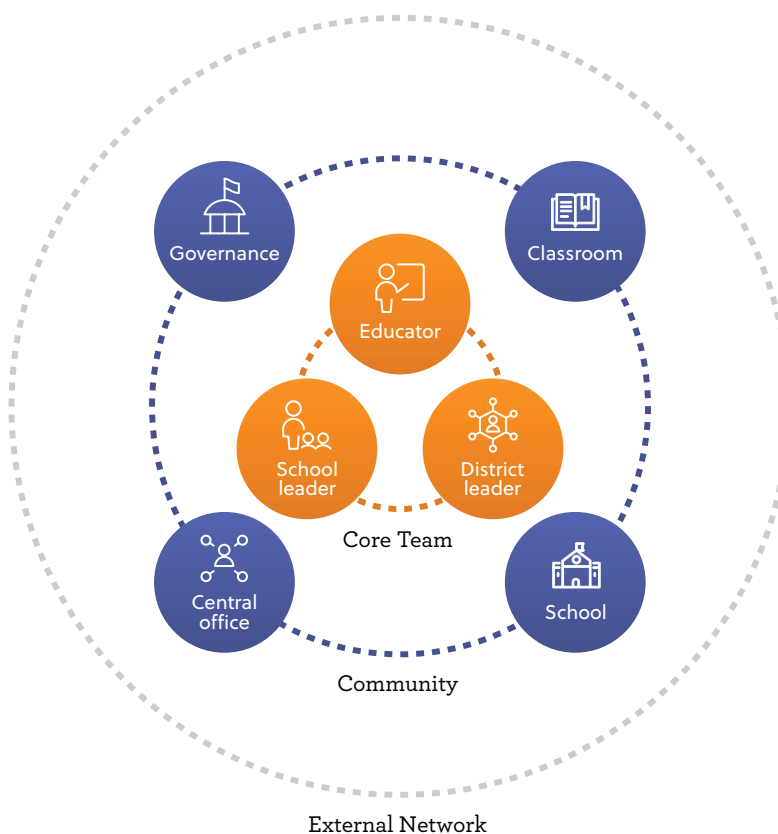
Systems Thinking

Continuous improvement for systems change should:

- address pressing problems
- begin when new strategies, initiatives, and programs are being conceptualized
- be an integral component of strategic improvement plans
- take place in different levels of a system

This guidebook includes tools and strategies for assessing and achieving system alignment of policies, practices, programs, and people. It is designed to help you think about conducting parallel cycles of continuous improvement among stakeholders in different levels of the system.

The education system is intentionally serving the community when you focus on and invest in human capital, and the people that make a difference in students' lives. This integrated approach to continuous improvement will help organizations achieve systems transformation in meaningful ways.



C The Importance of Culture and Human Capital

Research shows that effective changes will be achieved if supported by shifts in organizational cultures that include attitudes, beliefs, knowledge, and norms (Felner, 2005; Fixsen et al., 2005). Burke (2002) points to the importance of starting with the process of creating habits of practice toward changing behavior that will likely lead to culture change.

This guidebook addresses both the technical aspects of continuous improvement - tied to building technical knowledge and skills, as well as the adaptive qualities of continuous improvement, which relate to developing individual and collective habits of mind and practice. The theory of change that guides this guidebook asserts that establishing norms, routines, and habits of mind and practice will lead to transformational change.

The table below includes examples of technical and adaptive qualities. Together, they are essential to creating an environment conducive to improvement toward evidence-based practices.

Technical Qualities	Adaptive Qualities
<ul style="list-style-type: none"> • Strategic visioning and planning • Problem identification and root cause analysis • Developing a theory of action • Identifying measures for continuous improvement • Creating action plans for implementation cycles and data collection • Facilitating collaborative data study • Implementing innovations and practices with quality 	<ul style="list-style-type: none"> • Creating and maintaining 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 practices 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

Capacity Building and Establishing a Core Design Team

Capacity building advances an organization's ability to learn and improve, deliver its mission, translate its strategic vision into action plans, and enhance its effectiveness. Furthermore, it enables institutions – their practitioners and leaders, to develop knowledge, competencies, and skills that will help them effectively implement policies and programs, and sustain best practices.

The tools, case studies, templates, and processes in this guidebook are designed to help practitioners and leaders build capacity and engage in or oversee continuous improvement. Continuous improvement often requires simultaneous changes in two key areas: 1) content and process related to the innovation and 2) organizational shifts around learning and collaboration.

Building capacity of key staff members to manage the change process is an integral aspect of continuous improvement. We recommend that you identify a core design team made up of practitioners, leaders, and other stakeholders who develop their technical and adaptive knowledge, skills, and competencies. You can also establish subteams who work closely with the core design team as they implement new practices. Ultimately, the core design team can serve as champions of change or change agents who can mobilize, organize, and empower others. This guidebook includes frameworks and strategies for facilitating the change process.

A Collaborative Culture of Learning and Improvement

Continuous improvement in educational settings requires active engagement of educators, administrators, leaders, community partners, and other stakeholders, ideally across different levels of the system. As such, it challenges prevailing norms of working in silos and encourages leaders to facilitate and foster new habits and structures to support a collaborative learning culture. Engaging multiple stakeholders in the continuous improvement process can generate a sense of ownership and empowerment. While this guidebook is designed for leaders and practitioners, we encourage you to include student voice in the process or engage them in their own continuous improvement.

Continuous Improvement in Service of Equity and Community

Equity should be at the heart of continuous improvement. Therefore, continuous improvement must consider changes to policies and practices within the community context. For example, if your leadership team decides to address a problem related to student supports and social-emotional development, it is important that you examine systemic and historical barriers to student success. This includes having authentic conversations about the issues. At the beginning, when you identify problems and examine root causes during the continuous improvement process, we recommend that you collaboratively study data with an equity lens.

We must invest and develop institutions that act as “learning systems,” that is to say, systems capable of bringing about their own continuing transformation.
–Schon, 1973

Unless all stakeholders in a system accept the idea that change is needed and that it does not conflict with existing priorities, new and innovative practices will not take hold or be sustained.
–Petersilia, 1990

D Guiding Principles for Continuous Improvement

Continuous improvement should:

- **Build the skills, knowledge and perspectives of individuals** to self-reflect, dialogue, and act based on data and knowledge. This strengthens the capacity of all participants to establish a learning environment and work together to solve problems.
- **Support an organization's efforts** to become stronger and more effective, and also enhance its ability to bridge research and theory with policy and practice.
- **Be designed to address real issues and problems.** It should provide staff and stakeholders with strategies to build on strengths and opportunities.
- **Invite multiple perspectives** and involve a representation of people who care about and benefit from the program.
- **Be flexible and adaptable.** Strategies, initiatives, and programs don't exist in a vacuum and events such as staff turnover can influence their implementation and outcomes.
- **Be responsive to local context.** Data collected should capture the day-to-day reality and outcomes of those affected by the innovation.



Tool: Continuous Improvement Organizational Self-Assessment Survey

Assessing district culture and the readiness of practitioners at all levels of the system to embrace a culture of continuous improvement is an important first step. You can use or adapt the self-assessment survey in this chapter to initially gather baseline data from multiple stakeholders. Subsequently, you can implement the survey periodically to gauge progress toward culture and paradigm shifts that support culture and systems change.



Tool: Building Capacity of Education Professionals for Deep Learning and Continuous Improvement

Capacity building involves developing individual and collective knowledge, competencies, and motivation. As an approach to making meaningful organizational change, use the tool in this chapter that includes a set of indicators for deep learning among professionals within an education system. It includes a set of knowledge, skills, and dispositions that reflect deeper learning among adults and is focused on five elements.



Continuous Improvement Organizational Self-Assessment Survey

This survey acts as a self-assessment tool and includes questions related to building a culture of continuous improvement. We encourage education systems or organizations to gather data from multiple stakeholders, including practitioners, leaders, and other staff. You can implement the survey to collect baseline data, and subsequently to gauge progress along a continuum of growth.

For each of the following statements, rate your district along the following continuum:

- **Not Yet:** My organization or school district has not yet recognized or taken deliberate steps towards establishing this practice.
- **Exploring:** My organization or school district has recognized the importance of this and has planned some initial steps towards establishing this practice.
- **Developing:** My organization or school district has implemented some initial steps towards establishing this practice.
- **Progressing:** My organization or school district has been actively implementing this practice.
- **Advancing:** My organization or school district has prioritized and improved upon this practice over many years such that it could be considered a potential model.

	Not Yet	Exploring	Developing	Progressing	Advancing
1. Central office encourages intelligent risk-taking and innovation through the process of continuous improvement. Risk-taking and experimentation are seen as opportunities for growth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Different stakeholders in the district and community understand and support continuous improvement as an approach to advancing student-centered learning practices and processes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not Yet	Exploring	Developing	Progressing	Advancing
3. Principals and other building instructional leaders have a “continuous improvement” mindset, continually problem solving and challenging themselves to do things in more effective and efficient ways.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Teachers have a “continuous improvement” mindset, continually engaging in inquiry and reflection and challenging themselves to do things in more effective and efficient ways.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Teachers and administrators have a common understanding about “improvement” data (vs. data for accountability or data for research) as a formative process to improve practices, policies, structures, and programs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. When a new improvement initiative is introduced, the reason for doing so is student-centered and this connection is made explicit to the teachers and community members.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Organized professional learning communities exist in each school where open sharing is facilitated. In these communities, people routinely share what they are experimenting with, observing and learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. There are shared decision making processes and structures in place at the school and central office level to make changes based on findings from continuous improvement data.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not Yet	Exploring	Developing	Progressing	Advancing
9. Central office and school administration invest in sustaining culture shifts by building the capacity of leaders to guide and support the continuous improvement process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The continuous improvement process is used to scale effective student-centered practices to achieve greater depth, quality, and rigor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Continuous improvement is used as an approach to address system alignment and cohesion of practices and policies between schools and central office units.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please add any additional comments regarding how your organization is building a collaborative culture of continuous improvement:



Building Capacity of Education Professionals for Deep Learning and Continuous Improvement

Capacity building involves developing individual and collective knowledge, competencies, and motivation. Fullan (2006a), Elmore (2004), and Meyers et al. (2012a) highlight the need for capacity building that is focused on sustainable improvement, where school and central office personnel learn from one another and develop new knowledge and skills to shift organizational culture. Fullan (2006) calls for a results-oriented, capacity-building strategy and distinguishes between an emphasis on accountability vs. positive pressure. Building capacity of education professionals for deep learning requires the use of tools and resources—and fostering habits of practice around problem solving, collaboration, and improvement.

The following table describes a set of indicators for deep learning and continuous improvement among professionals within an education system, as an approach to making meaningful organizational change. It includes a set of knowledge, skills, and dispositions and is focused around five elements.

Element	Indicators
1 Mastery of key content and concepts	<p>Educators and administrators:</p> <ul style="list-style-type: none">• Build their knowledge of key content relevant to their work, which can include information from research or best practices• Learn to combine subject matter knowledge (e.g., student-centered learning in particular disciplines) with profound knowledge (e.g., systems thinking, change management)• Establish common understanding among multiple stakeholders of key concepts such as continuous improvement and scale• Possess deep understanding of issues tied to educational equity• Have the capacity to apply, transfer, or adapt ideas from research to their local context

Element

Indicators

2 Problem solving

Educators and administrators:

- Examine existing problems or gaps, and develop a common definition and understanding of the key problem(s) of practice that need to be addressed
- Consider themselves as problem solvers who can engage in ongoing reflection and inquiry about their practice, and identify and address any challenges with an equity lens
- Become familiar with existing priorities that may be competing or complementing each other and create cohesion
- Develop solutions that can influence different levels of the system

3 Collaboration

Educators and administrators:

- Work together to develop trust, build common understanding and language, and support an appropriate level of transparency
- Learn from one another and give constructive feedback through a safe protocol that can move the work forward
- Collaboratively examine data with an equity lens—from improvement cycles, formative assessments, or other relevant data that can inform practice
- Communicate with and gather input from students, parents, and community partners about reform efforts
- Cultivate a collaborative culture and take part in professional communities within or outside of their organizational system

Element	Indicators
<p>4 Continuous improvement mindset</p>	<p>Educators and administrators:</p> <ul style="list-style-type: none"> • Actively engage in disciplined inquiry to support continuous improvement of daily work practices - in service of strengthening instruction and student learning • Understand the difference between improvement data and data for research and evaluation • Focus on testing high-leverage innovations and change practices that will likely impact student and system outcomes • Develop a culture of continuous improvement by creating structures, habits, and routines that become norms of engagement for professional practice
<p>5 Systems thinking</p>	<p>Educators and administrators:</p> <ul style="list-style-type: none"> • Develop systems thinking and work to deeply understand linkages and interactions between the components of the educational system (e.g., school departments and central office units) • Understand federal, state, and local policies and their implications for school and district personnel, as well as strategies to inform policy • Create alignment and coherence of practices, policies, and people within and across different levels of the system (i.e., vertical and horizontal alignment) • Consider their individual roles in the system—how they influence and support others and who influences and supports them—and the value of a human-centered approach to systems change • Work to balance bottom-up and top-down approaches, as well as community connections

Chapter 1:

Build Common Purpose and Understanding

What is a problem of practice?

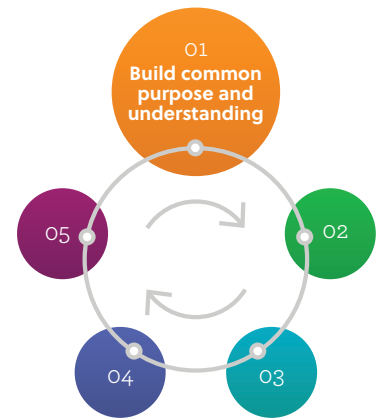
How can you develop a theory of change?

How can you use the theory to build common purpose and understanding of the work among diverse stakeholders?



Introduction

This chapter is intended to help you define and prioritize problems of practice and develop a theory of change, which will ultimately serve as part of your continuous improvement plan. It is important that you work collaboratively and gather input from multiple stakeholders as you engage in this process. We recommend that you use the theory of change to build common understanding about your mission and strategic vision for improvement.



1.1 What is a Theory of Change?

1.2 Defining the Goal

1.3 Empathize, Analyze, Understand

1.4 What is a Problem of Practice?

1.5 Developing a Theory of Change



Tool: Driver Diagram

1.1 What is a Theory of Change?

A theory of change is a comprehensive illustration of how and why a desired change is expected to happen in a particular context. You can consider the theory of change as the “missing middle” between the innovation or host of practices you intend to implement and how these changes will lead to a desired goal. Think of it as an evidence-based story that explains the specific changes you plan to make and why you believe these are the ones that will strengthen key aspects of your organizational system.

Consider the characteristics of a theory of change:

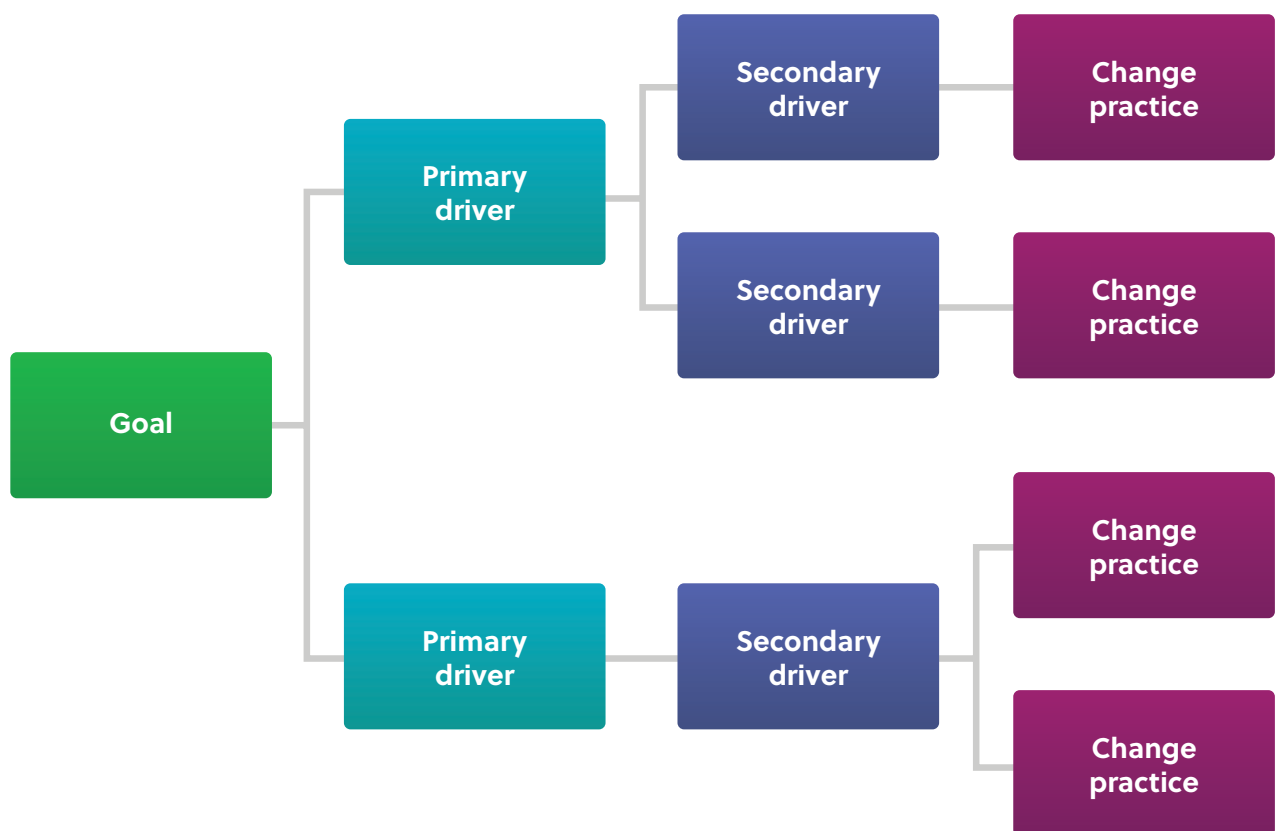
- It is a process and product that can evolve
- It is a flexible approach to thinking through your strategy and purpose

- The quality of a theory of change process rests on making assumptions explicit, and strategic thinking transparent and realistic
- It should be periodically revisited and refined based on learning during implementation of new practices

In order to tell an authentic story, it is useful to involve multiple stakeholders when creating a theory of change. Work with a core design team that is made up of people in various roles from different levels of the system and who bring important perspectives to the process. Also, share your theory of change with a broader advisory group who can provide input and feedback. Essentially, you can use the theory to change to build common purpose and understanding about your strategic thinking and steps for improvement. By doing this, you generate a sense of ownership among staff and stakeholders.

There are a number of visual diagrams you can use to illustrate a theory of change. See example below.

Driver Diagram Tool



In the context of continuous improvement, your theory of change represents the initial phase of the work. To create a theory of change, you first define the goal and then work backwards to identify conditions that must be in place and how they are interrelated.

1.2 Defining the Goal

Having a goal is essential for organizing efforts to create change. It is the ultimate change you desire to see from all of your efforts. However, selecting a goal can be a challenging task. How do you prioritize goals and know that a particular goal is worthy to pursue?

Conducting a thorough analysis of existing data is helpful in identifying and uncovering key issues and gaps that need to be addressed. This is the first step in setting a goal. The process we recommend is to disaggregate all of the existing data by subgroup (e.g., race/ethnicity, gender, grade, ELLs, student with disabilities, low income families, etc.).

For example, if you are addressing student performance and growth, you can examine grades, standardized assessment scores, discipline data, attendance data, graduation and dropout rates – even survey data such as climate surveys or youth risk behavior surveys, and collectively summarize using charts and graphs. If you are focusing on teacher quality and turnover, you can examine data within the teacher support and evaluation systems as well the school culture and climate survey. Gather a diverse group of stakeholders to collaboratively analyze these data using a protocol such as the one included in this guidebook to ensure equity of voice, and basing decisions on data. This group then prioritizes issues/gaps identified in the data based on the group analysis, and addressing these priorities becomes the goal. The table below shows how a gap or problem identified in the data can be turned into a goal statement.

Gap or Problem	Goal Statement
70% of 9 th grade students are falling below proficiency on the state math assessment.	Increase the percentage of students in the 9 th grade who are proficient in math by 20% by the end of the year.
There is a significant increase in dropout rates among 9 th and 10 th grade low-income and minority students.	Decrease the dropout rate for 9 th and 10 th grade low-income and minority students by 20% by the end of next year.
An increasing number of 9 th grade students are not mastering core competencies for 10 th grade.	Increase the percentage of 9 th grade students who master core competencies for 10 th grade by 30% by the end of the year.

Note: Setting the degree of change in the goal statement requires knowledge of what would be a meaningful yet achievable change. The goal should be significant enough to motivate people to take action for change, yet have a reasonable likelihood of being achieved so that change agents are not overwhelmed by the target.

1.3 Empathize, Analyze, Understand

Once you determine the problem or area of focus, it is important to gather data to deeply understand assumptions and root causes of problems. Building on the design thinking approach (Brown, 2009), developing a data collection plan will help you empathize, analyze, and understand your local context. In this section of the guidebook, we provide suggested approaches, tools, and processes for initial data collection to understand underlying reasons for gaps and problems.

Empathize, Analyze, Understand

- Develop a data collection plan and framework
- Gather information from multiple stakeholders
- Examine data from various perspectives with an equity lens
- Explore local conditions and remain open to a collaborative, iterative process

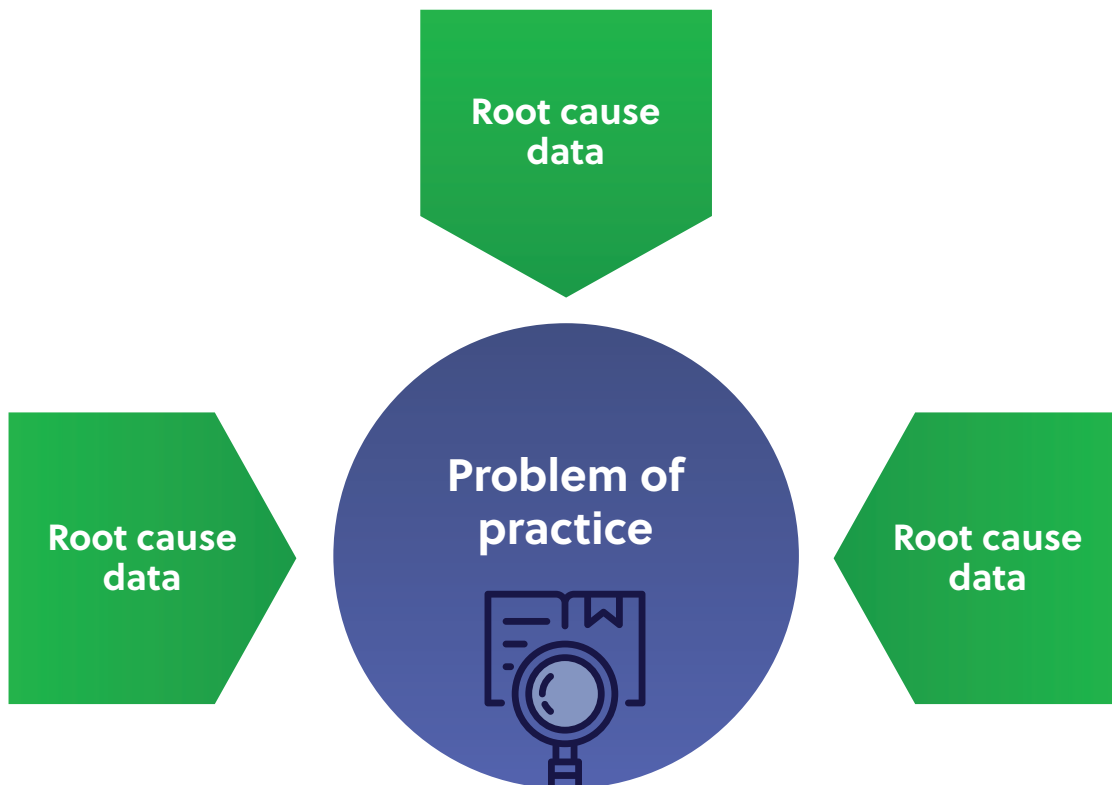
The design thinking method is useful because it emphasizes a human-centered approach to understanding complex problems and needs. It encourages you to gain empathic awareness of the problems you are trying to solve as you find out more about the area of concern. Set aside your assumptions and instead, try to understand people's experiences and motivations to gain a deep understanding of the issues.

Root Cause Analysis

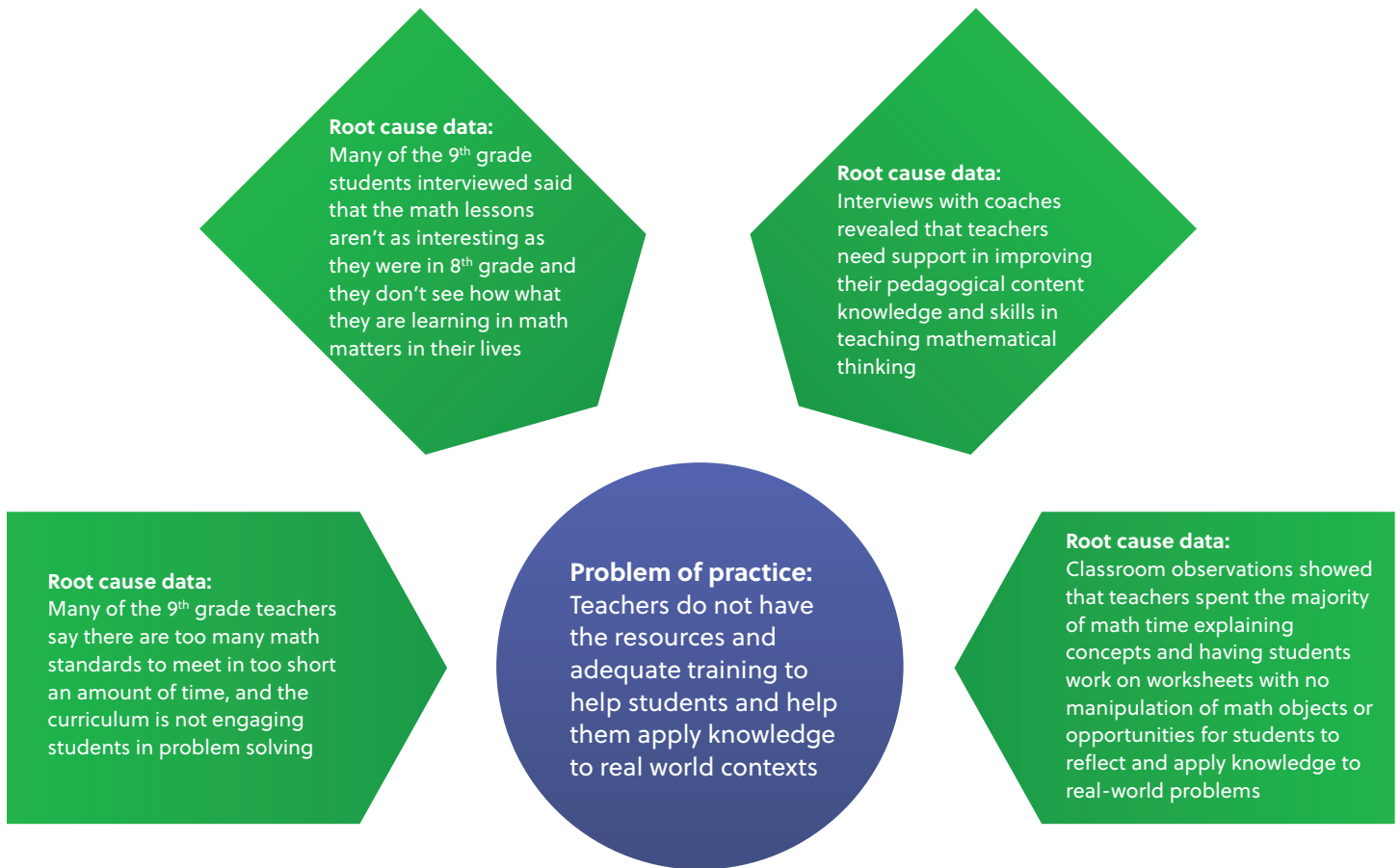
Once you gather and synthesize the data, work with your team to collaboratively analyze the data and organize key findings. Engage in discussion about possible root causes of problems and gaps. Based on your discussion of root causes, you will likely identify a number of problems of practice (see section 1.4 for additional information on problems of practice), and this process will require stepping back and forth between the data and your own observations, experiences, and beliefs. School systems are complex social systems. For this reason, it is often impossible to isolate a single root cause. It is more likely that you will be able to identify several causes that in combination bring about a symptom. Consider how you can group the possible root causes and create categories to organize the information.

Root Causes and Problems of Practice

- Root cause data provides a deep understanding of the causes of gaps or problems
- Data from different sources will often triangulate to define priority problems of practice that, when addressed, are expected to result in a significant change in the gap/problem

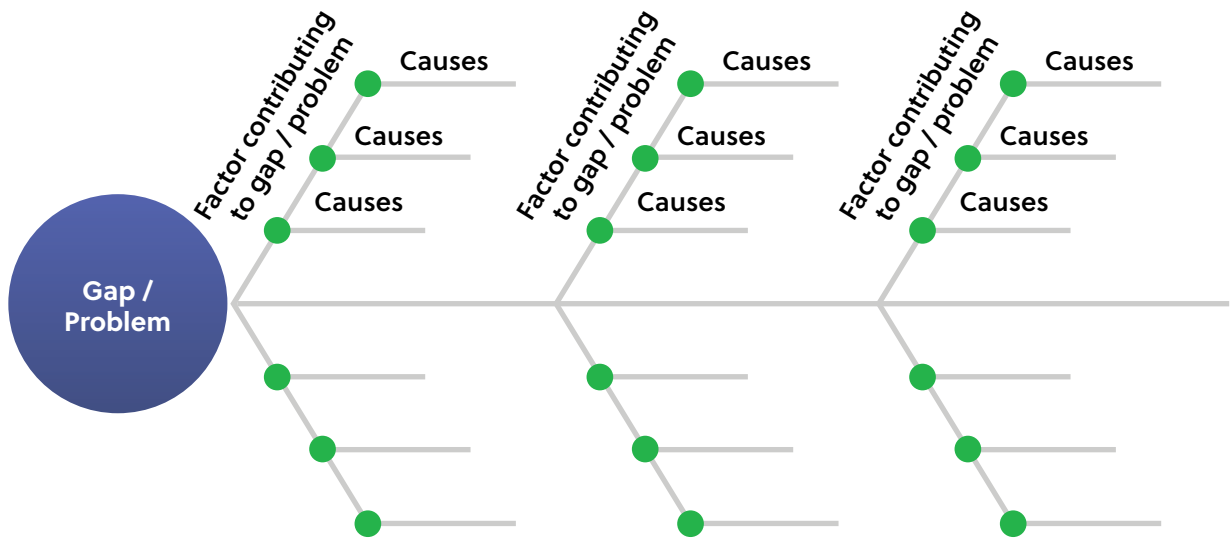


Root Causes and Problems of Practice Example

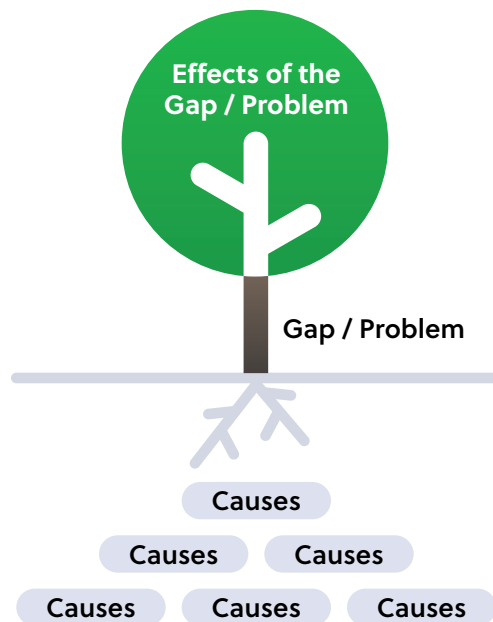


There is more than one way to brainstorm root causes. The process and diagram do not have to be perfect. In fact, you can anticipate the approach may be a bit messy. Below are three strategies for engaging in root cause analysis. The **Fishbone Diagram**, **Problem Tree Diagram**, and **5 Whys Analysis** can help you capture ideas generated during collaborative discussions. The results from a root cause analysis of the current context provides a rich data set that the planning team can use in identifying strategic drivers. In framing the root cause analysis work in school districts, it is helpful to address the need for participants to focus on what is within—not outside the district’s control.

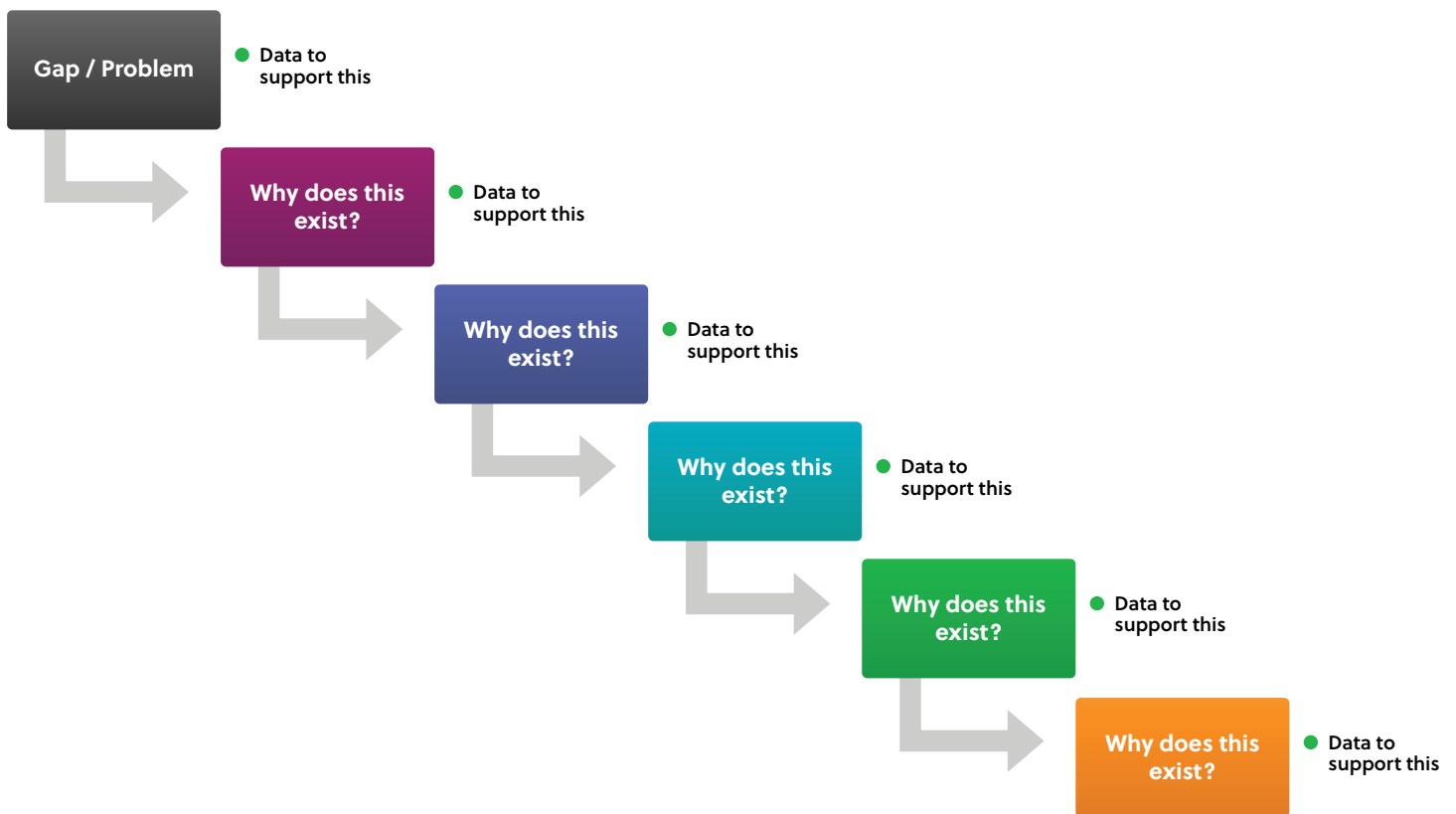
Fishbone Diagram



Problem Tree Diagram



The 5 Whys Analysis Diagram



1.4 What is a Problem of Practice?

A problem of practice is grounded in some kind of evidence. It is something that you might already be working on, or a need or gap that recently emerged. School, district, and organizational strategic plans can also inform problems of practice. It does not connote a deficit model, rather it highlights priorities that need to be addressed.

Characteristics of Problems of Practice in the Context of Schools, Districts, and State Agencies:

- **Focuses on systemic issues.** Systemic gaps are problems that involve the interactions of teachers, students, and leaders. They relate to school or system performance and well-being.
- **Focuses on instructional practice and culture.** Increases in student learning and growth require improvements to the rigor and quality of the content, educator skill and knowledge, and/or student engagement.
- **Requires shared responsibility.** Those involved in addressing the problem or creating solutions include multiple stakeholders and require people to consider how their actions influence others.

- **Directly observable.** The problem of practice must be directly observable, not theoretical.
- **High-leverage.** Solving a problem of practice would address equity and make a significant difference for student learning, teacher practice, district norms, or community outcomes.
- **Actionable.** The problem is within a district or school’s control and can be addressed in real time.
- **Connected to an organization’s strategic improvement plan.** Problems of practice directly align with broader school and district improvement plans.

It is important to differentiate between a problem and problems of practice to be addressed in the context of continuous improvement. Think of it as differences in the grain size of how you define a problem of practice and something that you can control and address in real time.

Gap or Problem	Problem of Practice to Inform Continuous Improvement
70% of 9 th grade students are falling below proficiency on the state math assessment.	Teachers do not have the resources and adequate training to help students apply knowledge to real world contexts.
There is a significant increase in dropout rates among 9 th and 10 th grade low-income and minority students.	Students do not receive consistent personalized interventions to meet their socio-emotional and academic needs.
An increasing number of 9 th grade students are not mastering core competencies for 10 th grade.	There is a lack of instructional supports for educators to explicitly teach critical thinking and problem-solving strategies across subject areas.

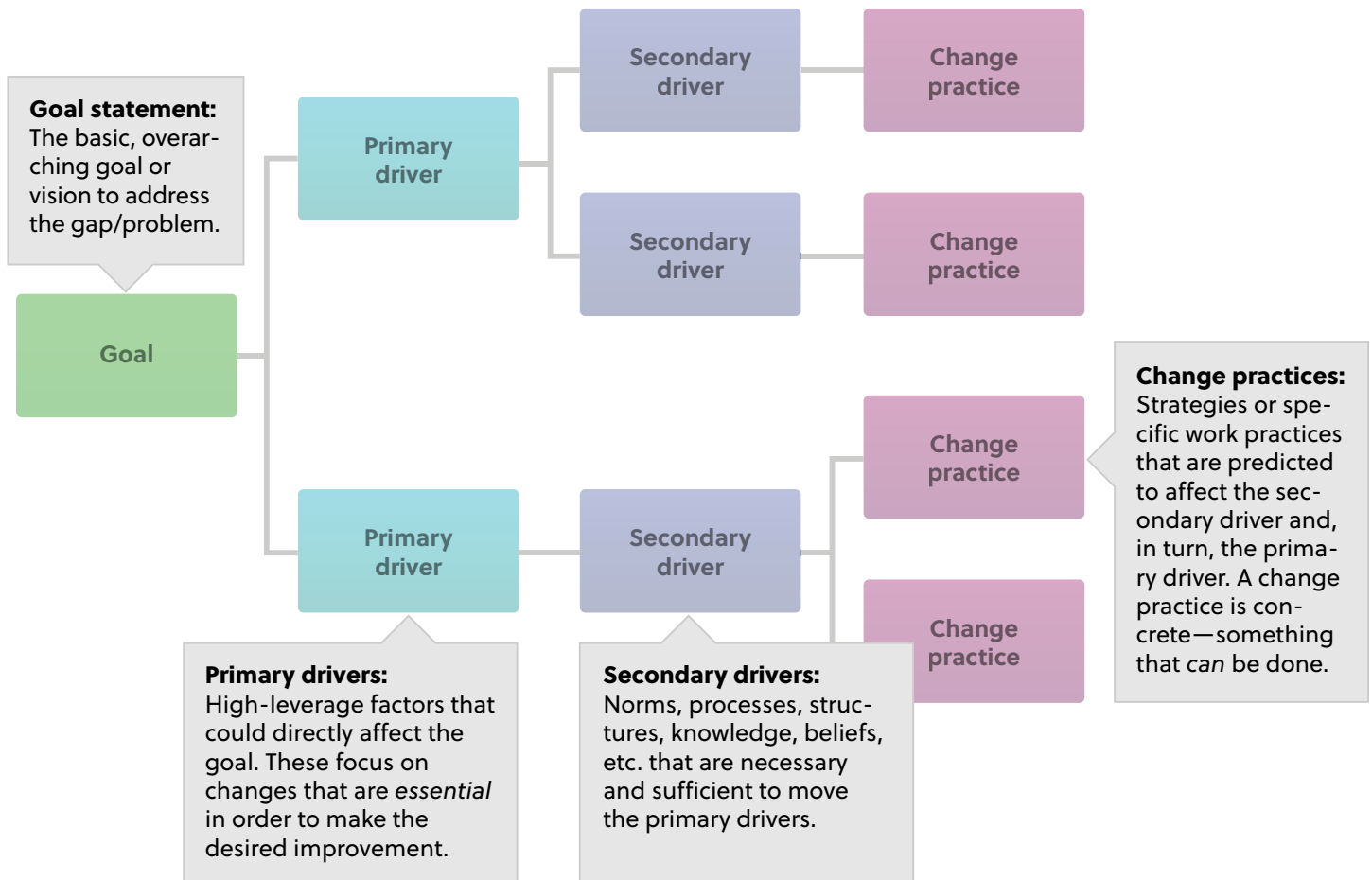
1.5 Developing a Theory of Change

There is more than one way of creating a theory of change. We recommend that you use the following **driver diagram tool** to organize your ideas. This section will focus on developing the initial stages of a theory of change to inform a continuous improvement plan.

You will begin by identifying primary and secondary drivers that will likely help you achieve your goal. You will then develop your theory of change to illustrate your strategic vision. This will include your goal, primary drivers, and secondary drivers. We encourage you not to focus on change practices yet in this phase of the exercise.

A theory of change defines long-term goals and then maps backward to identify necessary preconditions.

Driver Diagram Tool Representing Theory of Change



Developing a Theory of Change Using the Driver Diagram Tool

Once your team has a deep understanding of your problem, you can better articulate what you believe will be necessary conditions to address it. One way is through the use of a **driver diagram**.

What is a Driver Diagram?

A driver diagram is a type of structured logic chart that serves as a visual tool for addressing your problem. Not only does it make your theory of change explicit, it allows you to develop and test theories of improvement—as well as build upon knowledge gleaned from research, observation, and experience. The purpose of a driver diagram is to inform your continuous improvement plan.

Typically, there are four elements in a driver diagram: (1) goal, (2) primary drivers, (3) secondary drivers, and (4) change practices:

Goal: Your goal is what you want to achieve. It is the positive framing of your problem. Depending on the context, your goal can either be specific and measurable or stated more generally.

Primary drivers: Each goal may contain several drivers, which may act independently or together to achieve the goal. A primary driver represents a hypothesis about a high-leverage factor you believe directly impacts your goal. They focus on changes that are essential to make the desired improvement(s). Taken together, the primary drivers are meant to represent how the goal might be achieved. However, they may still be too general to direct specific actions. This is where it is helpful to identify the related secondary drivers.

Secondary drivers: Secondary drivers are norms, processes, structures, knowledge, beliefs, etc. that are necessary and sufficient to move the primary drivers. Depending on the scope of the goal and how specific the primary drivers are, you may not always need a secondary driver.

Change practices: Change practices are the interventions or specific work practices that affect the secondary driver and, in turn, the primary driver. Consider a suite of interrelated change practices as an innovation. A change practice is concrete—an action or a set of actions you can do to create the desired change, helping to attain your goal. Each change practice identified in the driver diagram is a theory as to what will create change in the secondary driver and ultimately the goal.

We recommend that you refrain from moving on to identifying change practices at this point. Oftentimes, individuals and teams jump to identifying programs and tasks they are planning to implement before thinking through the theory of change. Perhaps you have identified a specific innovation that you plan to implement to address the problem such as an educator leadership model or project-based education. In Chapter 3, you will have an opportunity to delve deeply into defining and unpacking key practices and elements of an innovation, which essentially become change practices to test in improvement cycles.



Tip: Your driver diagram should illustrate what necessary conditions—structures, processes, and norms—require change in the system and how these could be changed through the application of specific ideas (Bennett and Provost, 2015). The driver diagram process is logical and detailed. It may feel complex as you determine the scope and grain size of the goal and corresponding drivers of change.

Work with your team to identify drivers that will help achieve your goal.

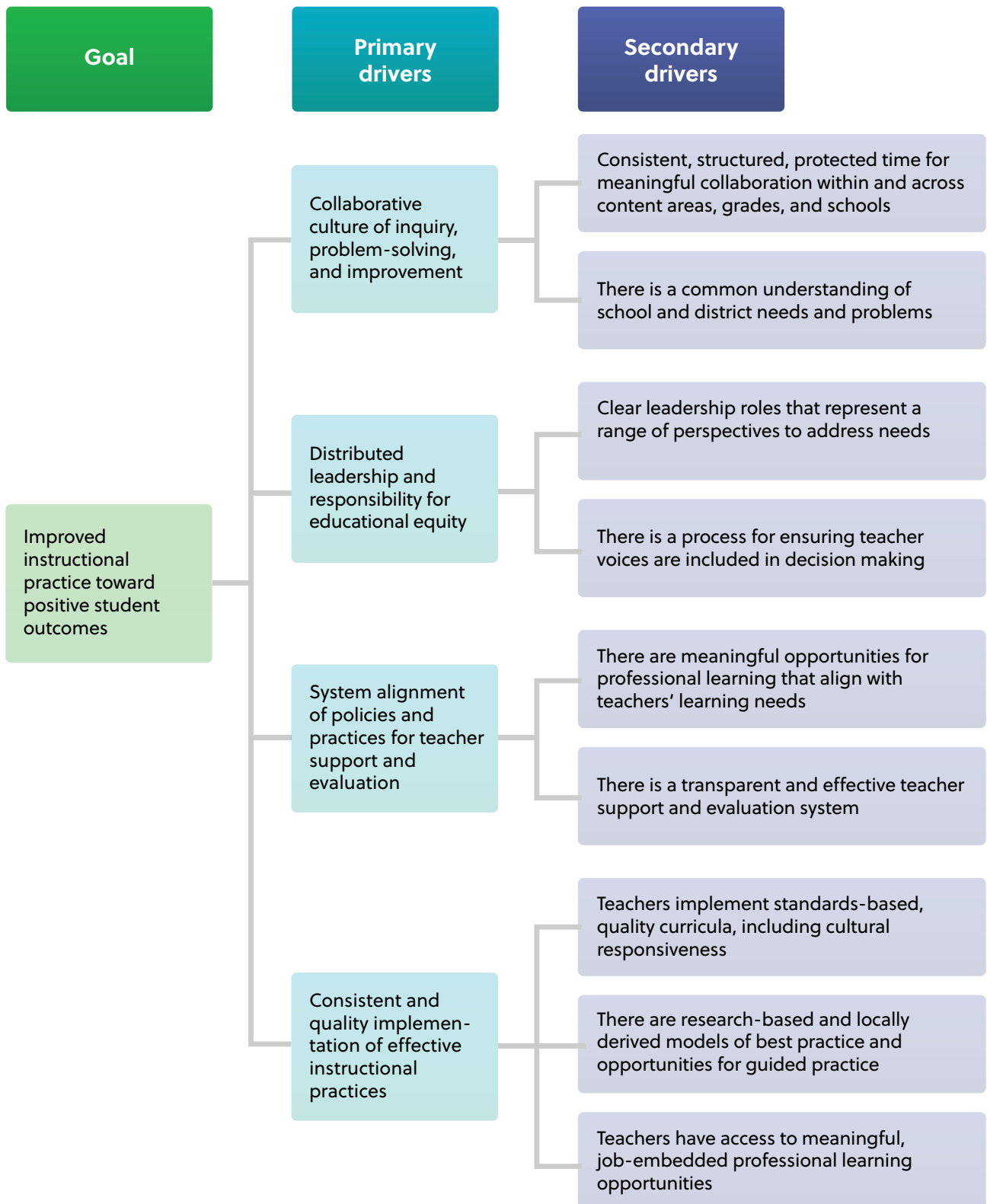
One strategy for identifying your secondary drivers is to translate your problems of practice and/or root causes into driver statements. The following example showcases a list of problems of practice that a school district identified and how they translated the problems of practice into secondary driver statements.

The table below includes a sample set of problems of practice that emerged from focus group data, interviews and surveys, and root cause analysis. The school district design team engaged in a process of categorizing items that led to a more streamlined list. They then worked in small groups to translate problems of practice into secondary drivers. This activity was for strategic visioning of necessary conditions that could lead to the primary drivers. This process informed their theory of change.

Sample Problems of Practice That Emerged from Data

1. Limited time for teacher collaboration, and lack of quality structures for effective collaboration.
2. Lack of transparency for decision making related to professional development, and lack of teacher voice and input.
3. Professional learning opportunities are inconsistent, and often don't align with teacher needs.
4. It is unclear what the school or district-wide vision is for effective teaching and learning.
5. Quality of curriculum varies across schools and departments, and there is a lack of clear expectations for standards-based curriculum.
6. Teachers do not feel like they have a sense of agency in their professional learning.
7. There are few coaches, and they are not available to SPED and ELL teachers, which presents an equity issue.
8. There are no opportunities for teachers to observe their peers.
9. Educators expressed the need to access resources and build capacity for cultural competency practices.
10. There are limited opportunities for teachers to engage in ongoing inquiry and collaborative data study to inform teaching.
11. There is no district-wide consistent and systematic process for observation and feedback as part of a support structure.
12. Many staff and departments still work in silos, and there is no district-wide opportunity to share lessons learned and best practices for effective teaching.

Theory of Action



Building Common Understanding and Vision

Your theory of change is a working document that represents the first part of your continuous improvement plan. The collaborative creation of your theory of change can help build common purpose and understanding among your design team. Now is the time to share your initial ideas with a broader group of stakeholders to support transparency and effective communication. This process might include an advisory group or a leadership team. It is important not only to share your driver diagram as a work in progress, but also the process of problem identification, root cause analysis, and data study that led to the theory of change.

What are the next steps in the continuous improvement plan? Before considering what innovations and change practices will support your theory and vision, take some time to apply a systems thinking mindset to the work and consider how you will manage the change process. Chapter 2 provides tools and processes to support systems alignment and change.

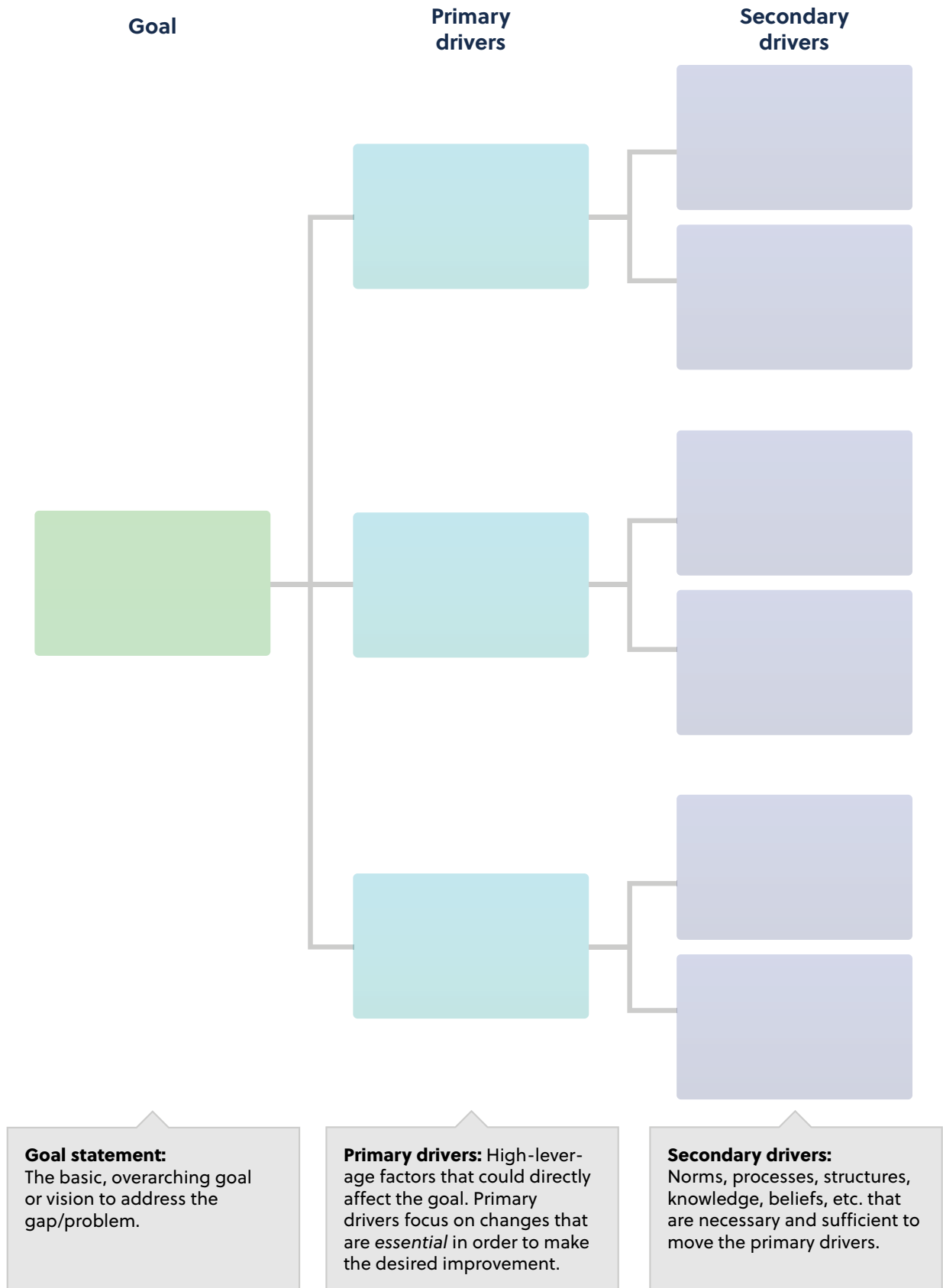


Tool: Driver Diagram

Use or adapt the driver diagram tool in this chapter to collaboratively develop a theory of change with your team. Transfer your own version into a digital format that you can easily access and refine as a working document.



Driver Diagram



Chapter 2:

Support System Alignment and Change

How can systems thinking and change management strategies guide the continuous improvement process?

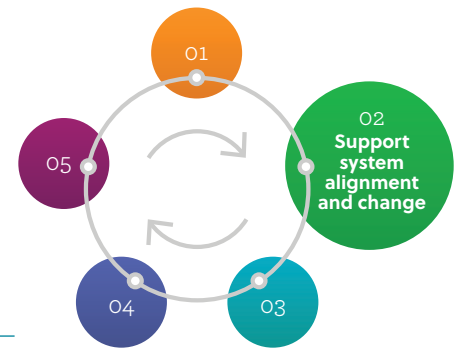
What do we mean by systems alignment and cohesion?



How do we help support you through the change process in meaningful ways?



Introduction

This chapter is intended to deepen your understanding of systems change. It includes tools and processes that you can apply in practical ways to guide the change process with multiple stakeholders in different levels of the system.



- 2.1
A Human-Centered Systems Change Reflective Process
- 2.2
System Mapping of People, Practices, Programs, and Policies
- 2.3
Strategies for Change Management
- 2.4
Applying Theory to Practice: A Case Study
- 
Tool: Systems Alignment Template
- 
Tool: Change Management

Overview

What do we mean by systems alignment and cohesion? How do we support the change process in meaningful ways? How can systems thinking and change management strategies guide the various stages of the continuous improvement process? This chapter answers these questions in two key parts.

1. **Part one focuses on a human-centered systems thinking approach** that guides you and your team to reflect on your theory of change from multiple perspectives. It provides tools that will help you consider how to create system alignment and cohesion of people, practices, programs, and policies.
2. **Part two addresses change management.** It provides tools and strategies to assist you in working with different stakeholders in the system. More specifically, to help as you shift organizational culture to support ongoing collaboration, learning, and improvement.

2.1 A Human-Centered Systems Change Reflective Process

Systemic improvement is only possible when instruments of change (i.e., policies and programs) cohere or align . . . To get substantial gains in learner achievement across an entire education system, it is essential to align policies and programs such as teacher development, curriculum frameworks, and assessment procedures, toward a specific target.

–Cohen & Spillane, 1993

The Human Centered System Change Framework is designed to help transform school districts into teaching and learning support systems. It is intended to guide institutions in re-imagining the education system in ways that align people, practices, programs, and policies within and between different levels of the system. This framework addresses how key people in the system can contribute to and influence reform efforts.

Ultimately, it's about people—how we foster people's sense of ownership, build their capacities, cultivate reflective practice, and support their day-to-day work in the service of improving instruction, addressing the needs of the community, and achieving equitable outcomes.

The framework builds on and integrates different bodies of research, starting with Honig (2006), whose work highlights how reforms depend on people, the places where they work, and their interactions with local policies. Building on Fullan's (2015) and Hargreaves and Braun's (2010) work, this framework focuses on deliberate strategies to increase the capacity and internal coherence of the *middle* (the central office and networks of schools) as it becomes an effective partner *upward* to the state and *downward* to its classrooms and communities.

Finally, we consider how Englebart (2003) characterizes three levels of activity in school districts:

1. on-the-ground work (including teachers)
2. support centers (including school and central office instructional leaders)
3. inter-institutional activity (learning across schools, districts, and locales)

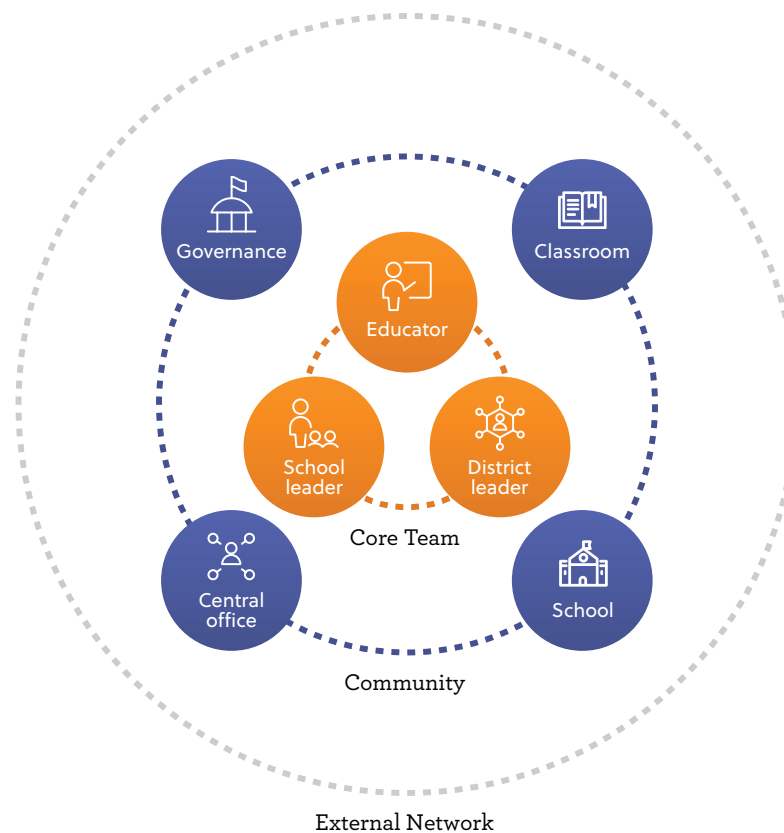
The resources in this section are written for school districts, but can be adapted for state departments of education and other educational institutions.

Education institutions have an organizational structure that affects day-to-day operations. If you look at the structure from a vertical lens, different levels can include classrooms, schools, district central office, and the state department of education. Typically, each level within the larger system also has an organizational structure (e.g., central office units and school departments), which serves as the horizontal lens.

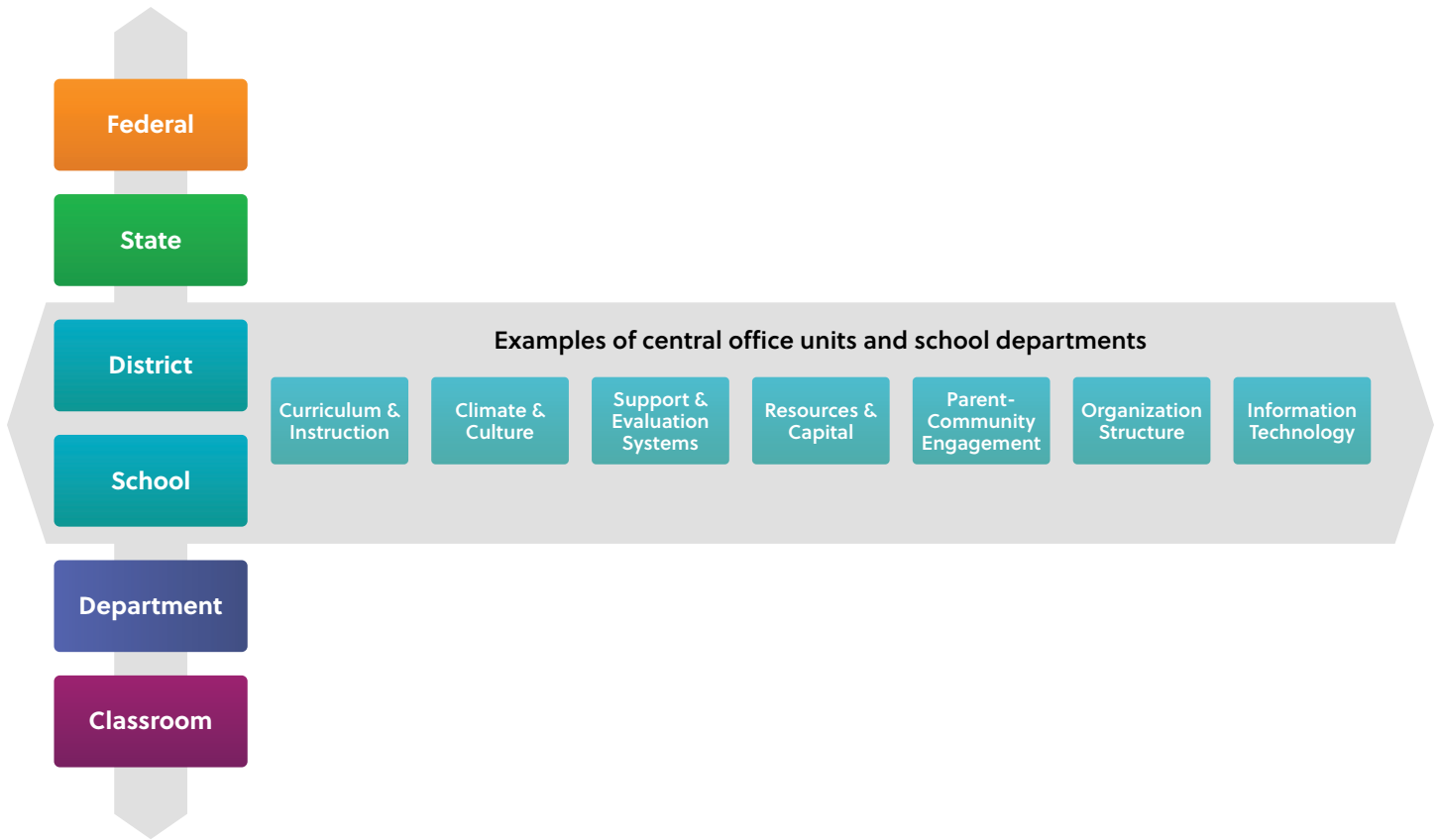
The vertical and horizontal model is important to keep in mind when you engage in education reform and align practices and policies to achieve coherence. At the same time, connections may not happen in a linear fashion and people need to be at the very heart of reforms. The human-centered framework can guide reforms in a way that addresses both bottom-up and top-down efforts. Different positions and roles must contribute to the change process in order to sustain best practices.

The design of the systems change framework centers on interactions between people and different components of the educational system. Education systems work to serve students and the community locally. While the community encircles the education system in the illustration, it is the community context that should inform innovations for educational equity.

Human-Centered Systems Framework

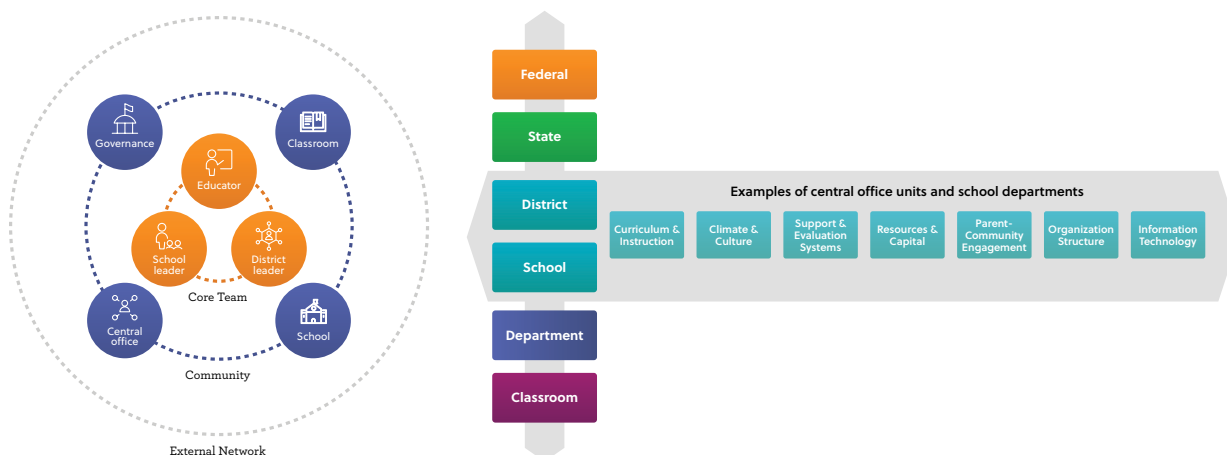


Vertical and Horizontal System Components



We highlight three main roles—educator, school leader, and district leader. These titles can include multiple positions. For example, an educator may be a classroom teacher, counselor, coach, or advisor. School leaders are typically principals, but can also be department heads or other education leaders. District leaders are superintendents and directors based in central office. Local governance can include the board of directors, parent representatives, and others. The key facet of this framework is the idea that all staff members in a school district or educational system work in service of students, parents, and the community.

Systems Change Reflection Tool



1. Individual Reflection

- Can you think of a time when a reform in your school or district was well aligned? A time when change was not well aligned? (Consider factors or levels of competing commitments, initiative overload, or clear communication.)
- How was the innovation supported when alignment and cohesion was in place? How were improvement efforts slowed or stopped when there was a lack of unity?
- Who or what influences your day-to-day work life? Who or what do you support or influence — is there a particular person or policy?

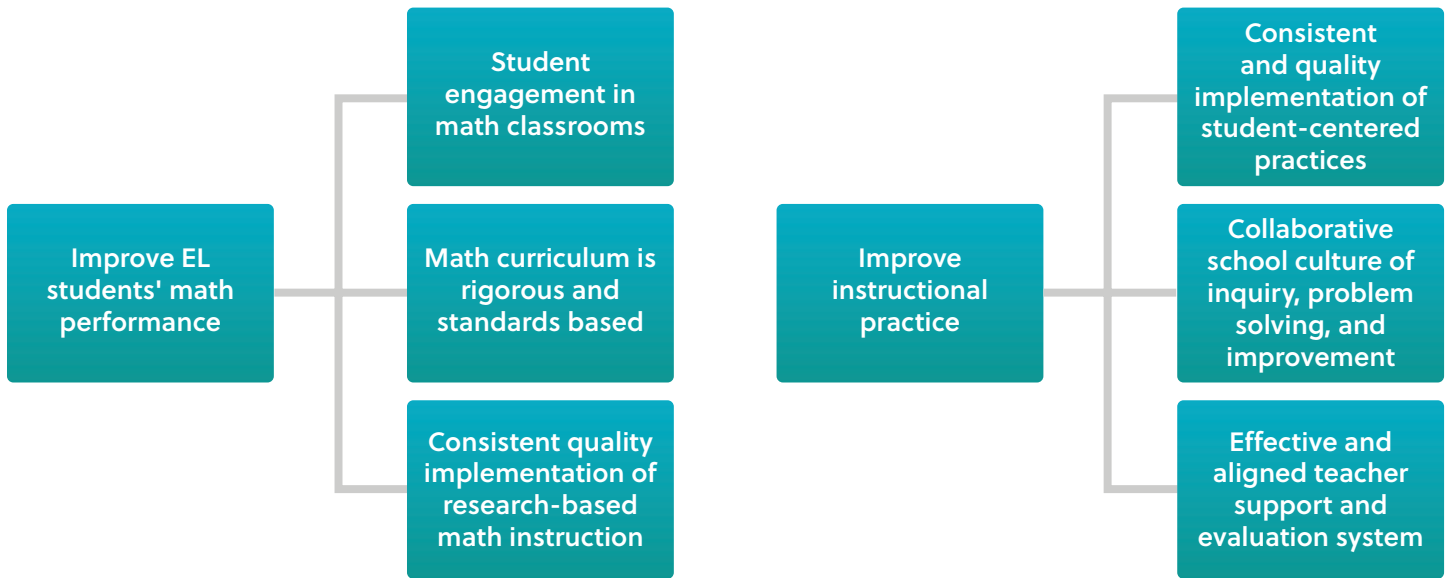
2. Collective Reflection

Review your theory of change. Focus on your primary drivers. (Option: Use the sample primary drivers as an exercise with your team.)

Focusing on the primary drivers, respond to the following questions and illustrate your responses in a table:

- Which **roles or positions** in schools and central office are responsible for achieving the primary drivers? Create a list of the roles (e.g., teacher, coach, principal, curriculum director).
- Influence:** Who and what do those roles influence in different levels of the education system? Who and what influences those roles? (e.g., state or local policies, students, people).
- Support:** Who supports those roles and how? Who do the roles support and how?
- Identify any **points of redundancy or gaps** in achieving desired outcomes and conditions related to the theory of change. Use the outcomes of this exercise to inform initial discussions about the innovation and change practices you might test in continuous improvement to address the problem of practice.

Examples of primary drivers developed by school districts that you can use for this exercise:



2.2 System Mapping of People, Practices, Programs, and Policies

Case Study: Competency-Based Teaching, Learning, and Assessment

This case study provides examples of how a district enacted vertical and horizontal alignment of practices and policies within and between different levels of the education system. It shows how key stakeholders are supported as they implement reforms.

ACROSS SYSTEM LEVELS



Governance conducts an initiative and policy audit, reduces unneeded initiatives, and develops priorities for a cohesive plan to support student-centered learning practices

District board develops a resource allocation plan that prioritizes implementation of instructional priorities and initiatives

District board supports re-organization to shift the focus of central office units to improving teacher and principal leadership



Central office Human Resources department ensures that teacher evaluation addresses teacher growth and proficiencies on competency-based instructional approaches

Central office instructional leaders provide support to principals as instructional leaders, and use a continuous improvement process to examine the effectiveness of the principal coaching model

District-wide professional development plan addresses teacher needs and includes yearlong activities that build teacher knowledge of skills on instructional priorities



Principals support a culture of continuous improvement among staff, provide time to test lessons and assessments, and engage in disciplined inquiry around competency-based practices

School leaders develop classroom observation and teacher feedback protocol to support teachers' practice and implementation of competency-based practices

Department meetings and cross-disciplinary PLCs promote collaboration and build capacity to examine student work and improvement data to help implement new and improved practices



Teachers across subject areas implement multiple assessments and personalized plans to guide student learning and growth

Advisories support student academic growth and provide designated time for students to regularly reflect on progress, set goals, and refine work

Coaches support embedded professional development as students engage in learning and performance tasks that demonstrate mastery of core competencies

WITHIN ECOSYSTEMS

Systems Change Exercises

Review the system mapping table.

Discussion questions:

- What resonates for you about this system map?
- What, if anything, is missing, or what might you add to this map?
- How can a system mapping process inform how you might involve staff in the continuous improvement process?

After you have implemented one or more continuous improvement cycles:

- How can a system mapping process inform what policies and structures you might need to implement to ensure systems change and sustainability of your reform?
- What do central office leaders, principals, educators, and other roles need to do differently to support changes that will address the problem(s) or practice?
- How can the school or district better align people, practices, programs, and policies vertically and horizontally—within and across different levels of the education system?

Use this mapping exercise to inform district and school strategic plans as well as continuous improvement plans.

2.3 Strategies for Change Management

Collaboration is vital to sustain what we call profound or really deep change, because without it, organizations are just overwhelmed by the forces of the status quo.

–Peter Senge

How do you to effectively support schools, districts, and other education systems in managing the change process as they develop a culture of innovation and continuous improvement? Schools and districts, like most organizations, are complex systems. They require an approach to organizational change that anticipates the challenges and roadblocks inherent when an innovation is introduced.

This chapter is structured to balance two realities: First, change is complex and requires an approach that honors its degree of complexity. Second, an effective change management strategy needs to be both practical and feasible so change agents in schools and districts feel empowered to enact without feeling overburdened or overwhelmed.

In order to support a culture of continuous improvement, education systems either have to create paradigm shifts or strengthen their organizational philosophy to achieve the following:

- A collaborative work environment
- An ongoing collective practice of reflection, inquiry, and improvement

Those implementing change management to support innovation and continuous improvement need to consider two overlapping elements of change:

- Innovations or a suite of change practices include multiple components that comprise specific guidelines or descriptions of practices. While part of the goal is to have key stakeholders implement the innovation to address a problem, the ultimate purpose goes beyond: to empower individuals to deepen their knowledge and practice tied to the underlying principles of the innovation and theory of action (versus simply implementing a program or tool).
- The process of continuous improvement enables people to test, refine, and improve both their daily work practices and the innovation itself. This means that key stakeholders can provide input on how the innovation is adopted or adapted while maintaining integrity of the foundational principles of the innovation.

This chapter includes and expands upon three research-based frameworks:

1. The four-frame model focused on structural, human resource, political, and symbolic frames (Bolman and Deal, 2003)
2. The concerns-based adoption model
3. The framework on mobilization and organization (Han, 2016)

The integration of these frameworks will help leaders and practitioners consider factors that may help or hinder the change process. This guidebook also provides tools and strategies to engage multiple stakeholders in meaningful and lasting change. Case studies are shared to illustrate the application of theory to practice.

Frameworks to Support Change Management

1 FOUR FRAMES OF ORGANIZATIONAL DEVELOPMENT AND CHANGE MANAGEMENT

Bolman and Deal (2003) identify four distinctive “frames”—ideas and assumptions that help us assemble information into a coherent pattern. Together, the four frames provide an accessible outline of organizational development and the different aspects of a system.

Frame 1: Structural

This frame focuses on the systems and processes that support or undermine an innovation. This frame looks at the architecture of an organization: clear roles, policies, and procedures. The premise is that people are able to do their best work if they have a clear understanding of what is expected of them and the organizational processes that support their work.

Frame 2: Human Resource

This frame concentrates on the alignment or lack of alignment between the vision and priorities of a school and district and the personal and professional goals of the staff. Staff are more likely to do their best work if there is a clear connection between what the organization values and needs and the expertise and passions they bring to the table. Staff also need to believe that they are prepared and equipped to fulfill their responsibilities.

Frame 3: Political

This frame refers to the inevitability of power conflicts when groups and individuals with diverse agendas come to the table. The goal is not to negate these differences but instead to harness the energy to arrive at creative solutions to problems, with the understanding that each person or group has a role in the solution. Toxic environments in schools and districts tend to develop when the focus of an innovation is compliance rather than authentic acceptance.

Frame 4: Symbolic

This frame reflects the needs of individuals and groups to engage in meaning and self-expression as they engage in their roles and tasks. Staff need to feel like an innovation “feeds their soul” or has a greater purpose, which is reflected in the stories, rituals, and values that are embraced in schools and districts.

Frameworks to Support Change Management

2 CONCERNS-BASED ADOPTION MODEL

A critical step in implementing any innovation is to invest appropriate time and analysis in understanding what might be getting in the way for those being asked to adopt and implement the change. A common error that schools and districts make when introducing a new innovation is to underestimate or overlook the fact that stakeholders will respond to and use the innovation differently, based on varying attitudes, beliefs, and efficacy. The well-researched Concerns-Based Adoption Model (CBAM) offers a useful framework for identifying and addressing various concerns held by those being asked to adopt an innovation—an important step to take before jumping into implementation.

The CBAM model organizes stakeholder concerns into seven stages:

1. **Unconcerned:** This stakeholder feels like other demands make it difficult or impossible to give the innovation any attention.
2. **Informational:** This stakeholder finds it interesting but feels like he or she needs to learn more about it in order to engage.
3. **Personal:** This stakeholder is typically concerned about the personal costs of embracing an innovation and what they will be expected to do differently.
4. **Management:** This stakeholder is typically concerned with how to manage this innovation—how much time it will require to “get up to speed” and integrate all of its components into planning and teaching.
5. **Consequence:** This stakeholder is typically concerned with how the innovation will impact and benefit the students.
6. **Collaboration:** This stakeholder is typically interested in opportunities to work and share ideas with others.
7. **Refocusing:** This stakeholder continually sees ways to improve the use of innovations, and appreciates continuous improvement.

The CBAM model provides indicators for levels of use, adoption, or adaptation of an innovation:

- Non-use
- Orientation
- Presentation
- Mechanical
- Routine
- Refinement
- Integration
- Renewal

Frameworks to Support Change Management

3 ORGANIZING AND MOBILIZING

Hahri Han (2014) distinguishes between leaders who *mobilize* and those who *organize*, which provides a lens for which to strategize when managing change.

Mobilizing aims to increase the numbers of people in a school and district who are actively engaged with an innovation. Cynthia Coburn (2003) calls this “scaling for breadth.” Mobilizing assumes that those being recruited are already motivated to action - they simply need a clear and compelling invitation to enlist formally.

Organizing creates motivation where it does not yet exist. This strategy aims to deepen understanding and strengthen skills in order to onboard members of a school, district, and larger community who are not yet action-interested or ready. The goal of organizing is to build leadership and agency for change among stakeholders. Thinking about whether the intended outcome is to mobilize, organize, or both can help decide how to engage multiple stakeholders.



Tip: While the three-change management frameworks in this guidebook are helpful for supporting education reforms, keep these considerations in mind.

- **While the CBAM framework is helpful for assessing an individual’s adoption of an innovation**, it is important to recognize that innovations include multiple change practices. Therefore, an individual’s process for adopting or adapting an innovation is not necessarily linear in practice. It may be that they believe in certain strategies and not others, and it may be that they feel comfortable implementing some of the change practices and not others. In addition, it is important to highlight the integrity of underlying principles of an innovation versus focusing on fidelity of program implementation.
- **The framework around mobilizing and organizing provides a useful lens**, particularly for leaders as they guide the change process within a complex system. In education systems, it is more meaningful to place greater emphasis on the idea of organizing, and hence, to spend considerable time on building the capacity of practitioners and leaders to effect change.

2.4 Applying Theory to Practice: A Case Study

This case study is based on the experiences of schools and districts as they adopt and implement a suite of innovations to improve teaching and learning in high schools.

Central City High School has taken several steps to enact its vision of being a school that values and models student-centered learning. They have decided to implement competency-based learning as an innovation, with three interrelated focus areas or practices: graduate expectations of deeper learning skills, student personalized learning plans, and formative assessments.

Teachers interested in experimenting with competency-based education as one method to support instructional priorities were given the following supports by the district: professional development, designated time to meet in study groups, and tools that allowed them to hybridize more class content and activities so that students could access key components of the lesson anytime, anywhere.

At the beginning of the school year, three teacher leaders were selected and given release time to serve as coordinators to spearhead this work. They would also serve as the Continuous Improvement Committee, to lead and model the ongoing planning, implementation, and study of change practices. Immediately after the committee was formed, certain staff members expressed concerns that they were excluded from the committee, and that they didn't know how decisions were being made.

A survey was implemented among all faculty to get a sense of whether members were deepening their understanding of how new practices were being enacted and also to understand teacher beliefs and attitudes about the changes. The survey results revealed that many teachers were unclear about the relationship between the three focus areas. Some teachers felt they had not received enough guidance and support to implement new strategies. Certain faculty had expressed frustration about yet another trend and mandate and the district's adoption of too many disparate initiatives. Several faculty members believed that the school was already doing competency-based education and didn't need to change anything. Other members said they were mystified by what "student-centered learning" actually meant and what instructional changes they were expected to make. One member noted that the central office had not made changes to the teacher support and evaluation system to support these priorities.

a. Applying the Four-Frame Model to the Case Study

The following table illustrates how to apply the four-frame model for change management to the Central City High School case study.

What structural, human resources, political, and symbolic challenges are the high school and district experiencing? How can the four frames inform change management strategies?		
Frame	Challenges & Opportunities	Proposed Strategy
Structural	<ul style="list-style-type: none"> • Unclear how innovation affects roles and responsibilities • Structures and policies not yet aligned to support innovation • Resources not allocated to support innovation 	<ul style="list-style-type: none"> • Clarification of roles and responsibilities in the roll out of reform • Policy audit that informs strategic plan, reduce competing commitments • Resource allocation plan
Human Resource	<ul style="list-style-type: none"> • Lack of understanding about innovation • Not feeling adequately trained or prepared around innovation • Lack of personal or professional autonomy / feeling overwhelmed 	<ul style="list-style-type: none"> • Clarify meaning and intended outcomes of the innovation, share theory of change • Use of discussion protocols in PLC and department meetings to build trust • Targeted and embedded professional development
Political	<ul style="list-style-type: none"> • Fears about who is driving the innovation agenda • Lack of voice leading to compliance rather than authentic acceptance and progress • Feeling alienated vs. feeling empowered 	<ul style="list-style-type: none"> • Communication strategy that engages stakeholders • Opportunities to participate in shared decision-making processes and to serve as change agents
Symbolic	<ul style="list-style-type: none"> • Staff feeling like they are losing their professional autonomy • Lack of clarity about what innovation looks, sounds, and feels like in the classroom and culture of the school • Negative stories that perpetuate mistrust and resentment 	<ul style="list-style-type: none"> • Stories and images that communicate purpose and value of innovation • Share theory of action with staff and community to generate common purpose • Rituals and routines that create habits of mind and practice in department meetings

b. Applying the Organizing-Mobilizing Framework to CBAM

Stages of Concern (CBAM)	Applying an Organizing Framework
Unconcerned	This stakeholder is not action-interested or action-ready. An organizing strategy is required to connect the stakeholder with the innovation, helping them to see how their role is critical to forwarding the mission of the school/district.
Informational	This stakeholder is already motivated to action but lacks clarity and understanding about the innovation. Enlisting the stakeholder requires an organizing strategy that fills the current knowledge gap about what the innovation is and the processes involved in its implementation.
Personal	This stakeholder requires the support of an organizing strategy that clarifies potential gains in adopting this innovation for students and the community.
Management	This stakeholder may or may not be motivated to action, depending on how feasible they believe the innovation to be. An organizing strategy might be required to develop understanding of the achievability of the innovation and the supports that will be provided. This stakeholder needs to see how components of the system (e.g., time, resources, policies) are being re-organized to support those who agree to adopt this innovation.
Consequence	This stakeholder may or may not be motivated to action, depending on how convinced they are that the innovation will improve teaching and learning at the school. An organizing strategy might be required to educate the stakeholder about the measurable impact this innovation will have, followed by a collaborative process to identify key measures during improvement cycles.
Collaboration	This stakeholder is already motivated to action. A strategy is required to communicate exactly how and when collaboration with colleagues will occur as part of implementing this innovation, and to ensure their integral role in shaping the collaboration.
Refocusing	This stakeholder is already motivated to action. A strategy is required that allows them to feel ownership and agency to evaluate and improve the innovation for scale and sustainability.

Consider the three frameworks when building a culture of continuous improvement toward educational equity. What will it take to improve the learning experiences of students who have historically been underserved, and to change systemic and structural barriers to student success? In what ways can you empower practitioners and leaders to take courageous action to make the changes below to practices, programs, and policies?

Guiding a Thoughtful Change Process





Tool: Systems Alignment Template

Use this tool to understand the connections and influences within your system which can support systems change. Refer to pages 45-46.



Tool: Change Management

Use this mapping exercise to inform district and school strategic plans as well as continuous improvement plans. Refer to pages 47-48.

Chapter 3:

Plan for a Cycle and Implement

How do you plan for a continuous improvement cycle?

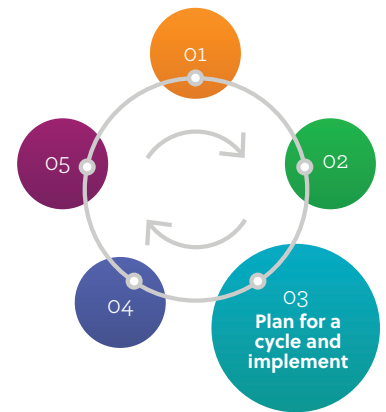
How do you identify change practices to implement or pilot in iterative cycles?

What are appropriate improvement measures?



Introduction

This section provides guidance on how to plan for a continuous improvement cycle. Chapter 1 of the guidebook covered identifying a problem of practice and creating a theory of change. Chapter 2 helped you think more deeply about possible system conditions necessary to achieve meaningful change across different levels. The next step is to identify a suite of change practices and develop a data collection plan.



3.1 Identifying a Suite of Change Practices

3.2 A Method for Improvement: Plan-Do-Study-Act (PDSA)

3.3 Types of Improvement Data and Measures

3.4 A Case Study

3.5 Complete a Data Collection Plan



Tool: Plan-Do-Study-Act Template

Overview

How do you plan for a continuous improvement cycle? How do you identify a suite of change practices to implement or pilot in iterative cycles? What are appropriate improvement measures? The next step is to pinpoint change practices that can address your root causes and allow you to reach your goal. Also, to create a plan to test the change you think will be most likely to create the desired impact. This requires you to consider how change practices will be implemented and what data can be collected to inform improvements to the change. This chapter will address the steps in the continuous improvement planning process.

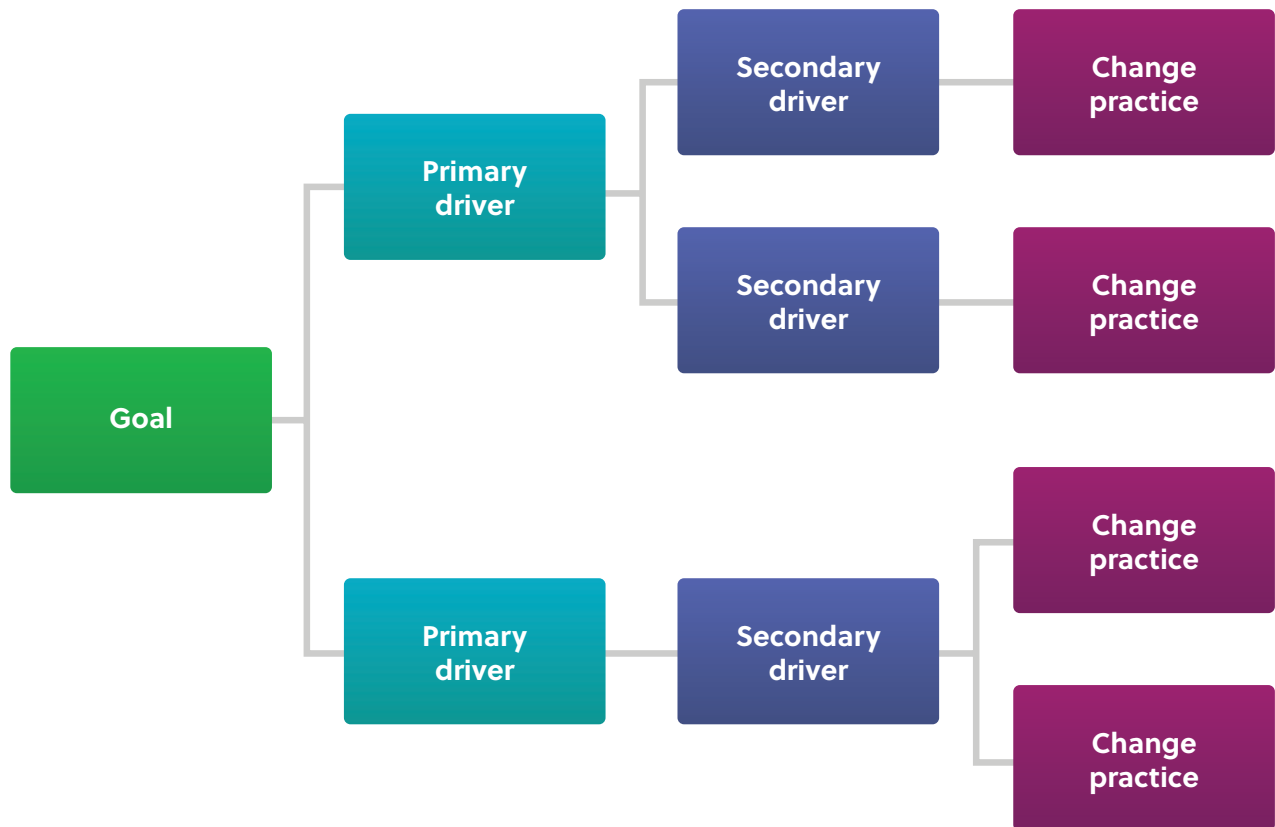
3.1 Identifying a Suite of Change Practices

After you have identified your goal and associated drivers necessary for obtaining it, the next step is to recognize high-leverage change practices that will impact your drivers.

We define an innovation as a suite of interrelated change practices. Change practices are the interventions or specific work practices that affect the secondary driver and, in turn, the primary driver. A change practice is concrete—it is an action or a set of actions you can do to create the desired change that helps you attain your goal.

Each change practice identified in the driver diagram is a theory as to what will create change in the secondary driver, and ultimately, the goal. Building on your theory of change, you will continue to expand your driver diagram to include change practices. Essentially, the addition of the change practices reflects a theory of action that serves as the foundation of your continuous improvement plan.

Theory of Change for Continuous Improvement



Where do innovations and change practices come from?

Innovations and change practices can stem from a number of different places. One of the best sources is from within your system, based on best practices being implemented. What are people within your organization already doing that is showing promise or success toward addressing your root causes? How can these efforts be implemented more deeply and widely? The advantage of this strategy is that you already know practice works in your setting and you can continue scaling it.

Consider the following sources for change practices:



Research: What does academic literature have to say about solving this problem? What evidence is there of innovative and effective practices?



Practice knowledge: What have other organizations in the field done to solve this problem? What has worked in the local context to address this problem?



Design thinking: What new and creative solutions might we design to address this problem?



Investigation: What does our analysis of the problem indicate may be a helpful solution?

High-Leverage Change Practices

High-leverage change practices are those that will have the greatest impact with a reasonable likelihood of being implemented well. When identifying change practices, consider which will be most high-leverage.

They often have the following characteristics:

- A specific strategy that is actionable within a reasonable timeframe
- Moves beyond a programmatic lens to the underlying principles of the change
- Will likely deepen or shift thinking and practice
- Advances the innovation in measurable ways

The grain size of change practices are important for ensuring they are high leverage. Change practices that are too big will be hard to implement within a reasonable amount of time. For example, whole scale programs, curricula, or a school discipline policy. These examples would require you to unpack the key components that reflect changes in daily work practices. Change practices that are too small run the risk of not having much of an impact. For example, to dos, action steps, or tools that don't have associated processes will not lend themselves to iterative improvement cycles.

Structures and policies, such as creating common planning time or extending advisory, may or may not be considered change practices—unless they are accompanied by meaningful processes. The sweet spot is change practices not too big that they are unwieldy to test in continuous improvement nor too small that they won't have a significant impact. These are usually practices or processes, or certain policies or structures that are manageable to implement within a reasonable timeframe.

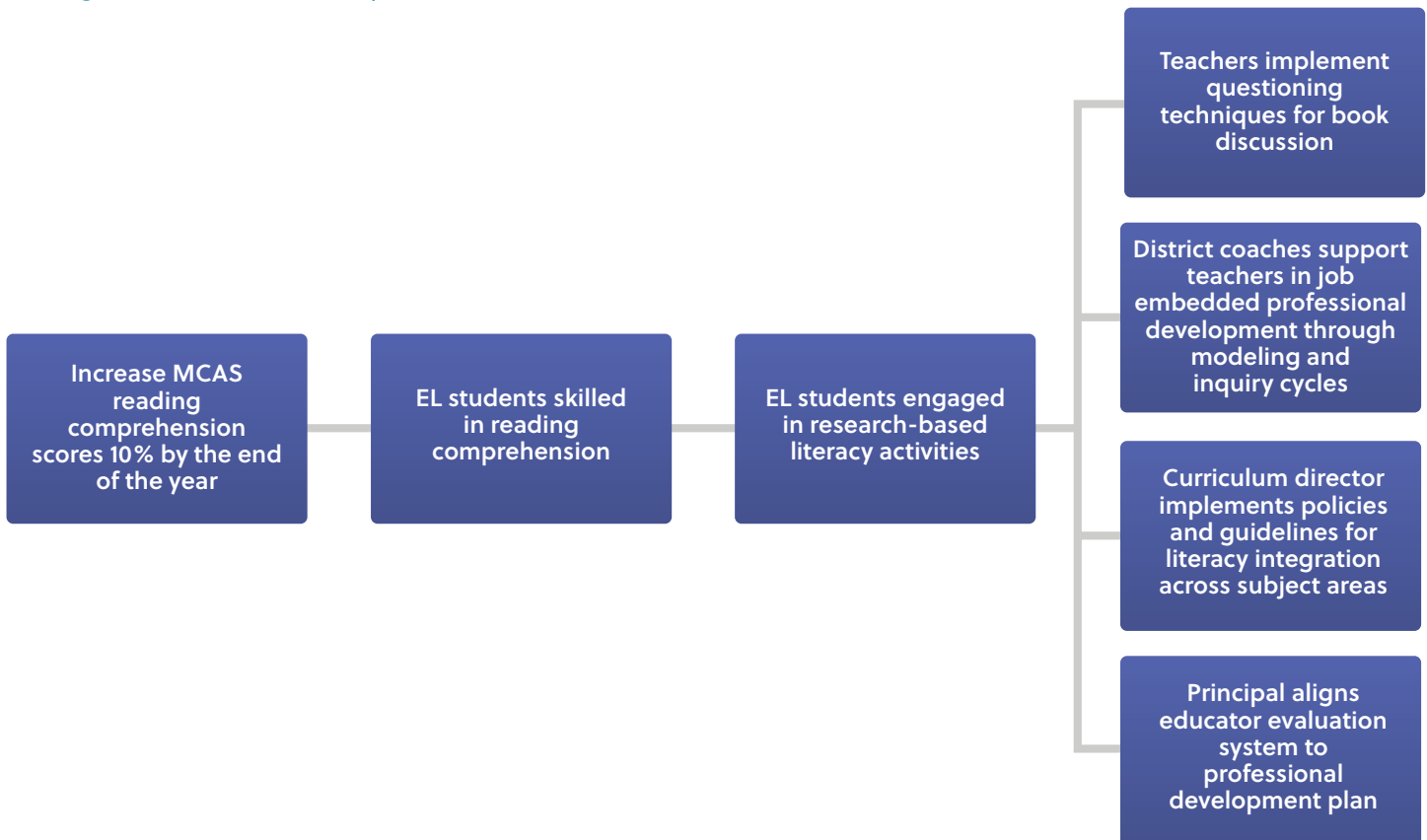
Change Practice Scenarios

Too Big	Just Right	Too Small
<ul style="list-style-type: none"> • Programs • Curricula • Policies* • Structures* 	<ul style="list-style-type: none"> • Practices • Processes • Policies* • Structures* 	<ul style="list-style-type: none"> • Immediate Action Steps/To Dos • Tools or materials outside of processes
<p>Examples:</p> <ol style="list-style-type: none"> 1. District leadership implements proficiency-based education 2. Teachers engage in and practice project-based learning 3. School leaders introduce a multi-tiered system of support 	<p>Examples:</p> <ol style="list-style-type: none"> 1. Principal extends advisory time to 50 minutes and advisors implement strategies for student personalized learning plans 2. School coaches create and use Look-Fors observation tool with a feedback protocol for teachers 3. Teachers across subject areas explicitly teach critical thinking and problem-solving skills 	<p>Examples:</p> <ol style="list-style-type: none"> 1. School leaders give staff access to Google Docs as a repository of materials 2. Educators read research about competency-based learning 3. School improvement team assigns teachers to participate in committees

**May be too big or just right depending on the policy or structure*

It is often helpful to have change practices at different levels of the system. This is because changes at the classroom level need to be supported by changes at the school and district level to be scaled and sustained. Recall in chapter 2 the interrelated elements of a system and how people on all levels need to support each other for change to take hold. Below is an example of a number of change practices at different levels of the system all working toward the same goal with mutual support.

Change Practices Across System Levels



3.2 A Method for Improvement: Plan-Do-Study-Act (PDSA)

After you have identified high-leverage change practices that will impact your drivers, the next step is to plan the continuous improvement cycles that will test and improve each change practice. The Plan-Do-Study-Act (PDSA) is a process that provides steps for planning the improvement cycle, including how it will be implemented and what data will be collected. These data are used to collaboratively study the results of the cycle and make improvements based on learnings.

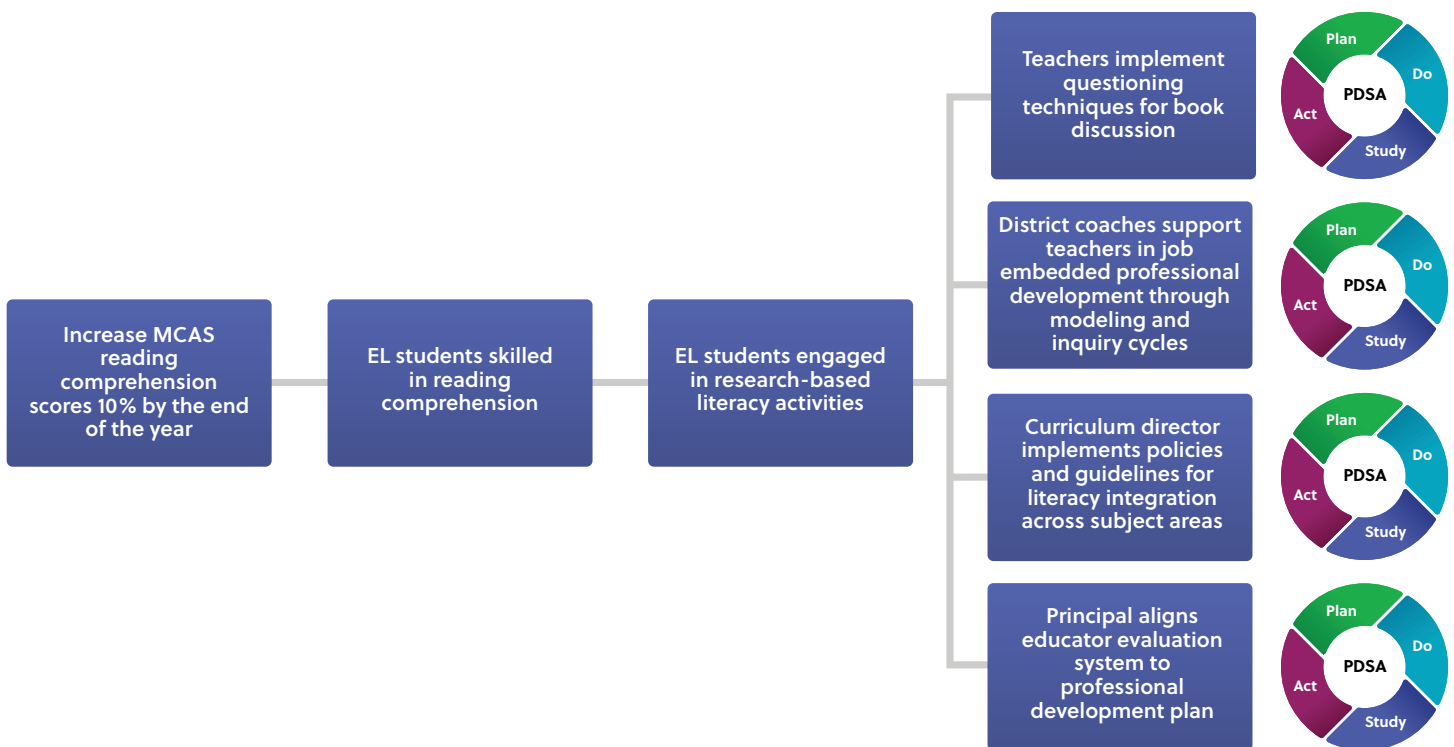
Steps in the Plan-Do-Study-Act Method

PDSA is very practical. It involves the use of small-scale tests that give you the freedom to assess, learn, and act in rapid cycles. Cycles can vary in length and be 15-, 30-, 60-, or 90-day, depending on the type of innovation and practice you are implementing. The steps in completing a PDSA cycle are outlined below.

Step 1: Create your theory of action and prioritize

- Identify specific change practices to test in continuous improvement and illustrate in your driver diagram.
- Consider if or how you might enact a PDSA cycle at the classroom level and another with school or central office staff. You can run multiple PDSA cycles simultaneously and ideally at all levels of the system.
- Prioritize and choose high leverage change practices to test in PDSA cycles across all levels of the education system. Consider what will be most impactful while still being reasonable to implement.

Improvement cycles are iterative, small-scale tests of change practices that build on learnings from the previous cycle to inform improvements in the following cycle.



Step 2: Develop an aim for the cycle

- Identify the secondary driver that you intend to impact with your planned change practice.
- Frame an aim for your test tied to the secondary driver. This is what you predict will result from implementing your change practice.

Step 3: Make a plan for implementing your change practice

- Specify **what** you plan to do, **who** will do it, and **when** you plan to do it.
- Start small, for example, with one or two teachers, one classroom, or a few students.

Step 4: Make a plan for implementing your change practice

- Incorporate your process, outcome, and balance questions.
- Think about evidence for changes in processes.
- Consider both qualitative (e.g., interview notes, descriptive observations) and quantitative data (e.g., percentage of students exhibiting change, rating scale averages).
- Use multiple methods, such as surveys, observations, and artifacts.
- Start small-scale by creating a three- or four-question survey, or sampling a few individuals.

Step 5: Implement your change practice and collect data

- Execute your change practice according to your plan and record what was actually enacted.
- Ensure data are collected according to your data collection plan.

Step 6: Collaboratively study the data

- Consider whether your data indicate that you met your expected results.
- Identify additional learnings from the cycle that can inform improvements to the change practice.

Step 7: Use what you've learned to act by making improvements to the change practice or identifying next steps

- Determine whether improvements to the change practice would benefit from testing through a new PDSA cycle.
- Establish if the change practice is ready to be tested on more teachers, classrooms, or students.

Steps 6 and 7 will be covered in greater detail in chapter 4.

Three Types of Questions: Process, Outcome, Balance

Process Questions examine the quality of implementation of the change practice.

- Do practitioners perform according to the key principles of the change practice?
- Are you on track for quality implementation?

Outcome Questions examine the expected outcome from enacting the change practice. This will be the driver that the change practice is connected to in the driver diagram.

- Are there changes in conditions or behaviors following the implementation of a change practice?
- What is the impact of the change practice on students or practitioners?

Balance Questions examine negative side-effects from implementing the change practice within an existing system. Because of the interconnected nature of systems, and the complexity of school districts, an innovation may create a benefit in one place and an unintended disruption elsewhere.

- What unintended consequences have resulted from your change practice?
- Does the positive change that results from your change practice outweigh the negative side effects?
- What can be done to reduce the negative side effects?

3.3 Types of Improvement Data and Measures

Continuous improvement cycles are intended to be short cycles of trying a change practice and collecting data - to inform improvements to the change practice that are relatively rapid so change can happen quickly.

In order for cycles to progress quickly, **1) testing cycles need to be short enough to progress rapidly** yet long enough to see indicators of the expected change, **2) tests should be conducted by just enough people** to learn about the implementation of the change practice, potential outcomes, and negative side-effects (they can grow in size once improvements to the change practice warrant scaling it), and **3) data need to be easy to collect and analyze** yet informative enough to suggest improvements to the change practice. The next table looks at the comparison between data for improvement, data for research, and data for accountability. Along with it, we provide recommendations for types of data for improvement.

Data for Improvement

The continuous improvement process allows you to build on existing processes. At the same time it encourages you to be more systematic so that others learn from your experiences and that the intended change can be more sustainable. Data for improvement allows for data to be collected through existing processes and provides a structure that enables the systematic collection and analysis of data.

Districts have lots of data, but not all data are equal. The best types of data for continuous improvement are easy to collect, readily available, and practical measures. You want to collect just enough data to answer your continuous improvement cycle process, outcome, and balance questions. The following are types of data you might use:

1. **Pre-existing data:** These are data that you already collect or that already exist. For example:
 - artifacts (e.g., student work)
 - logs (e.g., coaching logs)
 - assessments (e.g., competency or performance assessments, grades on quizzes)
 - records (e.g., student daily attendance, or discipline referrals)
2. **Observation data:** Data collected from watching students or adults engaged in activities. These observations can be conducted individually or as a group, as in a learning walk. They can be carried out by administrators or by teachers.
3. **Survey data:** Data collected from interviews or paper or electronic questionnaires. Interviews can be conducted face-to-face or over the phone and can be structured or semi-structured. Questions on questionnaires can be open-ended or close-ended and administered over e-mail, online, or on paper.



Tips about data

- **A little goes a long way:** The purpose of improvement data is to collect just enough data to inform your improvement cycle. It is not necessary to collect data from every individual involved in your cycle or to ask an extensive list of questions on a questionnaire or interview. Collecting data from two to four individuals or asking one or two questions may be enough to get the information you need to inform your improvement cycle.
- **Frequency matters:** Collect data frequently enough to answer your process, outcome, and balance questions in a timely manner. Continuous improvement cycles can vary in length from within a day to several months depending on the level of data collection necessary to answer the improvement questions. Therefore, a teacher could test a change practice on a daily basis and tweak it based on the data collected each time she/he implements the practice. Likewise, a group of teachers could test a change practice that requires several weeks to have a measurable impact.

Comparison between data for improvement, research, and accountability

	Measurement for Accountability	Measurement for Research	Measurement for Improvement
Purpose	To identify or compare districts, schools, teachers, or students	To inform the impact of the innovation	To bring new knowledge into daily practice
Tests	Tests to determine how performance of individual districts, schools, teachers, or students relate to benchmarks	One large “blind” test	Many sequential, observable tests
Biases	Data gathered are of high reliability	Controls for as many biases as possible	Biases from test to test are stabilized
Data	Employs summative, global performance measures	Follows stringent protocols for data collection aligned with the research design	Recommends the collection of “just enough” data that are relatively easy to obtain (e.g., gather data randomly from smaller set of respondents)
Duration	Usually examined at the end of an academic semester or year	Can take a long time to get results	Can be measurable within a short period of time

Examples of improvement data to answer specific process, outcome, and balance questions

Process Measures	<ul style="list-style-type: none"> • Teacher checklist – to know whether components of a process are being implemented. The number of items can be tallied each cycle to learn if more items on the checklist are being implemented from cycle-to-cycle. • Coaching logs – activity logs of what coaches do with teachers can show what processes they are and are not adhering to from cycle-to-cycle, as well as the numbers of teachers they interact with each cycle.
Outcome Measures	<ul style="list-style-type: none"> • Number of students turning in assignments on time – a practice intended to impact timeliness of assignments can be looked at from cycle-to-cycle to know whether the practice is improving student readiness. • Teacher observation rating scale – the degree of change from cycle-to-cycle on the rating scale can indicate whether the change practice was effective. • Student work – objective improvement on student work using specific rating criteria could be indication that a particular change practice was effective.
Balance Measures	<ul style="list-style-type: none"> • Student exit tickets – students can self-report on their perceived negative impacts of particular change practices and whether those impacts are lessened cycle-to-cycle. • Peer teacher observations – other teachers may be able to see the potential negative impacts of a change practice more easily through their observations during implementation of the practice.

3.4 A Case Study

Case Study Example: Anywhere School District

Problem Analysis: Analysis of student achievement data in Anywhere High School indicates that students of color in 9th grade score 30% lower than white students in Math and 25% lower in ELA, whereas this achievement gap is much smaller in 10th and 11th grade.

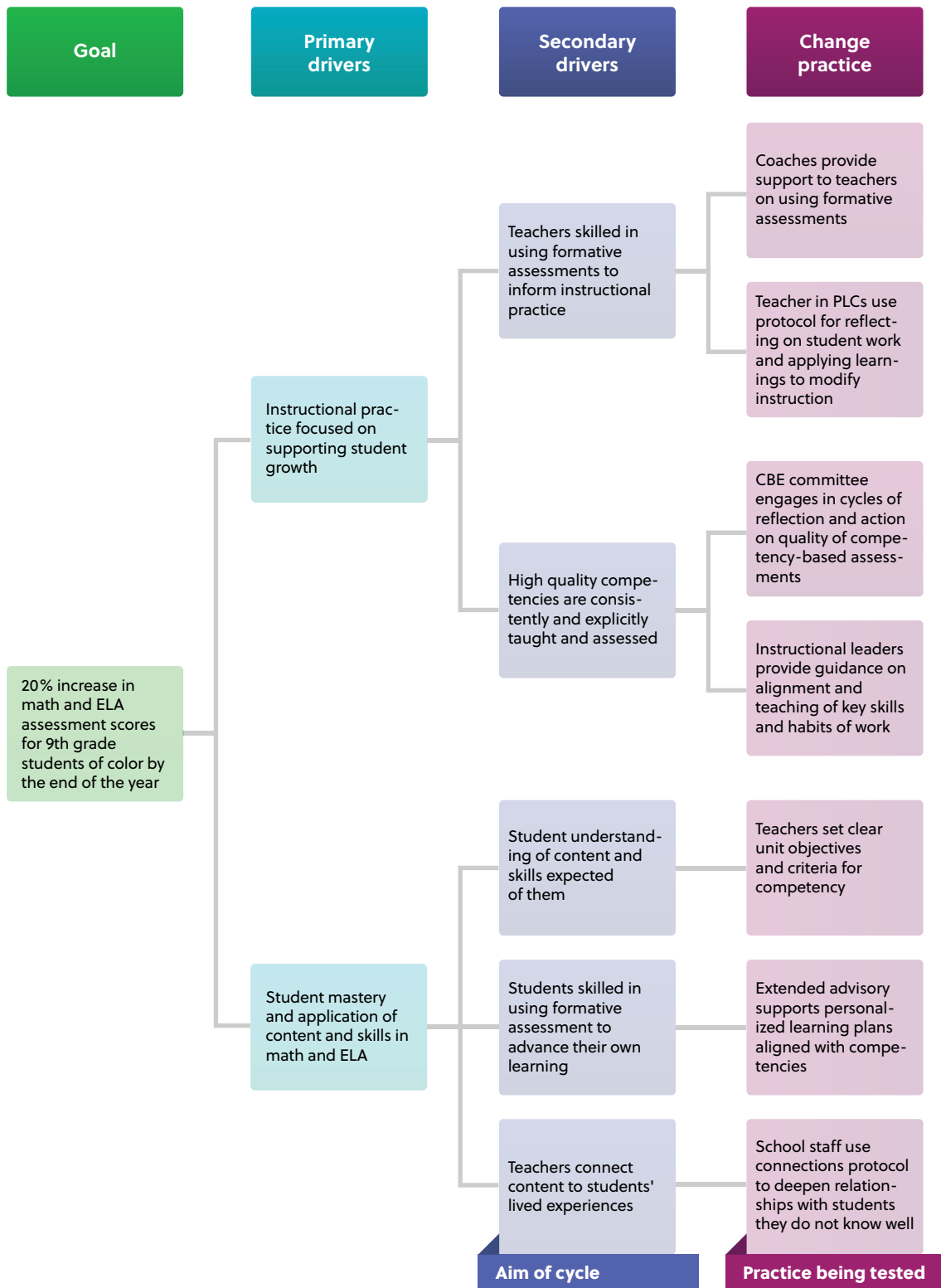
Root Cause Analysis: The Anywhere School District recently established a district-wide policy on competency-based learning. As a result, the high school developed goals and outcomes in their school improvement plan tied to competency-based education. It has been one year since the policy was created. Root cause data from student and teacher interviews and classroom observations indicate that teachers in 9th grade are not implementing competency-based education (CBE) to the degree that teachers in 10th and 11th grade are. The majority of 9th grade teachers use much more subjective grading criteria and do not routinely set clear unit objectives and criteria for competency. Furthermore, they use assessments that are not linked to unit objectives and do not use assessments formatively to modify instruction to support

student knowledge and growth. Teachers were surveyed and findings reveal that a significant percentage feel they don't have time, they received professional development that focused more on theory, and they don't feel equipped to implement CBE well. 9th grade students of color feel that teachers do not get to know them and the content isn't relevant to their lives. They do not fully understand expectations, and which content and skills they are expected to demonstrate. Results from a student survey also revealed that the majority of 9th graders are used to more traditional summative assessments.

Problem of Practice:

Few 9th grade teachers have opportunities to develop the skills, beliefs, and knowledge to implement competency-based education well.

Note: There can be any number of change practices for each secondary driver, or any number of secondary drivers for each change practice. For the sake of simplicity, this example lists only one change practice for each secondary driver.



The following is a sample PDSA plan based on the driver diagram above. It tests the change practice of teaching protocols for goals setting, planning, reflection on learning, and refining work for the purpose of building student skills in self-directed learning.

PDSA Template

Change Practice being tested: Teachers teach protocols for goal setting, planning, reflecting on learning, and refining work
 AIM (Secondary Driver): Student skills in self-directed learning Cycle start/end dates: Oct 2-13, 2017

PLAN			DO
What: (Change Practice) Biweekly 20 minute lessons and practice sessions on goal setting, planning, reflecting on learning, and refining work. Lesson 1 focuses on goal setting and planning, lesson 2 focuses on reflecting on learning and refining work, lessons 3 and 4 provide additional opportunity to practice all four strategies with teacher support and peer feedback.	Who implements: 2 9 th grade ELA teachers in 2 of their classes	When: Lesson 1: October 2 Lesson 2: October 5 Lesson 3: October 10 Lesson 4: October 13	Describe the specifics of what happened: Both ELA teachers conducted all 4 lessons on the specified dates.

DATA COLLECTION PLAN			
Questions:	Method(s): What data will be collected to answer each question?	People: Who collects data from whom?	Timing: When will data be collected?
PROCESS How well was the change practice implemented?	Teacher checklist and reflections on lessons	Checklist and reflections collected by two teachers on two of their classes after each lesson	At the end of each lesson
OUTCOME Did the change practice achieve its AIM?	Student artifacts: goals, plans, learning reflections, drafts of work before and after lessons	Goals, plans, learning reflections from 5 students in each class that received the lessons. Drafts of work from 3 students in each class that received the lessons and 2 additional classes per teacher that did not receive lessons	At the end of the two week cycle
BALANCE Were there any unintended negative consequences that resulted from implementing the change practice?	Teacher reflection on classes where lessons were taught compared to classes where lessons were not taught	One set of reflections from each teacher implementing lessons	At the end of the two week cycle

3.5 Complete a Data Collection Plan

To complete the PDSA plan, get started by writing the change practice you plan to test in the PDSA cycle at the top and the associated secondary driver to that change practice after "AIM (Secondary Driver)." Enter the cycle start and end dates.

In the top orange box labeled PLAN, write the details of how you will implement the change practice under "What," who will implement each component of the implementation plan under "Who Implements," and when each component will be implemented under "When."

In the blue box labeled DATA COLLECTION PLAN, under "Method" for PROCESS, enter what data will be collected to know whether the change practice was implemented well. For OUTCOME, enter what data will be collected to know whether the change practice achieved its AIM (listed under AIM at the top of the template). For BALANCE, enter what data will be collected to know whether there were any unintended negative consequences from implementing the change practice. Enter who will collect these data under "Who collects data from whom?" and when data will be collected under the timing label "When will data be collected?"

It is best practice to have whoever is implementing the change practice collect the data relevant to process, outcome, and balance questions, as the data will be most meaningful for them and their practice. This will also avoid issues of data being seen as evaluative of their performance. However, there are situations where it may make more sense for supervisors to collect data from implementers. In this case, it is important to ensure implementers feel safe in having data collected on them and their practice. A district that has prioritized a collaborative culture of continuous improvement—including embracing failure, learning from mistakes, data-based decision-making, trust, and distributed leadership, will find it easier to collect data from implementers as they will understand that these data will be used for improvement, not evaluation.



Tool: Plan-Do-Study-Act Template

Use or adapt the PDSA planning template in this chapter to develop a data collection plan for a continuous improvement cycle. Transfer your own version into a digital format that you can easily access and refine as a working document.



Plan-Do-Study-Act Template

Change Practice being tested: Teachers teach protocols for goal setting, planning, reflecting on learning, and refining work
 AIM (Secondary Driver): Student skills in self-directed learning Cycle start/end dates: Oct 2-13, 2017

PLAN			DO
What: (Change Practice) Biweekly 20 minute lessons and practice sessions on goal setting, planning, reflecting on learning, and refining work. Lesson 1 focuses on goal setting and planning, lesson 2 focuses on reflecting on learning and refining work, lessons 3 and 4 provide additional opportunity to practice all four strategies with teacher support and peer feedback.	Who implements: 2 9 th grade ELA teachers in 2 of their classes	When: Lesson 1: October 2 Lesson 2: October 5 Lesson 3: October 10 Lesson 4: October 13	Describe the specifics of what happened: Both ELA teachers conducted all 4 lessons on the specified dates.

DATA COLLECTION PLAN			
Questions:	Method(s): What data will be collected to answer each question?	People: Who collects data from whom?	Timing: When will data be collected?
PROCESS How well was the change practice implemented?	Teacher checklist and reflections on lessons	Checklist and reflections collected by two teachers on two of their classes after each lesson	At the end of each lesson
OUTCOME Did the change practice achieve its AIM?	Student artifacts: goals, plans, learning reflections, drafts of work before and after lessons	Goals, plans, learning reflections from 5 students in each class that received the lessons. Drafts of work from 3 students in each class that received the lessons and 2 additional classes per teacher that did not receive lessons	At the end of the two week cycle
BALANCE Were there any unintended negative consequences that resulted from implementing the change practice?	Teacher reflection on classes where lessons were taught compared to classes where lessons were not taught	One set of reflections from each teacher implementing lessons	At the end of the two week cycle

STUDY - ANALYSIS		What else did you learn from the test results?
Questions:	Analysis of Data:	
PROCESS How well was the change practice implemented?		
OUTCOME Did the change practice achieve its AIM?		
BALANCE Were there any unintended negative consequences that resulted from implementing the change practice?		

ACT

Based on the test results, what improvements do you need to make to the change practice or innovation? What actions will be taken during the next cycle?

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Chapter 4:

Study, Reflect, and Act

What strategies can you use to present data appropriately?

Why is it important to study data collaboratively?

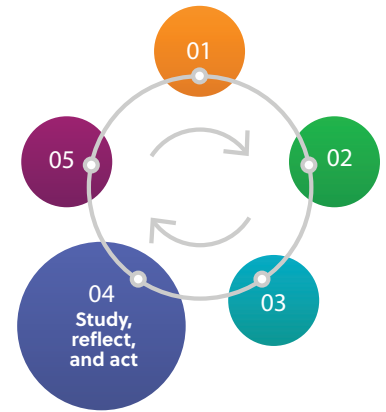
How can you maintain a focus on equity?

What decisions and actions can help inform the next steps?



Introduction

This chapter provides guidance on how to compile and organize improvement data to make it accessible. It also recommends tools and protocols to support collaborative study and reflection, and offers strategies for shared decision-making and action steps based upon lessons learned.



4.1 Guidelines for Maintaining a Focus on Equity

4.2 Compiling and Organizing Data

4.3 Collaborative Data Study

4.4 Making Decisions and Actions Based on Lessons Learned

4.5 Documenting Your Story: Continuous Improvement Journey Map



Tool: Protocol for Collaborative Data Study



Tool: Journey Map

Overview

What strategies can you use to present data appropriately? Why is it important to study data collaboratively? What types of decisions and actions can you make to inform the next improvement cycle? You have already used your continuous improvement plan to pilot and gather data on the implementation of change practices in one or more settings within your education system or institution. Now it is time to study the data you gathered, reflect on findings, and make decisions about next steps. Your decisions will inform the next improvement cycle, as well as strategies for scale.

4.1 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. Create safe spaces for critical dialogue and courageous conversations that support questioning of data in the context of systemic and historical roots of inequities.
- **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. Consider if or how change practices are impacting equity over time through a series of improvement cycles.
- **Examine systemic, structural, and historic barriers** to equity and equal justice, including policies and norms.
- **Disaggregate all data** (e.g., test scores, grades, graduation and dropout rates, discipline referrals, suspensions, school climate surveys, attendance, etc.) by subgroups: race/ethnicity, gender, income level, students with disabilities, English language learners, and any other categories of students that are at risk for inequitable outcomes. These data will indicate whether particular groups are experiencing inequities compared to other groups. Collecting and analyzing disaggregated data over time allows for the examination of trends by subgroup. For example, whether inequities are getting worse or better and what change in practices they may be associated with.
- **Collect data to understand the root causes of inequities.** It is best to avoid assumptions of students and question what you think you know. The following data collection methods are effective in understanding the conditions that contribute to inequities:
 - Shadow a student from an underserved subgroup – this allows you to put yourself in their shoes and identify what environmental factors may be contributing to their underperformance. Note: It is important to reserve judgement of the student and focus on what experiences that student is having throughout the day.
 - Form student focus groups made up of an underperforming student subgroup – students will feel more comfortable speaking about their experiences with others who can relate to them. The student perspective will help to illuminate factors that are apparent to them, some of which may be hard to see from pure observation, as well as any intersections of experiences with culture.
 - Interview parents and other community members who may be able to provide context for particular outcomes and speak for those students who are too young to participate in focus groups. Note: if possible, conduct parent interviews in person - in places that are familiar and comfortable to them. Use a native speaker for interviews with parents whose native language is not English.

- **Create a safe space for data discussions** so uncomfortable topics can be addressed openly and constructively. Using a collaborative data study protocol when looking at disaggregated data helps to ensure that inequities are identified, inferences are based on data, and everyone has a voice in the discussion. Other ways to create a safe space are:
 - Establish norms for speaking about difficult topics, listening without judgement, explicitly focusing on equity, and embracing a diversity of views.
 - Allow time for participants to gather their thoughts before speaking and share in pairs or small groups before sharing with the larger group.
 - Ensure there is diverse representation in the group, ideally more than one individual of an underperforming subgroup.

4.2 Compiling and Organizing Data

In order to study the data you collected in your continuous improvement cycle, data need to be in a format that is easy to understand and interpret. This often requires some type of compiling and organizing data. For qualitative data, this could be grouping all responses to the same question together. For quantitative data, this could mean calculating averages for responses on rating scales and putting them together in a table for comparison. Data visuals can be created from these tables to represent quantitative data in a way that makes them easy to understand and interpret.

Data Visualization

The patterns in data can sometimes be difficult to discern, especially when there are large sets of numbers. Visually representing the data in charts or graphs can often be helpful in making sense of data and answering your cycle questions.

The first step in creating data visuals is inputting the data into a spreadsheet. When creating your spreadsheet, put each individual category of information as its own column header (e.g., survey question, date, grade, checklist item). Each row in the spreadsheet should also be an individual entry (e.g., person, observation, artifact).

The following is an example of a spreadsheet with data from a school that is shifting to mastery-based learning with multiple forms of student assessments. Educators implemented formative assessments and lessons that enable students to refine their work in order to deepen application of knowledge and skills. The spreadsheet shows data from a first draft and second draft of an assignment. Student drafts were rated on a scale of 0-5. Half of the student sample had Mr. Carrera and the other half had Ms. Johnson. Half of each teacher's students received lessons on how to refine work based on feedback, but the other half did not.

Example of Data Comparison in a Table

Student	Teacher	Received New Lessons	Draft 1	Draft 2
1	Mr. Carrera	Yes	2	4
2	Mr. Carrera	Yes	2	3.5
3	Mr. Carrera	Yes	2	4
4	Mr. Carrera	Yes	1.5	3.5
5	Mr. Carrera	Yes	1	3.5
6	Mr. Carrera	Yes	2.5	4.5
7	Mr. Carrera	No	1	2
8	Mr. Carrera	No	2	2.5
9	Mr. Carrera	No	1.5	2
10	Mr. Carrera	No	2.5	3
11	Mr. Carrera	No	2	3
12	Mr. Carrera	No	2.5	3
13	Ms. Johnson	Yes	1	3
14	Ms. Johnson	Yes	1.5	2.5
15	Ms. Johnson	Yes	1	2.5
16	Ms. Johnson	Yes	3	4
17	Ms. Johnson	Yes	2.5	4.5
18	Ms. Johnson	Yes	2	3.5
19	Ms. Johnson	No	2	2.5
20	Ms. Johnson	No	1.5	2.5
21	Ms. Johnson	No	1.5	2
22	Ms. Johnson	No	2	3
23	Ms. Johnson	No	2	2.5
24	Ms. Johnson	No	1.5	2

Once you have your data in a spreadsheet, you can use a number of programs to create your data visuals. If you choose Excel, you may want to aggregate your data first before building your charts or graphs. For quantitative data, this may mean calculating averages, or creating frequency tables (e.g., counts of types of responses). For qualitative data, you may want to organize themes in qualitative text(s) into categories before creating a frequency table with types of responses. An easy way to aggregate data in Excel is to use a pivot table. There are many online tutorials that can assist you in creating pivot tables.

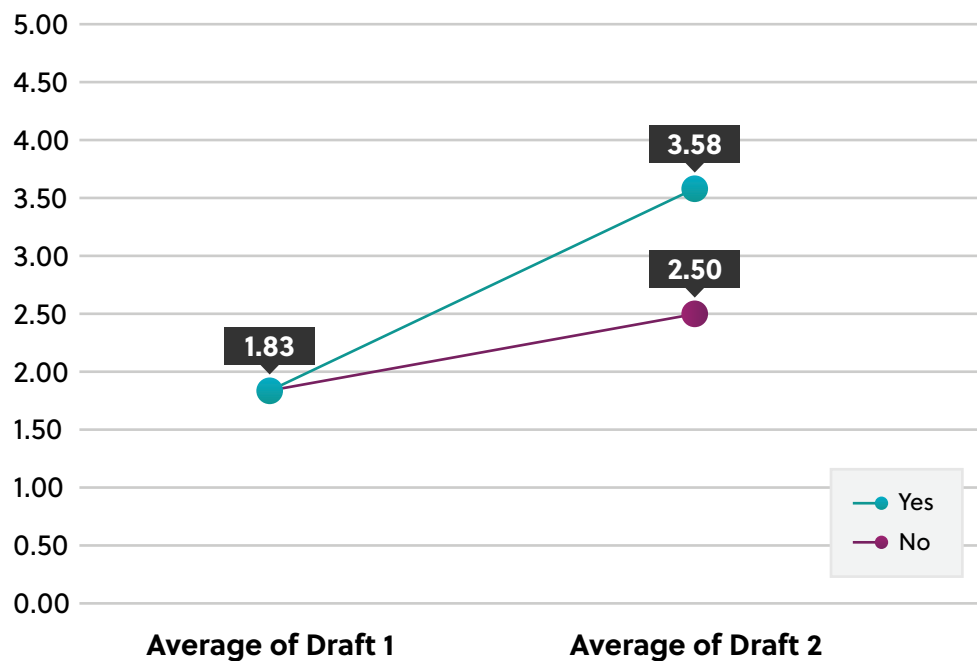
The next example shows the above data aggregated and graphed in two different ways: 1) ratings of drafts from students who received lessons on how to refine work based on feedback compared to drafts from students who did not receive lessons, and 2) the same data broken out by teacher.

Data Summary of Draft Comparison

Received new lessons on refining work based on feedback		
	No	Yes
Average of Draft 1	1.83	1.83
Average of Draft 2	2.50	3.58

Average assignment draft ratings

for students who received new lessons on refining work based on feedback and those who did not



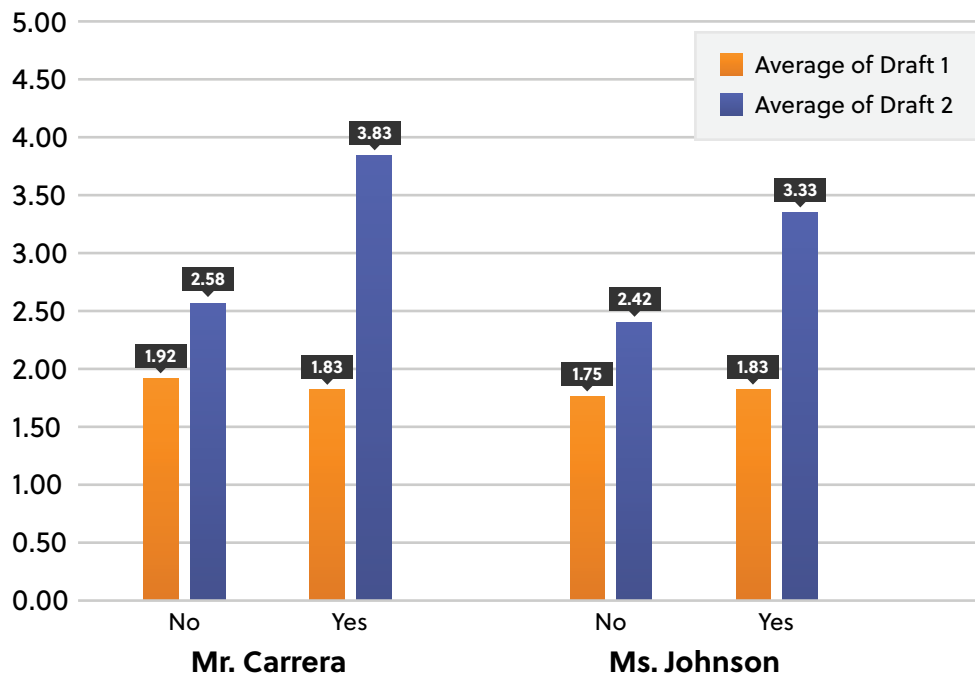
Data Summary of Draft Comparison by Teacher

Mr. Carrera	Draft 1	Draft 2
No	1.92	2.58
Yes	1.83	3.83

Ms. Johnson	Draft 1	Draft 2
No	1.75	2.42
Yes	1.83	3.33

Average assignment draft ratings

for students who received lessons on refining work based on feedback and those who did not broken out by teacher



Choosing the type of data visual depends on what kind of data you have and what you are trying to convey. For example, line graphs are best for showing change in a metric over time—especially when you have many points in time to display, while bar graphs are useful for showing comparisons. The key to designing your data visual is simplifying the information in a way that makes it easier to answer your improvement questions.

Here are some tips that may help make your visual more accessible and easier to interpret:

- **When there are many bars in your graph**, display data from largest to smallest (or vice versa).
- **All category labels should be visible.** This may require changing a vertical bar graph to a horizontal bar graph, resizing your graph, and/or choosing a different layout for your labels.
- **For bar graphs**, the category you are interested in comparing should be along the main axis.
- **Keep your visual simple.** 3-D bars can be hard to read, multiple colors should only be used to help make interpretation of data easier, and legends are often not necessary by labeling the graph.

Creating clear visuals are helpful for the collaborative study of data because they will make the job of understanding and interpreting the data easier.

4.3 Collaborative Data Study

The process of learning from your continuous improvement cycle happens when you systematically study and reflect on the data you collected to answer process, outcome, and balance questions. Sometimes, your perception of what resulted from implementing your change practice is not what actually happened. Only from methodically studying the data will you come to a better understanding of how well the change practice was implemented (process), whether the desired change happened as a result of implementing the change practice (outcome), and whether there were any unintended negative consequences (balance).

Using a collaborative process for studying and reflecting on data has the added benefit of utilizing multiple perspectives for interpreting information, and garnering greater commitment through group decision-making for changes that will result in improvements—while also building a culture and mindset of continuous improvement. The collaborative data study will answer the process, outcome, and balance questions in the cycle plan as well as unearth any unanswered questions that may need additional data to be answered. The results of the collaborative data study can then be entered into the PDSA form as a record of the analysis and recommended next steps.

Collaborative Data Study Protocol

Studying data collaboratively benefits from a process that allows all voices to be heard and valued. Sometimes the person with the least status has insight on the real barriers to quality implementation or transformative outcomes, and perspective on what changes to practices would be most impactful. A collaborative data study protocol helps to give equal voice to all members of the continuous improvement team and also provides a step-by-step process for systematically analyzing data. When you are ready, use the data study protocol at the end of this chapter, which was designed for practical use in education settings.

Guidelines for Collaborative Analysis



If you don't have experience with survey data, you should consult with your data specialist or initially work with an outside consultant, to facilitate the analysis until you have built capacity among staff.



Begin by explaining the procedure to the group about how you gathered the data. Include any challenges you might have had.



If you are collecting qualitative data, review the notes and understand the situation to fill in any information gaps.



Leave enough time for analysis. Collaborative data study requires more resources because it takes more time to organize and read the data.



Be descriptive and factual when reporting what you see in the data, and refrain from initially jumping to inferences.



Be clear about the use of certain words like "significant" to describe your finding(s) and explore what that means in the context of improvement data within one or more cycles.

Example of a filled in Plan-Do-Study-Act form that shows the results of the data study

Change Practice being tested: Teachers teach lessons on refining work based on feedback
 AIM (Secondary Driver): Student skills in storytelling Cycle start/end dates: Oct 2-13, 2017

PLAN				DO
What: (Change Practice) Biweekly 20 minute lessons and practice sessions on refining work based on feedback. Lesson 1 and 2 are focused around reflecting on learning and refining work using a rubric. Lessons 3 and 4 provide additional opportunity to practice strategies with teacher support and peer feedback.	Who implements: 2 9 th grade ELA teachers in 2 of their classes	When: Lesson 1: October 2 Lesson 2: October 5 Lesson 3: October 10 Lesson 4: October 13	Describe the specifics of what happened: Both ELA teachers conducted all 4 lessons on the specified dates.	

DATA COLLECTION PLAN			
Questions:	Method(s): What data will be collected to answer each question?	People: Who collects data from whom?	Timing: When will data be collected?
PROCESS How well was the change practice implemented?	Teacher checklist and reflections on lessons	Checklist and reflections collected by two teachers on two of their classes after each lesson	At the end of each lesson
OUTCOME Did the change practice achieve its AIM?	Student artifacts: drafts of work before and after lessons rated using a rubric	Drafts of work from 3 students in each class that received the lessons and 2 additional classes per teacher that did not receive lessons	At the end of the two week cycle
BALANCE Were there any unintended negative consequences that resulted from implementing the change practice?	Teacher reflections on classes where lessons were taught compared to classes where lessons were not taught	One set of reflections from each teacher implementing lessons	At the end of the two week cycle

STUDY - ANALYSIS		
What were the results of the test in relation to your questions?	What else did you learn from the test results?	
Questions:	Analysis of Data:	
PROCESS How well was the change practice implemented?	Both teachers were able to conduct all four lessons and cover all aspects of the lessons. However, one teacher found that lessons 1 and 2 took 25 minutes in both her classes and the other teacher used 20 minutes for lessons 1 and 2 and spent only 15 minutes for lessons 3 and 4. The first teacher ran into an issue where there were a few students who did not attend lesson 1, and so she spent a considerable amount of time catching them up on what they missed during lesson 3. This meant less one-on-one time with other students during that lesson and a shortened time for peer feedback. The second teacher ended lessons 3 and 4 early because she found students were goofing off while they were supposed to be providing peer feedback.	
OUTCOME Did the change practice achieve its AIM?	Analysis of drafts from students that received lessons showed moderately better improvement than drafts from students who did not receive lessons. Students who received lessons from one teacher showed more improvement than students who received lessons from the other teacher.	
BALANCE Were there any unintended negative consequences that resulted from implementing the change practice?	Teachers reported that time spent on lessons to refine student work based on feedback did take away time spent on content. However, they also both reported that students seemed to have a deeper understanding of the content that did get covered.	

Example of a filled in Plan-Do-Study-Act form that shows the results of the data study (Continued)

ACT

Based on the test results, what improvements do you need to make to the change practice or innovation? What actions will be taken during the next cycle?

Based on the test results, teachers need more training in how to support students in their refinements and how to provide guidance for peer feedback. Lessons may also benefit from some exemplars as well as a more structured protocol for providing feedback. We should also observe lessons by the teacher whose students produced better drafts to see what she/he is doing differently from the other teacher, to get better results and try to replicate those practices. Data should be collected on students' experiences with the lessons to see if they are having an impact on deeper learning.

4.4 Making Decisions and Actions Based on Lessons Learned

The process of collectively studying and reflecting on data should inform improvements to the change practice that will lead to better implementation and outcomes while minimizing negative consequences. The **act stage** of PDSA is where you determine next steps based on your lessons learned from a cycle. These next steps inform the plan for the next continuous improvement cycle, which can include:

- improving the change practice
- refining the data collection to deepen understanding of impact
- scaling the change practice for depth and breadth
- creating or changing policies and structures to support the practice
- informing strategies for system alignment and cohesion
- abandoning the change practice if the cycle showed it was ineffective or the negative consequences were too great

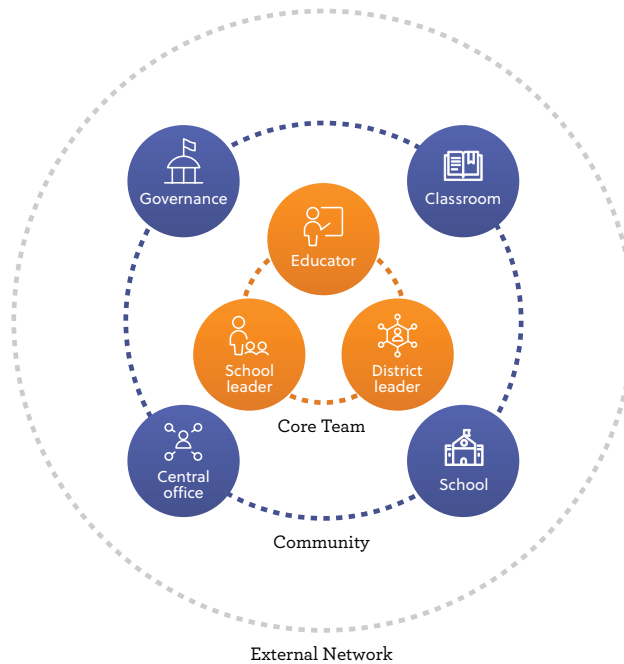
You and your team can engage in shared decision-making using the three interrelated approaches below.

a. Support Transformational Change

This guidebook aims to support learning organizations that are committed to collaborative inquiry and problem solving. Ultimately, we want to empower educators, school administrators, leaders, and other stakeholders to value the power of professional learning—and take responsibility as change agents to improve policies, practices, and systems. We encourage you to use the continuous improvement process to facilitate transformational change that will lead to organizational shifts toward equitable outcomes. As champions of change, consider the following when making shared decisions:

- **Improve** daily work practices for quality and depth
- **Eliminate** practices, programs, or policies that are creating barriers
- **Expand** effective practices that are promising and resulting in positive impact
- **Disrupt** ineffective norms and processes

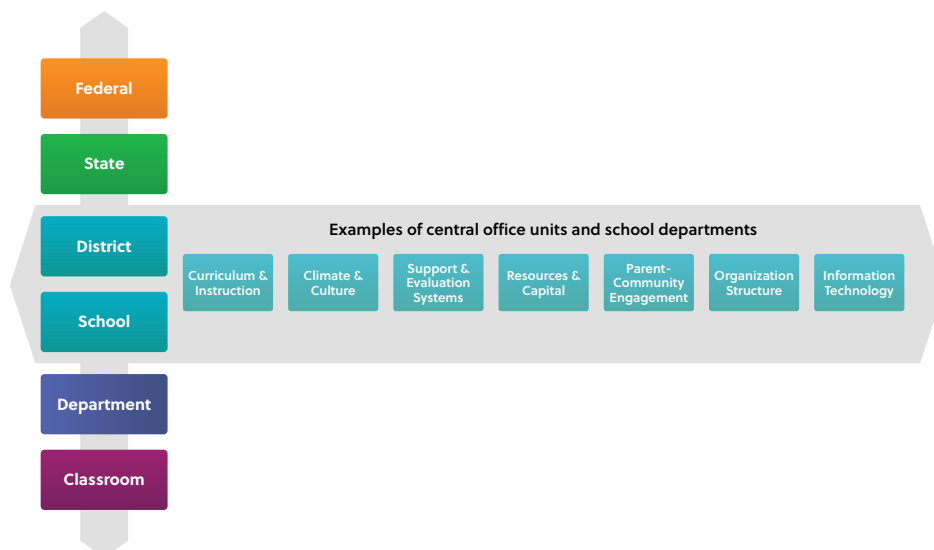
Human-Centered Systems Framework



b. Continuous Improvement for Systems Change

Continuous improvement can be used not only for improving innovations, but also creating systems alignment and cohesion of policies, structures, and practices. Iterative cycles of continuous improvement gradually refine and improve change practices so they are more likely to lead to intended outcomes. Lessons learned from improvement data can provide insight on practices that need to be aligned across different levels of the system, or that need to be created in order to sustain change practices. After conducting one or more improvement cycles, revisit chapter 2 of the guidebook. Consider what other roles need to be involved to support the innovation, how those roles align the work vertically and horizontally within the system, and who or what is influencing the success of the innovation.

Vertical and Horizontal System Components



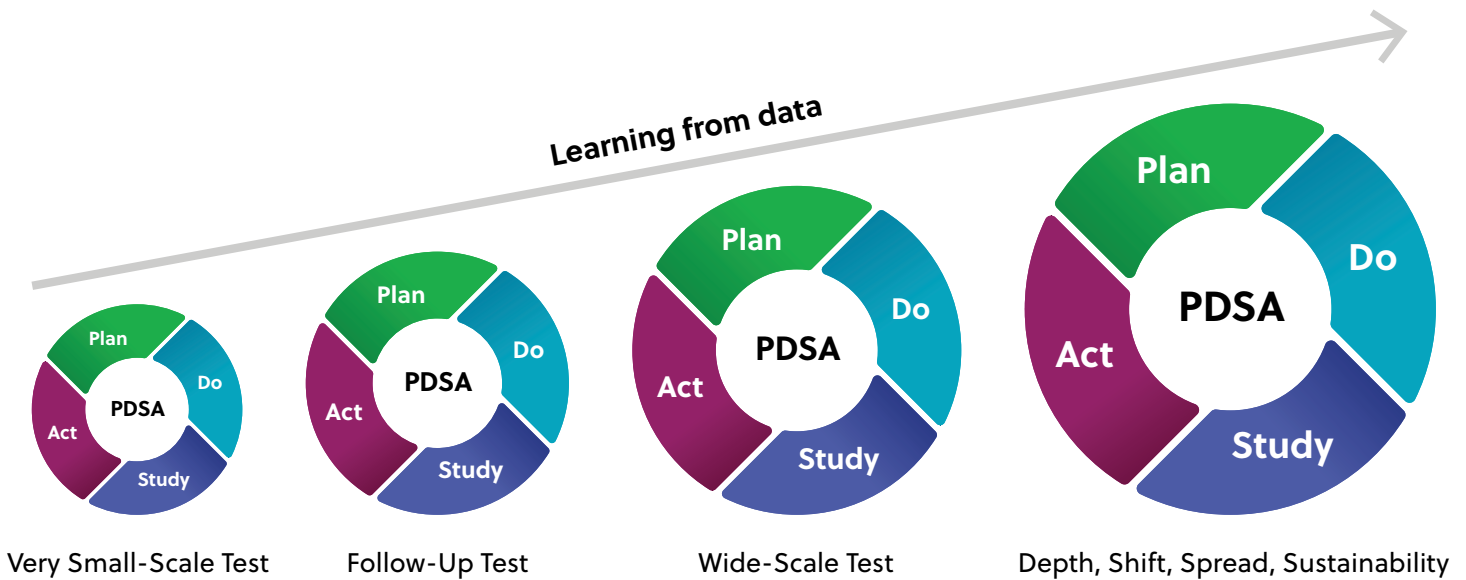
c. Act to Scale Effective Practices

Continuous improvement can also be used for scaling innovations. Chapter 5 goes into detail on the elements of scale and includes the Rubric for Scaling Effective Innovations and Practices. This framework includes four elements of scale: depth, spread, shift in ownership, and sustainability (Coburn, 2003).

- **Depth:** Deep understanding of the innovation that changes people’s beliefs, norms, and the culture.
- **Shift:** Moving beyond the culture of compliance to internalization and prioritization of the innovation where agents of change value the innovation.
- **Spread:** Significant numbers of people have adopted the innovation, reaching a broad constituency of individuals in schools, district central office, and the community.
- **Sustainability:** System-wide processes and structures are in place and aligned across all levels of the system to help sustain the innovation.

Review the rubric in chapter 5, which provides a set of indicators for each element. The diagnostic tool can help assess the status of implementation of a specific innovation for a suite of change practices. Results of the diagnostic exercise can then inform continuous improvement cycle plans.

Scaling practices through continuous improvement cycles



4.5 Documenting Your Story: Continuous Improvement Journey Map

As learnings from one cycle feed into iterative cycles of continuous improvement, it is important to document what happens in each cycle — so lessons learned are not forgotten and strategies that were tried but failed are not repeated. The progression from cycle-to-cycle tells the tale of the journey from a small-scale test to a robust practice that can be communicated and explained to anyone new to the practice.

The journey map serves multiple purposes:

- It describes your story and journey in the change process.
- It documents evidence for why key practices are worthwhile and should be sustained.
- It promotes effective communication, allowing everyone to have common understanding of the work and progress.
- It provides a rationale of key decisions, making continuous improvement a transparent process.
- It facilitates accountability while honoring that change can be difficult.

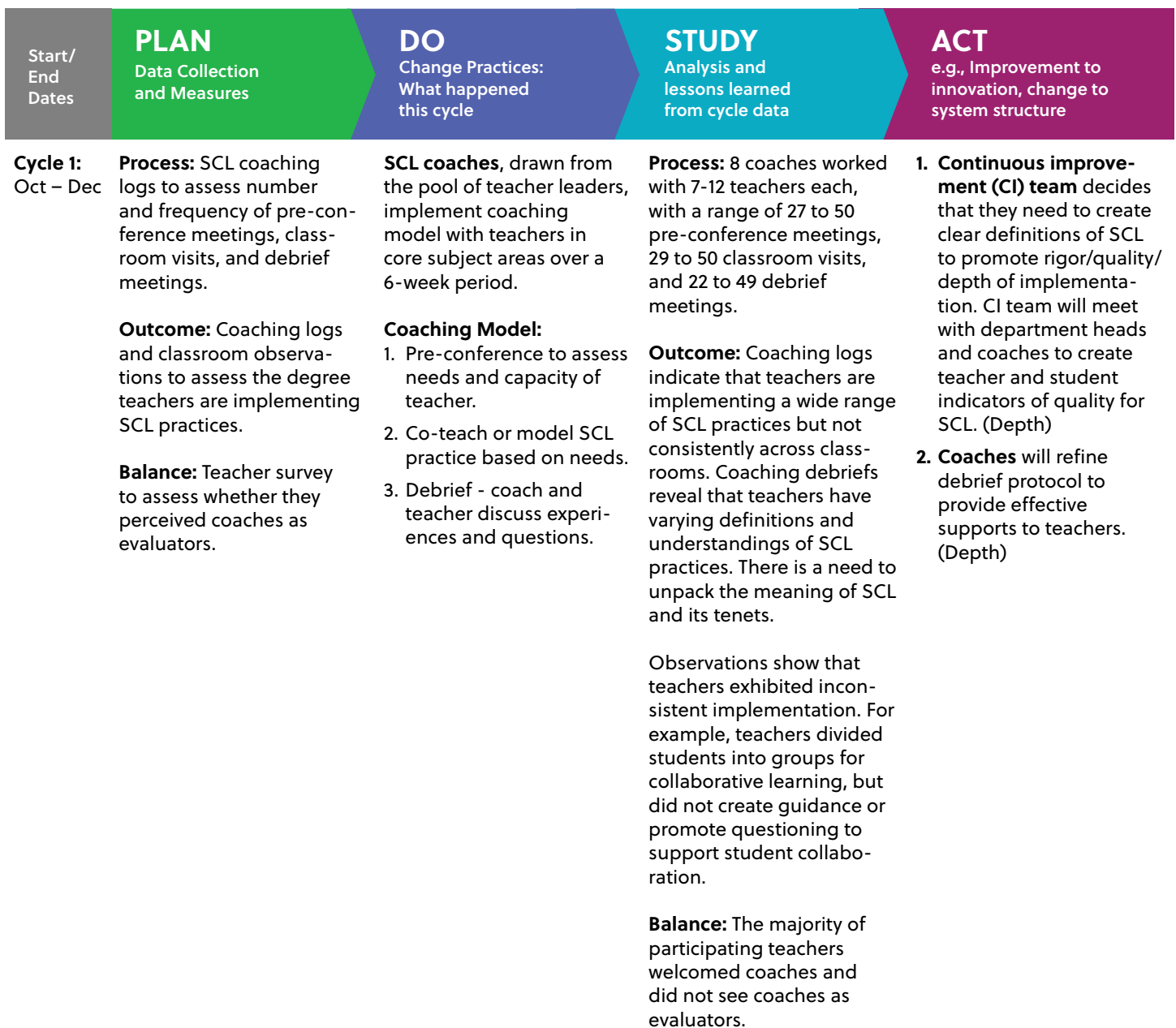
The following is a sample continuous improvement journey map. It is a good example of the progression of the implementation of a coaching model and how it supports innovation and instructional approaches toward educational equity.

Continuous Improvement Journey Map

Organization: District: X
District Problems of Practice: Effective implementation of personalized instructional practices is inconsistent across classrooms and schools, and students are not engaged in learning.

Innovation: Coaching model
Suite of Change Practices: Coaching pre- and post-protocol, coaching log documentation, rubric for SCL "Look-Fors"

Aim: Increase teacher knowledge and skills in implementing high-quality SCL instruction



Continuous Improvement Journey Map (Continued)

Start/ End Dates	PLAN Data Collection and Measures	DO Change Practices: What happened this cycle	STUDY Analysis and lessons learned from cycle data	ACT e.g., Improvement to innovation, change to system structure
Cycle 2: Jan – Mar	<p>Process: SCL coaching logs to assess number and frequency of pre-conference meetings, classroom visits, and debrief meetings, and whether coaches are using SCL Look-Fors for observations and teacher feedback.</p> <p>Outcome: Coaching logs to assess degree/quality of teacher implementation of SCL practices.</p> <p>Balance: Coaching logs to assess whether using the SCL Look-Fors shifted the focus of improving practice to increasing the quantity/frequency of specific SCL practices.</p>	<p>SCL coaches implement coaching model with teachers in core subject areas over a 6-week period.</p> <p>Coaching Model:</p> <ol style="list-style-type: none"> 1. Pre-conference or observations to assess needs and capacity of teacher. 2. Co-teach or model SCL practice based on needs. 3. Debrief - SCL coach and teacher discuss experiences and questions. <p>Coaches use SCL Look-Fors, which includes SCL indicators for personalization during observations and coaching.</p>	<p>Process: 8 coaches worked with 7-12 teachers each, with a range of 32 to 57 pre-conference meetings, 20 to 40 classroom visits, and 19 to 40 debrief meetings. Coaching logs indicate that all coaches are using the SCL Look-Fors to guide their observations and teacher feedback.</p> <p>Outcome: Coaching logs indicate that teachers are aligning their practice with the definitions of SCL. Specifically, teachers within departments are focusing on implementing particular SCL practices with quality. For example, SS teachers connect content to students' lives, whereas math teachers promote questioning and critical thinking.</p> <p>At baseline, none of the SCL practices were implemented in 50% or more of classrooms visited and the most frequently observed SCL practice was engaging in student-to-student discourse, which was observed in 32% of classrooms. By the end of the cycle, 5 SCL practices were observed in 50% or more classrooms visited. Engaging in student-to-student discourse was the most frequently observed SCL practice (59% of classrooms visited) and assessing student interests was the least frequently observed SCL practice (1% of classrooms visited).</p> <p>Balance: For some coaches, there was evidence that the SCL Look-Fors did shift the focus of coaching to increasing the frequency of specific SCL practices. Two coaches focused observations by checking off SCL practices that teachers exhibited. However, other coaches captured different kinds of qualitative data that indicate a focus on improving practices that impact student outcomes. More specifically, describing teacher pedagogy and student engagement.</p>	<ol style="list-style-type: none"> 1. CI district team and coaches will discuss observation process and refine the SCL Look-Fors to specifically focus coaches on the quality of SCL practices. (Depth) 2. Coaches will use the updated SCL Look-Fors as they observe teachers. (Depth) 3. CI team to conduct focus group with students to understand their experiences with SCL. 4. Department heads will begin using the SCL Look-Fors as a way to structure dialogue about deeper learning and instructional shifts. (Spread)

Continuous Improvement Journey Map (Continued)

Start/ End Dates	PLAN Data Collection and Measures	DO Change Practices: What happened this cycle	STUDY Analysis and lessons learned from cycle data	ACT e.g., Improvement to innovation, change to system structure
Cycle 3: Apr – Jun	<p>Process: SCL coaching logs to assess number and frequency of pre-conference meetings, classroom visits, and debrief meetings, and whether coaches are using SCL Look-Fors for observations and teacher feedback.</p> <p>Outcome: Coaching log to assess degree/quality of teacher implementation of SCL practices. Department meeting notes to assess teacher understanding and application of SCL in content area. Student focus groups to determine impact of instruction on students.</p> <p>Balance: Coaching logs and teacher surveys to assess whether teachers teach SCL practices to demonstrate compliance rather than to improve instructional practice and achieve student-learning outcomes.</p>	<p>SCL coaches implement coaching model with teachers in core subject areas over a 6-week period.</p> <p>Coaching Model:</p> <ol style="list-style-type: none"> 1. Pre-conference or observations to assess needs and capacity of teacher. 2. Co-teach or model SCL practice based on needs. 3. Debrief - SCL coach and teacher discuss experiences and questions. <p>Coaches are trained on and use revised SCL Look-Fors, which includes space to cite particular evidence of quality of SCL practices.</p> <p>Department heads of ELA, SS, math, and science facilitate teacher reflection and inquiry in meetings using SCL Look-Fors - to guide discussions and support professional learning.</p> <p>Teachers use learnings from coaches and department meetings to set goals for instructional improvements.</p>	<p>Process: 8 coaches worked with 7-12 teachers each, with a range of 32 to 62 pre-conference meetings, 25 to 60 classroom visits, and 28 to 57 debrief meetings. Coaching logs indicate that all coaches are using the SCL Look-Fors to guide their observations and teacher feedback.</p> <p>Outcome: In this cycle, 9 SCL practices were observed in 50% or more classrooms visited, which is a significant increase from last cycle. Again, engaging in student-to-student discourse was the most frequently observed SCL practice (67% of classrooms visited), and students exploring areas of interest was the least frequently observed SCL practice (7% of classrooms visited).</p> <p>Observations reveal that enactment of SCL practices related to deeper learning increased: Implementation of critical thinking and problem-solving activities increased from being observed in 23% in term 1 to 46% in term 3. Structuring higher level discourse prompts increased from being observed in 19% in term 1 to 54% in term 3.</p> <p>Observations reveal that student engagement in deeper learning increased: Student-to-student discourse increased from being observed in 32% in term 1 to 67% in term 3. Students justifying and defending their thinking increased from being observed in 22% in term 1 to 56% in term 3.</p> <p>Coaching logs reveal that the use of formative assessment by teachers and adjustment of instruction based on these assessments remained infrequent and showed one of the lowest levels of increase from cycle 1 to cycle 3 compared with other SCL practices.</p>	<ol style="list-style-type: none"> 1. CI team and coaches will use student and teacher improvement data to identify high-leverage practices such as formative assessments, to deepen implementation in classrooms. (Depth) 2. CI team will gather input from teachers on SCL Look-Fors to gain ownership and buy-in. (Shift) 3. Central office instructional leaders will examine policies and support structures to sustain innovation. (Sustainability)

Continuous Improvement Journey Map (Continued)

Start/ End Dates	PLAN Data Collection and Measures	DO Change Practices: What happened this cycle	STUDY Analysis and lessons learned from cycle data	ACT e.g., Improvement to innovation, change to system structure
Cycle 3: Apr – Jun			<p>Notes in the coaching logs indicate a focus on the quality of SCL practices, not just the frequency of them.</p> <p>Student focus groups at each of the two district high schools indicate that students at one school experienced more SCL practices in their classrooms than students at the other school, which is consistent with coaching log data. Those students in the school with better implementation of SCL practices expressed greater engagement with school and belief that school will help them with post-secondary pursuits.</p> <p>Balance: Coaching logs and teacher surveys indicate that most teachers implement certain instructional strategies because they believe that SCL practices will advance student learning. Some teachers, however, question the value of certain practices.</p>	

**Tool: Protocol for Collaborative Data Study**

Use this collaborative data study protocol to examine continuous improvement data and make decisions for the next cycle.

**Tool: Journey Map**

Use this journey map template for recording findings from iterative PDSA cycles.



Protocol for Collaborative Data Study

The purpose of this protocol is to collaboratively analyze continuous improvement data to deepen or scale a specific practice related to advancing a school or district innovation. The protocol provides a structured way to leverage the best thinking of a group in analyzing data for continuous improvement and identifying lessons learned. Plan for it to take about 40 to 60 minutes.

What you'll need: Visual data to facilitate analysis and the continuous improvement plan.

Helpful roles: Facilitator, timekeeper, note taker.

- 1. Review** the continuous improvement plan and identify the process, outcome(s), and balance questions related to the plan. Check to make sure each person understands the question(s) the data are meant to address.
- 2. Predict** what you believe the data will reveal. Each person is asked to state their assumptions/expectations about what they expect the data will reveal.
- 3. Circulate** copies of the data in either graphical or visual ways to support thoughtful analysis. Each person silently studies the data and makes notes of observations and questions.
- 4. Ask** clarifying questions about the data. Make sure each person fully understands the organization and meaning of the data.
- 5. Observe** what you see in the data without judgement or interpretation. Ask each person to make a clear reference to the data when making observations. Observations should include sentence starters. Some examples of thought-provoking sentence starters are:
 - *I see . . .*
 - *I observe . . .*
 - *I notice . . .*
 - *The patterns and trends I see are . . .*
- 6. Interpret/Infer** what the data reveal. Analysis can include the following questions:
 - *What explains the patterns or themes that emerge in the data?*
 - *How does the data answer or not answer our question(s)?*
 - *What new questions emerge from the data?*
 - *What are the implications for next steps?*
- 7. Identify** lessons learned. Each person is asked to state the key lesson(s) they have learned from the data. The group prioritizes lessons learned and identifies one or two that could serve as the basis for future continuous improvement cycles.



Journey Map

Organization:

Problems of Practice:

Innovation:

Suite of Change Practices:

Aim:



Cycle 1: Process:

Outcome:

Balance:

Cycle 2: Process:

Outcome:

Balance:

Cycle 3: Process:

Outcome:

Balance:

Chapter 5:

Scale for Depth and Breadth

What does scaling effective practices mean?

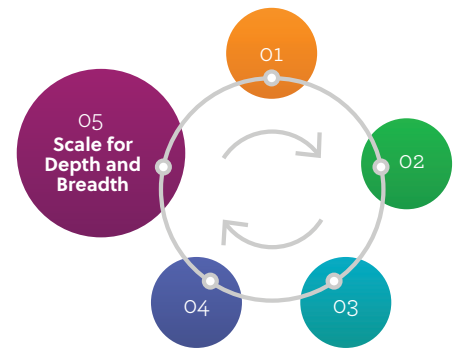
What is the relationship between continuous improvement and scale?

How do we assess our conditions for scale?



Introduction

What does scaling effective practices mean? What is the relationship between continuous improvement and scale? How do we assess our conditions for scale? This chapter is intended to deepen your understanding of scale for depth, shift, spread, and sustainability. Toward the end, you can use the rubric and diagnostic tool to assess your progress along a continuum of change, and make decisions that will inform continuous improvement cycles.



5.1 Scaling Effective Practices for Depth and Breadth

5.2 Rubric for Scaling Effective Innovations and Practices

5.3 Scaling Effective Practices: Case Study and Exercise

5.4 Continuous Improvement and Scale

Tool: Diagnostic Tool for Scale

Overview

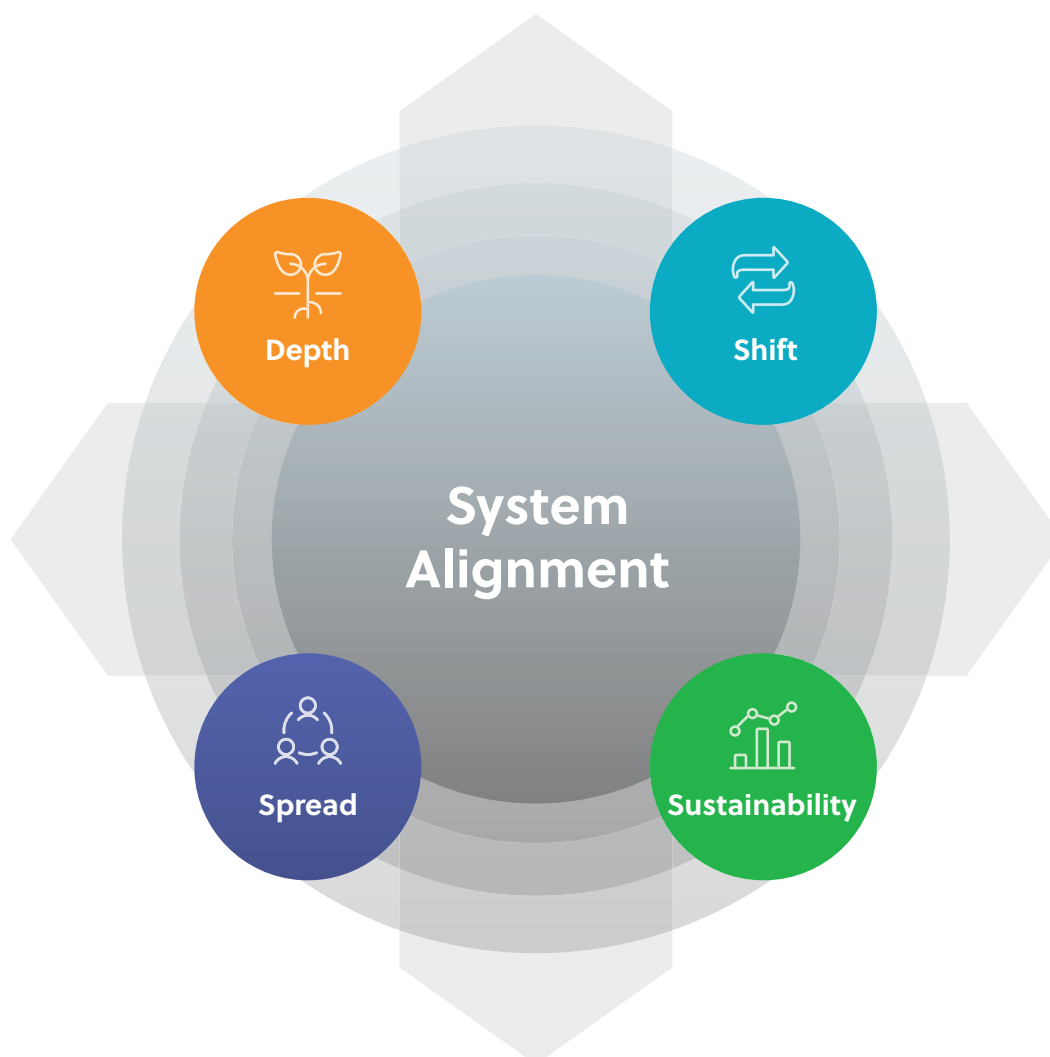
There are different definitions related to the concept of scale, including replication, spread, adaptation of programs, adoption of policies, and increasing the reach of interventions. Various terminology is also used, such as *scaling up*, *scaling out*, or *going to scale*. Linn and Hartmann (2009) identify three basic institutional approaches for scaling up innovations: hierarchical, individualistic, and relational—and three organizational paths—expansion, replication, and spontaneous diffusion. Scale can also suggest the transfer of experience, which requires changes in individual and institutional behavior. Cynthia Coburn’s framework for scale (2003) is worth examining and building upon, and we do so in this chapter. Coburn presents a compelling model that outlines the necessary elements for the change and spread of norms, beliefs, and principles. The framework includes four elements of scale: depth, shift, spread, and sustainability, which all need to be attended to for effective scaling of innovations.

5.1 Scaling Effective Practices for Depth and Breadth

The continuous improvement process lends itself to improving existing practices and creating new innovations to advance desired student, educator, and system outcomes. When scaling practices through continuous improvement cycles, it is important to ensure rigor and quality in the context of depth and breadth.

The Rubric for Scaling Effective Innovations and Practices includes specific indicators for four elements of scale: depth, shift, spread, and sustainability.

While Coburn's (2003) ideas provide a strong foundation to guide strategies for scale, EDC expanded on the framework in a number of ways that could help deepen the work of school districts and other education systems. For example, this rubric incorporates the student lens in the process of scale. In addition, the continuous improvement approach has been integrated as a key force of influence for scaling effective practices. Finally, we place the four elements of scale more explicitly in the context of systems change, to help schools and districts align reform efforts vertically and horizontally within and across system levels.



5.2 Rubric for Scaling Effective Innovations and Practices

The framework for scaling effective innovations and practices comprises four elements that education systems can use to guide ongoing reflections. The following questions are here to help guide you as you engage in collaborative reflection after improvement cycles:



Depth: To what extent has the innovation resulted in deep understanding and consequential change that goes beyond surface structures and procedures? Has the innovation changed beliefs, norms, and the culture within schools and the district central office?



Shift: Were new conditions created to allow for a shift in ownership of an innovation—from an external priority to an internal priority within districts and schools? Have innovations been internalized? Do staff themselves see the value, or are they simply complying?



Spread: Have significant numbers of people adopted the innovation? Have materials, processes, and related practices reached a broad constituency of individuals in schools, the district, and the community? Has understanding and belief about the innovation spread as well?



Sustainability: Are there system-wide processes, structures, and policies in place to help sustain the innovation in and beyond the original setting? Are these processes and structures aligned across different levels of the system?

The rubric provides a set of indicators for each element. It is helpful for assessing the status of implementation of a specific reform or a suite of practices. Results of the diagnostic exercise can then inform continuous improvement plans. Explore how you can use the rubric in conjunction with the Scaling Effective Practices Diagnostic Tool at the end of this chapter.

Rubric for Scaling Effective Practices**Element of Scale: Depth**

Implementation of innovation or reforms results in deep understanding and consequential change that goes beyond surface structures and procedures to alter beliefs, norms of social interaction, and pedagogical principles.

–Coburn, 2003

Indicators for Depth**Beliefs and Assumptions**

School and district central office staff members rethink and reconstruct prior beliefs and underlying assumptions about the nature and quality of the practice.

Environment for Organizational Learning

Changes occur in the learning environment that affect roles, patterns of talk, and the manner in which those affected by the change treat one another, including adults and students.

Underlying Principles of Innovation

Underlying principles of the reform or suite of practices (versus programs or tools) guide the quality of instruction.

Embedded Policies and Routines

There is shared knowledge about reform principles among leaders and how innovations can lead to desired system and student outcomes. These principles are embedded in central office policies and routines.

Rubric for Scaling Effective Practices**Element of Scale: Shift**

New conditions are created that allow a shift in ownership for an innovation from an external priority to an internal priority within districts and schools.

–Coburn, 2003

Indicators for Shift**System Supports**

The central office supports school instructional leaders in providing ongoing professional development for implementation of the innovation.

Collective Learning

A culture of collegueship, collaboration, and collective learning about the reform permeates schools and the central office.

Systems Thinking

School and central office leaders engage in systems thinking to address competing commitments as they arise, and navigate a process for prioritization that maintains the integrity of the reform. They ascertain new policies and their degree of congruence with the innovation.

Responsibility for Continuous Improvement

District and school leaders assume full responsibility for continuous improvement, working with staff to collect and analyze improvement data to guide decision-making about the reform (Bolman & Deal, 2008).

Student and Community Engagement

Input from students, community partners, and key stakeholders on reforms and innovations is actively sought.

Rubric for Scaling Effective Practices**Element of Scale: Spread**

Innovation or reform is implemented in greater numbers of classrooms and schools and includes the activities, structures, materials, and underlying beliefs, norms, and pedagogical principles associated with the change strategy.

–Coburn, 2003

Indicators for Spread**Increased Reach**

Implementation of the reform or suite of innovations is spread to more students, teachers, and relevant staff in other schools, and there is coherence across departments (e.g., subjects, counseling, advisory).

Spread of Norms and Expectations

Spread of the innovation or reform goes beyond activities and procedures, so that underlying beliefs and norms move away from a mindset of compliance.

Frequency

The frequency at which change practices and strategies are enacted matches what is needed for the impact on students, educators, and systems to be substantive.

Common Purpose and Vision

Transparent communication about the reform is made with key stakeholders to build common understanding within the community, including parents.

Rubric for Scaling Effective Practices



Element of Scale: Sustainability

System-wide processes and structures are in place to help sustain the innovation in and beyond the original setting. The processes and structures are aligned across different levels of the system to support deep and consequential change.

–Coburn, 2003

Indicators for Sustainability

Human Resources

School and district leadership provide the vision and processes for intentional hiring and onboarding of new people and new leaders (Fixsen et al., 1978; Fleuren, Wiefferink, & Paulussen, 2004; Fullan, 2006).

Resource Allocation

Sufficient school and district resources are allocated - time, people, and materials, and leaders seek additional funding to sustain the reform.

System Alignment and Cohesion

Policies and structures are aligned between schools and the central office to support implementation and scale of the reform between the two levels.

Continuous Improvement Culture

A process of disciplined inquiry and continuous improvement supports a systemwide evolution of the reform, including modifications to the original design of innovation while maintaining integrity (Dede, 2005).

Networked Communities of Practice

Schools connect with other educators across sites, within and outside the district, who are working on similar efforts through a network of problem solving and professional learning.

Tools and Resources

Evidence-based tools and resources are used to sustain the innovation. These can include frameworks and rubrics for curriculum, instruction, and assessment, a protocol for instructional support, and diagnostic or self-assessment tools.

5.3 Scaling Effective Practices: Case Study and Exercise

The case studies and exercises to follow are helpful in gaining further understanding of the four elements of scaling effective practices.

Case Study and Exercise

The case studies below provide concrete examples of common real-world challenges that arise as districts adopt and implement change. They also offer strategies for implementing practices with depth and breadth across the system. They are based on the experiences of school districts that are enabling student-centered learning practices as an innovative high school model that can address educational equity.

1. **Explore the case studies** below along with the rubric for scale with your team.
2. **Break up into small groups** or pairs and assign one element of scale to each group.
3. **Examine the status of implementation** of the innovation in the context of the case study and your assigned element of scale. Review recommendations for improvement. Identify other improvement strategies relevant to your assigned element of scale.
4. **Take turns by group** explaining your assigned element of scale and sharing recommendations. Engage in whole group discussion.



Case Study on Depth

Implementation of innovation or reforms results in deep understanding and consequential change that goes beyond surface structures and procedures to alter beliefs, norms of social interaction, and pedagogical principles.

–Coburn, 2003

Overview

District instructional leaders believe that supporting project-based learning (PBL) school models will contribute to preparing students for college and careers. School and central office instructional staff participated in professional development about PBL. Teachers begin to include projects in their curriculum, but have challenges with balancing the teaching of key content with skills in a project-based classroom. Also, the quality of projects is mixed - many do not focus on essential questions and real-world problems. While students have responded well to projects, survey data reveal that they are unclear about expectations and assessments.

Recommendations for Improvement

- District provides ongoing professional development on key components of PBL, including inquiry teaching that integrates deeper learning skills (e.g., critical thinking, problem solving) with PBL, with the aim of improving the quality of curriculum and instruction.
- Coaches provide modeling of key instructional practices and support teachers through a structured feedback protocol.



Case Study on Shift

New conditions are created that allow a shift in ownership for an innovation from an external priority to an internal priority within districts and schools.

–Coburn, 2003

Overview

The principal believes that a supporting project-based learning (PBL) school model will contribute to preparing students for college and careers. However, the principal does not have expertise in PBL, and her role has traditionally been focused around overseeing school operations rather than instruction. Some teachers feel that PBL is taking away from teaching key content, especially in math and social studies. They also feel that they have a lot on their plate and are taking on too many initiatives.

Recommendations for Improvement

- School leadership establishes common planning time and support structures for interdisciplinary collaboration.
- Central office leaders implement protocols to better support principals as instructional leaders, and engage in an initiative mapping process to address competing commitments.
- A formal set of teacher leadership pathways is created to deepen PBL classroom instruction systemwide.



Case Study on Spread

Innovation or reform is implemented in greater numbers of classrooms and schools and includes the activities, structures, materials, and underlying beliefs, norms, and pedagogical principles associated with the change strategy.

–Coburn, 2003

Overview

The high school started implementing a model for personalized learning. They integrated personalized learning plans into advisory, enabling students to reflect on their learning and set goals. Teachers also began shifting to proficiency-based education in the 9th and 10th grade. They have been piloting a number of change practices including formative assessments and a student work protocol on evaluation and feedback for improvement.

Recommendations for Improvement

- Provide ongoing professional development district-wide on new practices, and have 9th and 10th grade teacher leaders play a role.
- Central office creates an online portal for effective tools and processes that have been tested.
- Based on local best practices, roll out personalized learning and proficiency-based education in grades 11 and 12.



Case Study on Sustainability

System-wide processes and structures are in place to help sustain the innovation in and beyond the original setting. The processes and structures are aligned across different levels of the system to support deep and consequential change.

–Coburn, 2003

Overview

Personalized learning and proficiency-based education have been priorities at the high school and district for the past two years. Educators have been implementing various change practices in the classroom and in advisory. Department meetings and Professional Learning Communities (PLCs) focus collaborations on new instructional practices. However, some educators are concerned that this approach will not address the achievement gap and equity. In addition, many school personnel are unclear about how central office is supporting this work.

Recommendations for Improvement

- Central office and school leaders improve and align the teacher support and evaluation systems to incorporate indicators tied to personalized learning and proficiency-based education.
- The unit of information technology in central office works with school leaders and practitioners in a structured, ongoing process to gather improvement data—plus other district-wide data, during cycles. They also engage in collaborative inquiry about teacher and student outcomes.

5.4 Continuous Improvement and Scale

The following section will help guide your continuous improvement plans. After each cycle or after multiple cycles, reflect on lessons learned and use findings to inform next steps. The framework of the four elements of scale: depth, spread, shift in ownership, and sustainability—along with the diagnostic tool, will help you assess the status of implementation of specific change practices.

The Diagnostic Tool for Scaling Effective Practices is designed for you to use with the Rubric for Scaling Effective Innovations and Practices. For each element of scale, review the evidence for the indicators in the rubric template and rate your innovation or practice along the continuum. Then, create an action plan for addressing each element of scale based on the recommendations for improvement you included in the rubric template. You may choose to create continuous improvement plans for high-leverage actions—to ensure data are collected and analyzed, and improvements are made for these actions.



Tool: Diagnostic Tool for Scale

Use the diagnostic tool to collaboratively assess your status of implementation along a continuum of change. Transfer your own version into a digital format that you can easily access and refine as a working document.

Adapt the diagnostic tool below to examine lessons learned from one or more continuous improvement cycles in your school, district, or state context. Here's how:

1. **After one or more cycles, diagnose the status of implementation** using the rubric and diagnostic tool. Work collaboratively with your team and multiple stakeholders to include different perspectives.
2. **Collectively determine where you are along the continuum of change.** Use data and evidence from continuous improvement cycles to back up your comments.
3. **Engage in discussion** about general strengths and gaps that you see.
4. **Use the results of the diagnostic exercise to make recommendations** or decisions for next steps in continuous improvement, such as:
 - improving the quality of a practice
 - spreading practices to more people
 - creating system structures and policies
 - attending to mindsets, beliefs, and culture



Element of Scale: Depth

Review the Rubric for Scaling Effective Innovations and Practices and the indicators for depth in the context of a specific reform effort or innovation. To what extent has the reform or innovation resulted in deep and consequential change that goes beyond surface structures and procedures? Where are you along the continuum?

Exploring

Developing

Progressing

Advancing

What evidence do you have of progress toward depth? What gaps or problems of practice have you identified, if any? How might you address those gaps through a continuous improvement process? What needs to be done at all levels of the system to achieve greater depth?

Beliefs and Assumptions

Environment for Organizational Learning

Underlying Principles of Innovation

Embedded Processes and Routines



Diagnostic Tool for Scale



Element of Scale: Shift

Review the Rubric for Scaling Effective Innovations and Practices and the indicators for shift in the context of a specific reform effort or innovation. Were new conditions created that will allow a shift of authority, ownership, and knowledge of the reform to include multiple stakeholders? Where are you along the continuum?

Exploring

Developing

Progressing

Advancing

What evidence do you have of progress toward shift? What gaps or problems of practice have you identified, if any? How might you address those gaps through a continuous improvement process? What needs to be done at all levels of the system to achieve greater shift?

System Supports

Collective Learning Norm

Systems Thinking

Responsibility for Continuous Improvement

Student and Community Engagement



Diagnostic Tool for Scale



Element of Scale: Spread

Review the Rubric for Scaling Effective Innovations and Practices and the indicators for spread in the context of a specific reform effort or innovation. Have large numbers of people adopted the innovation? Have the processes and pedagogical principles reached a broad number of people in schools and the central office? Where are you along the continuum?

Exploring

Developing

Progressing

Advancing

What evidence do you have of progress toward spread? What gaps or problems of practice have you identified, if any? How might you address those gaps through a continuous improvement process? What needs to be done at all levels of the system to achieve greater spread?

Increased Reach

Spread of Beliefs and Expectations

Frequency

Common Purpose and Vision



Element of Scale: Sustainability

Review the Rubric for Scaling Effective Innovations and Practices and the indicators for sustainability in the context of a specific reform effort or innovation. Are there structures and policies in place system-wide that will help to sustain the reform or suite of innovations beyond the original setting? Is there system alignment and cohesion? Where are you along the continuum?

Exploring

Developing

Progressing

Advancing

What evidence do you have of progress toward sustainability? What gaps or problems of practice have you identified, if any? How might you address those gaps through a continuous improvement process? What needs to be done at all levels of the system to achieve sustainability?

Human Resources

Resource Allocation

System Alignment and Cohesion

Continuous Improvement Culture

Networked Communities of Practice

Tools and Resources

Conclusion

This guidebook is designed to demystify continuous improvement and familiarize you with its basic elements. As you begin reform initiatives, consider whether it will require a paradigm shift for practitioners and leaders to engage in collaborative problem-solving, systems thinking, and solutions finding. The tools and processes in this guidebook can help you create individual and collective routines and establish habits of practice, habits of mind, and habits of talk for using evidence and data in your day-to-day work, which will ultimately contribute to improving organizational culture. By becoming more informed, fostering a culture of professional learning, and building capacity of people at all levels of the system, you can implement and scale innovations and practices, and change policies in more meaningful ways. As a result, your organization can build evidence-based practices, which will benefit the students, families, and communities you work with and serve.

We encourage you to develop a network of schools within your district or state, or to participate in a broader professional learning community to uncover and share the best of what works—and what doesn't—in education systems. Effective networks can foster or facilitate ongoing professional and organizational learning and growth. We also encourage education systems to work with community or grassroots organizations on common issues; cultivating meaningful partnerships can have deep, lasting impact.

You may adapt this guidebook and toolkit in a way that maintains integrity while meeting the needs of your local context. You can also choose to partner with an intermediary organization or independent technical assistance provider. Regardless of where you are in your improvement journey, your efforts can help to ensure that equity and quality education for all remains at the forefront.

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