Analyzing Data for Root Causes
Conducting Sessions to Analyze Key District Data;
Using the Results in the Planning Process

What is a Root Cause? The Massachusetts Department of Elementary and Secondary Education's *District Data Team Toolkit* defines root cause as "an underlying factor or condition that creates a problem and that, if addressed, would eliminate or dramatically alleviate the problem. A root cause analysis can help a group with widely varying opinions narrow the field of contributing factors until it agrees on what one(s) will yield the biggest bang for the buck if it acts on it"*(District Data Team Toolkit*, Module 4, p. 4).

Why This Step is Important: Root cause analysis is most helpful when done early in the planning process. District plans should be grounded in an analysis of district performance that develops an understanding of what needs to change in the current context to support achievement of the district's vision. A wide range of data can be useful in this analysis, including community feedback, educator evaluation data, and student achievement data, particularly overall performance, growth, and gaps between student groups.

Root Cause Analysis Protocols: Districts can use a number of protocols to analyze district data to unearth root causes. The 5 Whys Protocol is a simple, accessible, and time efficient protocol commonly used for this purpose. The Department's *District Data Team Toolkit*, Module 4, includes several root cause protocols, including the 5 Whys.

The 5 Whys Protocol is included in the "Text for Facilitator Presentation Slides" section. In essence, a group asks "Why?" five times or so, as it progressively digs deeper into data, until the group arrives at what it believes to be the root cause of that data. A Root Cause Worksheet is attached, which can be used by groups to record their work, and which can become part of the district plan.

Using Root Cause Results: The results from a root cause analysis of the current context, combined with the results from community visioning of the future and with research of effective practices, provides a rich data set the planning team can use in identifying strategic objectives and initiatives for the district plan.

The Root Cause Analysis Process: The root cause analysis of key district data should be conducted after the planning team has developed a shared understanding of current district performance. It is most effective if a district data presentation precedes the root cause analysis activity, with data presented by a knowledgeable and credible representative such as the superintendent or a data specialist.

1. After the district data presentation, identify 3 to 6 data points that will be the focus of root cause analysis (depending on the data and the size of your planning team). The root

cause analysis activity is most effective if planning team members have the opportunity to participate in the selection of data points for analysis.

2. Organize into small mixed groups of 4 to 6 participants or so, depending on the size of your planning team. If possible, ensure that each group includes participants with different roles in the district. Ask each group to focus on a different data point; ask the recorder of each group to record the group's work on the Root Cause Analysis Worksheet; and ask all groups to follow the 5 Whys Protocol.

3. Reconvene as a whole group. Ask the facilitator of each small group to share his/her group's whys and ultimate root cause. Discuss root causes as a whole group.

4. Collect the Root Cause Analysis Worksheet from all recorders. Type up the results of each group's work on a Root Cause Analysis Worksheet. These completed worksheets can become part of the data analysis section of the district plan.

Time Required: Root cause analysis requires approximately 1.5 hours to complete, depending on the number of data points analyzed and the number of participants/number of small groups that will report out. Allow approximately 45 minutes for small groups to conduct the protocol; approximately 5 minutes for each group to report out; and approximately 15 to 20 minutes for whole group discussion.

Note to Facilitators: In framing the root cause analysis work, it is helpful to address the need for participants to focus on what is within the district's control rather than on what is outside district control. For example, if an initial "why?" in a 5 Whys analysis focuses on students' lack of readiness for school, it is essential that participants recognize that they must dig deeper to unearth causes that are within district control.

A simple and effective tool that can assist in framing this conversation is the Dimensions Bullseye of Improvement, from Module 4 of the *District Data Team Toolkit.* This graphic representation of what is within the district's control is extremely useful during the root cause analysis discussion. The Bullseye is attached.

Text for Facilitator Presentation Slides: Some suggested text for root cause analysis presentation slides is included below.

Slide 1: Root Cause Analysis of Data
What is a root cause?
> "an underlying factor or condition that creates a problem and that, if addressed, would eliminate or dramatically alleviate the problem. A root cause analysis can help a group with widely varying opinions narrow the field of contributing factors until it agrees on what one(s) will yield the biggest bang for the buck if it acts on it."
>> *DESE District Data Team Toolkit*, Module 4, p. 4

Slide 2: Five Whys Protocol

1. Write the problem being addressed
2. Ask the group to give a reason why this is happening (the first cause)
3. Record the answer
4. Ask the group why the first cause is happening
5. Record the answer
6. Repeat five times or until reaching the root cause

DESE District Data Team Toolkit, Module 4

Root Cause Analysis Worksheet

Purpose: This worksheet can be used to document a team's work and results when conducting a root cause analysis using the 5 Whys Protocol. State the problem that the team is exploring, for example: "Student growth in math has continued to decline across the district since 2012." As you follow the protocol, document each "Why" you identify. When you arrive at the root cause, state it in the "Cause" section below.

Problem:

Why?

Why?

Why?

Why?

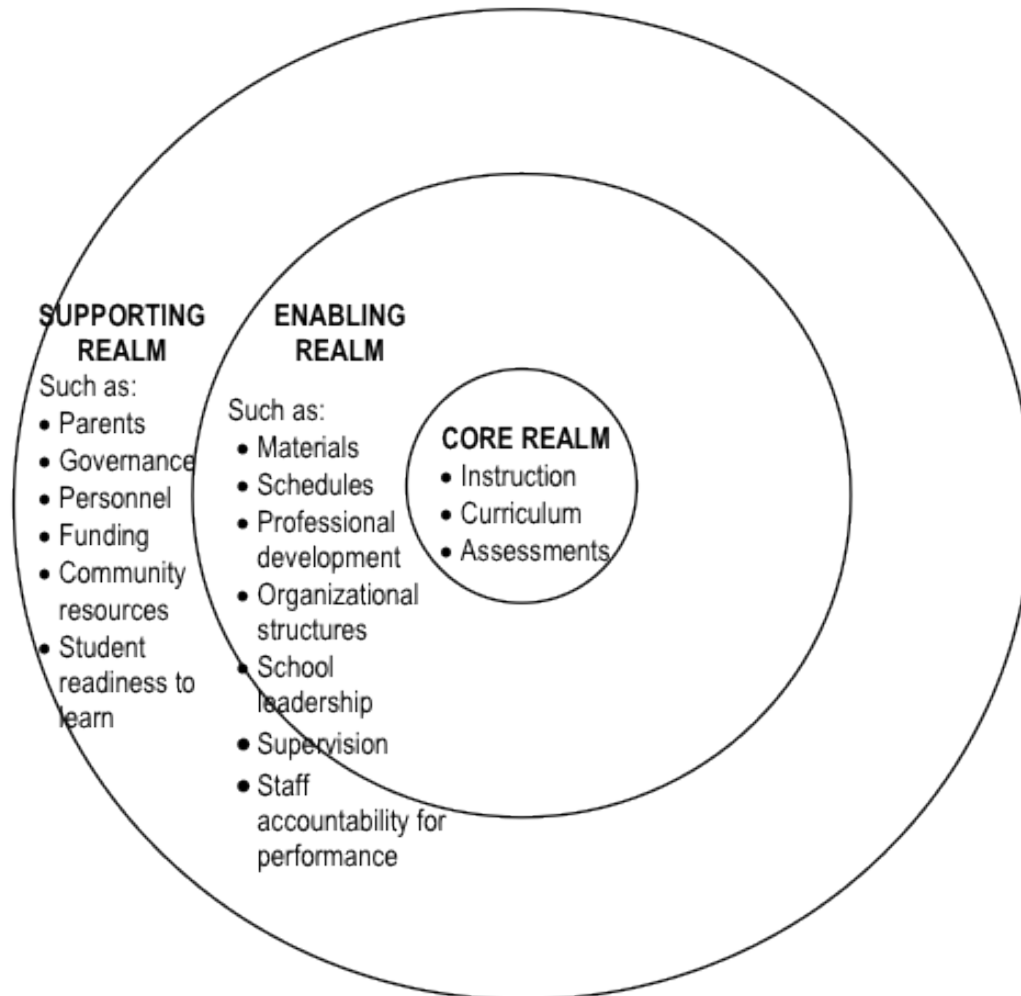**Cause:**

Dimensions Bullseye of Improvement

- **Core realm:** Contains factors that most *directly affect* student outcomes: instruction, curriculum, and assessments.

- **Enabling realm:** Contains conditions that *must* be in place in order to make the core elements successful in affecting student outcomes.

- **Supporting realm:** Contains conditions that are *helpful* toward making the core elements successful.

SUPPORTING REALM
Such as:
- Parents
- Governance
- Personnel
- Funding
- Community resources
- Student readiness to learn

ENABLING REALM
Such as:
- Materials
- Schedules
- Professional development
- Organizational structures
- School leadership
- Supervision
- Staff accountability for performance

CORE REALM
- Instruction
- Curriculum
- Assessments

Realm	Definition	Sphere of Implementation	Amount of School and Teacher Control	Amount of District Control
Core	Factors that most directly affect student outcomes	Classroom	School and teachers have a great deal of control	District has responsibility, but less direct control
Enabling	Conditions *necessary* in order to make activities in core realm successful	School	School has some control	District has significant control and leverage
Supporting	Conditions that are *helpful* in making activities in core realm successful	District/ Community	School has little control	District has some control and leverage

Adapted from: Conley, David T. (1997). *Roadmap to restructuring: Charting the course of change in American education.* Eugene, OR: Clearinghouse on Educational Policy and Management