

6. TAKE ACTION

Implementation Action II

Train Educators on the Common Core State Standards and Related Assessments

Part of **IMPLEMENTING
Common Core**
State Standards and Assessments

A Workbook for State and District Leaders

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6. Implementation Action II: Train Educators on the Common Core State Standards and Related Assessments

Diagnostic questions to guide your team's reading of this chapter:

- Does the system have clear strategies to train educators on the scope, sequence and expectations of the Common Core State Standards?
- How will mathematics and English language arts teachers receive this training?
- What information and feedback loops will be used to monitor whether instructional practice changes?

Teachers have to adjust their practice if students are to succeed on new assessments of the content expectations in the Common Core State Standards (CCSS). Professional development — defined as the time and money diverted to increasing the knowledge and skills of teachers and school leaders — can be a powerful mechanism to improve instructional practice.¹ State and district leaders recognize that massive and widespread efforts are needed to provide highly effective and cost-efficient professional development on the CCSS.

Yet the history of this effort in our country indicates that states and districts alike have fallen short. Professional development is often fragmented and episodic and rarely focuses on the actions that can truly affect student achievement in the long term. Too often, such training is still delivered in a one-time workshop without follow-up or support.²

The picture of teacher professional learning in the United States is decidedly mixed. While the percentage of teachers who participate in training on subject matter content and classroom management increased slightly from 2004 to 2008, the intensity of this training has actually decreased over the same time period.³ When compared to high-performing countries, the United States lags far behind in providing teachers access to the extended learning and collaborative communities shown to improve practice.⁴

This lag is despite massive state and federal resources having been allocated for professional development. In 2009 alone, more than 40 percent of the \$3 billion allocation of federal Title II funds was targeted specifically for the professional development of teachers. Limited capacity and little evaluation data have undermined state aspirations to maximize this investment.⁵ **Transitioning to the CCSS provides the ideal opportunity to rethink how educators are trained on the new standards and related assessments.**

A second working group should be tasked with this effort. Specifically, the working group should consider how an effective professional development system can help change instructional practice. What actions can your state undertake that improve the return on this considerable investment and realize the promise of the CCSS? States should work to identify high-capacity districts capable of piloting efforts in front of statewide implementation. Taking the time to craft a *delivery plan* will help the working group identify exactly how professional development occurs across the state. The delivery plan should be iterative, and evidence from student work should constantly inform adjustments to professional development.

Draft the Delivery Plan: Prioritizing the Reform Strategy

What is your strategy for ensuring that all educators have high-quality professional development that helps them become practitioners of the new standards? Emerging consensus describes the features of professional learning needed to increase teachers' knowledge and skills and change classroom practice. According to the research literature, effective professional development is "ongoing, intensive, and connective to practice and school initiatives; focuses on the teaching and learning of specific academic content; and builds strong working relationships among teachers. When teachers receive 50 hours or more of a high-quality approach per year, student test scores rise by an average of 21 percentage points."⁶ Moreover, effective professional development does not take away from instructional time. The National Staff Development Council's standards for staff development reinforce these findings and provide the working group several important design principles.⁷

Rethinking educator training also means examining the system in which professional development occurs. A well-designed professional development system allocates scarce resources to the most important priorities in ways most likely to raise student achievement.⁸ What does this look like in practice? It begins with a **concrete understanding of the available resources and kind of professional development most likely to improve student performance**. It also means that leaders can **identify the state's or district's student learning priorities and isolate the exact level** (whole elementary schools or teachers of English language learners) **and content area** (8th grade mathematics) **to target support**. As teacher and leader evaluation results come on line, these data should become central to shaping the professional development effort.

Two tools can help the working group pinpoint the needs of the teaching force: First, the **gap analysis** can identify which grade spans, content areas or curriculum strands need immediate attention. Second, **carefully considering district capacity** can help the state leverage the work of leading districts as well as target additional resources to struggling districts.

Delivery Plans

"The plan is nothing. The planning is everything."

— Dwight Eisenhower

The delivery plan provides a road map for how the implementation should proceed. This important operational tool is a work in progress, and there is no such thing as a perfect plan. A good delivery plan begins with the end in mind, linking the purpose of the plan (training educators) to the overall vision for the system (improved student learning outcomes).

Unlike a typical strategic plan, the delivery plan should connect three primary components: the prioritized reform strategies, relevant delivery chains and expected impact on key outcome metrics. The plan should also meet the following criteria. It should:

- **Assign leadership, management and accountability** for the plan owner and project managers (e.g., those responsible for major strategies or activities).
- **Detail performance management**, such as key indicators that can be used to monitor the impact of the plan more regularly or implementation milestones to track implementation progress.
- **Describe the resources and support required** for the plan's success.
- **Prepare to manage stakeholders and users** by providing a thoughtful engagement strategy.
- **Anticipate and prepare for risks** that might throw the work off course, with particular attention given to how implementation can go awry.

You can learn more about creating delivery plans [here](#).

Differentiating among districts is particularly important to the design of a good professional development system. After all, those districts that demonstrate steady gains in student achievement most likely already have successful professional development systems in place. Here, regional support structures, state learning networks and electronic means can share these lessons learned with other districts across the state. Elsewhere, however, the state may need to target limited resources and directly inject capacity into struggling districts via contracts, large-scale gatherings and focused partnerships with professional organizations. Finally, in those districts unwilling to engage in this work, the state may need to directly stimulate demand among principals for effective professional development aligned to the CCSS.

Your task then is to prioritize those activities most likely to help your system achieve its vision for how educators are trained. **You can learn more about prioritizing reform strategies [here](#).** To identify the right set of high-impact activities, the working group should discuss the following questions:

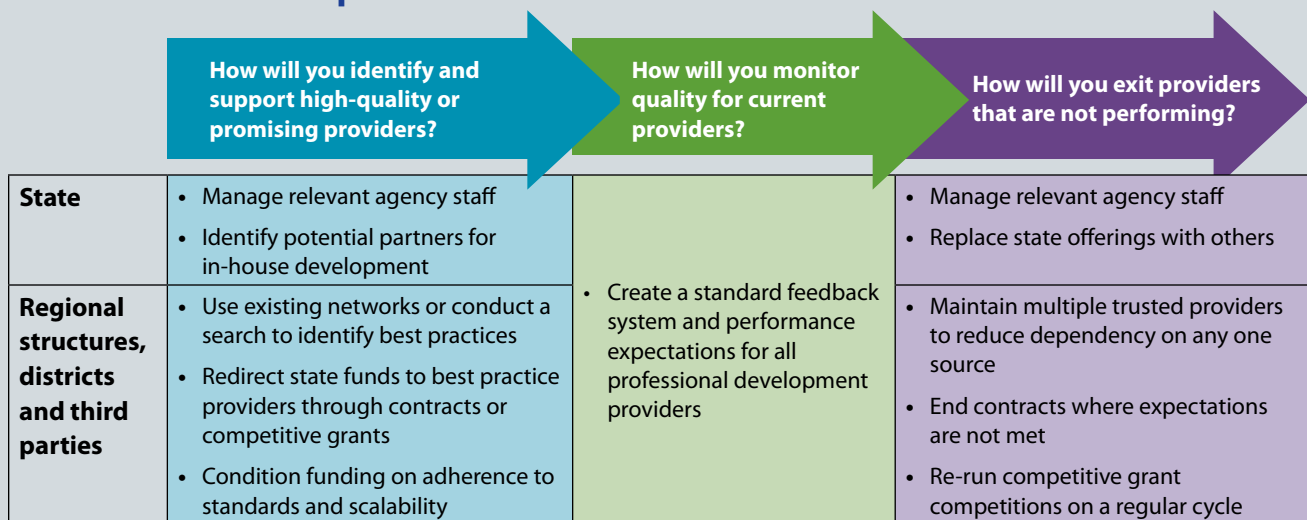
- **Based on your gap analysis, what areas of professional development should you focus on?** Which grade spans and content areas will form the cornerstone of your professional development strategy?
- **How is professional development delivered today?** There are myriad providers of professional development in most states. What is the current “market share” — by both volume and funding — of the state agency? Textbook publishers and other vendors? School districts or schools? Nonprofits and other nongovernmental groups?
- **What are your standards for high-quality professional development in your areas of focus?** Are you able to concretely define your state’s expectations for professional development that will help teachers implement the CCSS? These expectations will be important for helping you regulate the quality of professional development.
- **Based on those standards, where is high-quality professional development currently located?** To what extent are some or all of your identified providers currently providing expert professional development that is congruent with your areas of focus and of sufficient quality? Are there high-capacity districts whose practices could be shared? Trusted vendors that do reliable work? By contrast, are there some areas where the new professional development will need to be created from scratch? Every state’s landscape will be different, so it will be important for you to understand yours.
- **Who will you lean on most heavily to develop the right professional development offerings?** There are several options for providers, including the state itself, regional structures, districts and third parties. You should strive to build a balanced portfolio of providers that can be trusted to deliver high-quality professional development at scale. A number of considerations must be taken into account, including:
 - Past performance according to your standards for professional development;
 - Potential for future performance; and
 - Ability to reach the field with scale (see the following sections on delivery chains for more information).
- **What is your preferred model for ensuring that your primary providers develop and promulgate high-quality professional development at scale for your areas of focus?** The figure on the next page offers one way to think about this question and some levers at your disposal. At their most basic level, these considerations involve how you regulate entry into, activity in and exit from the “market” of professional development provision. As the figure shows, the levers for doing this vary depending on the players you ultimately choose to work with: State-provided professional development, for example, can be regulated through your direct management of your

agency, while thoughtfully using the contract and grant structure may be required to manage other players. The means by which you monitor existing providers should be the common denominator: Holding all providers to a single standard of performance can serve as the basis for either retaining or replacing them.

- **What role do you need principals to play?** The principal holds the key to determining whether teachers in the school actively participate and engage in the professional development offerings. What actions can the state or school district take so that principals become key partners in this reform effort?

By answering these questions, you will essentially develop a statewide model for the creation of high-quality professional development offerings. This model can serve as a guide for how you prioritize your system's strategies for teacher professional development.

Considerations and Potential Levers for Regulating the Quality of Professional Development



CASE STORY: KENTUCKY

Kentucky Administrative Regulations provide a clear definition of high-quality professional development. The department of education has further articulated **11 professional development standards** and developed a *Professional Development Training/Options Board*. Professional training opportunities sponsored directly by the department as well as via external training partners are identified by program content, target grade levels and the targeted audience. Providing this information helps schools and districts be informed consumers of well-designed professional development.

EXERCISE: IDENTIFY YOUR REFORM STRATEGIES FOR TRAINING EDUCATORS

Purpose: To articulate your prioritized reform strategy. With options from your own state and from this workbook in hand, narrow the list and choose those activities that will have the greatest impact.

Who should participate? The working group for professional development should complete this exercise.

Directions:

1. Brainstorm the strategies you will use to ensure that all educators are trained in the use of the CCSS. These can include both changes to current system activities and the creation of new system activities. Consider that your strategies may be different for high-capacity districts and low-capacity districts.
2. Plot your strategies on the 2 x 2 matrix below. Place the strategies that adhere more to your preferred model in the top half of the matrix, with those that adhere less on the bottom. For example, if you have decided to pursue a regional-led approach to creating professional development offerings, a strategy to create these offerings in the agency itself would be placed in the bottom half of the matrix. Then, arrange your strategies from left to right according to how difficult they will be to implement.
3. Finally, select a small set of prioritized strategies from among the ones you have just mapped. Choose from the upper half of the matrix to ensure adherence to your chosen model, and select a range of difficulty levels so that you have both quick wins and long-term work in your strategy set.

High		
ADHERENCE OF STRATEGY TO MODEL		
Low		
	Low	High
	DIFFICULTY OF STRATEGY	

Draft the Delivery Plan: Determine the Delivery Chain(s)

It is now time to think about how professional development efforts will reach educators. Again, at the heart of your approach is the concept of a **delivery chain**, which helps force clarity about how a reform strategy is expected to roll out. The delivery chain is the set of actors, and the relationships among them, through which the activities you have chosen will be implemented. The delivery chain for training educators answers one question at its core: Starting from the intent of state leaders and ending with the desired change in behavior on the front line (teachers improving their practice based on the new professional development), how — and through whom — will professional development actually happen? **You can learn more about delivery chain analysis [here](#).**

In crafting a statewide model for high-quality professional development, you have already begun this analysis by constructing the delivery chain from your agency to the relevant provider(s) — which may, in some cases, be just the state agency itself. Now you will complete the analysis by determining the chain through which knowledge and feedback is transferred from providers to educators.

You have several options for ensuring that professional development reaches the right educators. The specific shape of your delivery chain matters less than whether you (1) have a well-articulated delivery chain and (2) have confidence that it will get the job done. Well-established means of delivering professional development may already exist and can be expanded or leveraged. As you draw the delivery chain, consider the many avenues through which educators now participate in professional development. It may be helpful to further categorize these as **direct** and **indirect** activities. What percentage of each professional development activity can the state influence?

Educators participate in professional development provided <i>directly</i> from:	Educators participate in professional development provided <i>indirectly</i> via:
<ul style="list-style-type: none"> • The state education agency • Regional structures • School districts • Vendors 	<ul style="list-style-type: none"> • Electronic/virtual means • Professional organizations • Intermediary organizations • Train-the-trainer models

The choice of delivery chain may well be influenced by your model for professional development. A state-led model has very different implications for implementation from one in which best practices are identified and expanded through the marketplace. As you construct your delivery chain, you may find that the realities you discover influence your choice of model, even as your choice of model influences the chain. Allow your team to iterate between these two important questions until they arrive at a solution that is right for your state.

Once you have identified your delivery chain, it is important to probe for areas of potential weakness. Questions to consider:

- **Individual relationships:** What is the quality of personal relationships among critical actors? Where are the areas of strongest (e.g., line authority) and weakest (e.g., entirely reliant on persuasion) leverage?
- **Complexity:** How many actors are involved in the delivery chain? How easy or difficult is coordinating these actors to get something done?
- **Funding flows:** What are the major sources of funding and resources? Who controls these flows, and in which direction(s) do they go?

- **Feedback loops:** What mechanisms are in place to help us know what is happening on the ground? How will you know that the desired change is occurring at the other end of the delivery chain?
- **Choke points:** Are there particular actors that you disproportionately depend on to get something done?

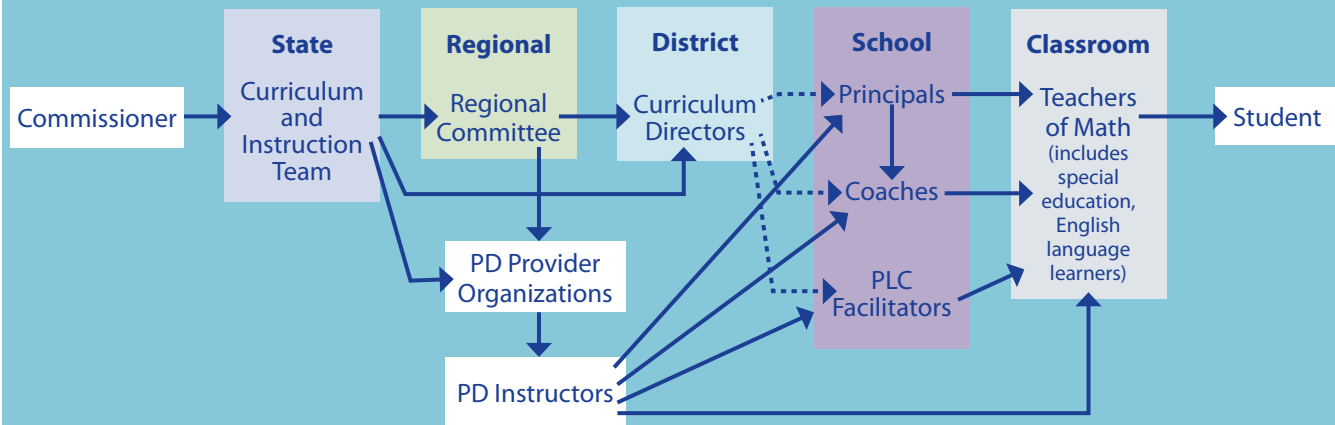
To the extent that you find weaknesses, your plan must lay out the ways in which you intend to address them. In some cases, this may mean strengthening relationships in the delivery chain, perhaps by borrowing from the practices of your strongest existing relationships. In some cases, it can mean redesigning the chain entirely — usually with the aim of simplifying it, removing unnecessary actors or easing the pressure on overburdened ones.

CASE STORY: COLORADO

Though the history of professional development in Colorado is one of local control and independent providers, the Colorado Department of Education has increasingly turned to regulation and incentives to drive instructional improvement. For example, all districts must now provide a state-approved induction program for beginning teachers. The department's **Read to Achieve** program allocates \$99 million in tobacco funds to improve instruction in early elementary school classrooms with below average student literacy and comprehension skills. Additional state and federal funds that flow to school districts are differentiated to support educators whose needs are identified through performance evaluations. This range of targeted support and pressure helps maximize professional learning opportunities in the state given limited resources.

Delivery Chains: From the Classroom Perspective

One easy way to think about the complexity of a delivery chain is to think about it from the perspective of the teacher whose changed classroom practice is a critical measure of the impact of your strategy. For example, consider the delivery chain for middle school mathematics professional development (PD) that one state in the Partnership for Assessment of Readiness for College and Careers created:



A few key questions tease out potential issues:

- How many different inputs are there? The figure shows that the teacher may be receiving PD from principals, coaches and professional learning community (PLC) facilitators in schools or directly from PD instructors hired at a regional level.
- To what extent are these inputs coordinated? There are two types of coordination to consider:
 - **Aggregate coordination** means that multiple inputs apply to the same teacher but they reinforce the same message or work. For example, if there is one agreed-upon PD course for middle school math teachers, and all four of these inputs are teaching the same thing, it may be helpful for a teacher to receive information from multiple sources. When aggregate coordination fails, there is the risk of either overloading or annoying the teacher with duplicative PD offerings.
 - **Complementary coordination** means either that the different inputs apply to different teachers or that the messages of inputs to the same teacher complement one another. For example, principals, coaches and PLC facilitators are likely to coordinate their efforts within a given school. Outside PD instructors might be brought in only for schools with a teacher workforce that is seriously struggling and needs additional help. When complementary coordination fails, some teachers may have too many touchpoints while others have none at all.

If the view from the classroom is not clear, your delivery chain likely is overly complex.

Sometimes the delivery chain needs to be completely redesigned. The state does not have to treat all districts the same. Often, leading districts have already designed strong professional development approaches that the state can leverage by creating a learning network. Similarly, low-capacity districts may need more targeted support from the state, region, vendor or professional organizations. Redesigning the delivery chain requires a clear assessment of the problem and a willingness to test new approaches.

EXERCISE: MAP THE DELIVERY CHAIN FOR PROFESSIONAL DEVELOPMENT

Purpose: To draw a delivery chain for professional development, identify the weaknesses in it and identify solutions to address those weaknesses.

Who should participate? The working group for professional development should complete this exercise.

Directions:

1. For the overall professional development strategy, list the key actors in your ideal delivery chain — the ones who will be a critical part of ensuring that educators get the training they need. Think of actors at five levels: state, region (if applicable), district, school and classroom. In addition to recording which actors are involved, please note how many of each there are in your state (e.g., 100 superintendents, 1,000 principals, etc.) Keep the following questions in mind:
 - a. What, if any, professional development will be delivered by the state agency?
 - b. What professional development will be delivered by districts?
 - c. What professional development will be created by regional centers or third parties?
 - d. To what extent and in what ways is professional development affected by other actors in the chain?
 - e. Will the delivery chain be different for high- and low-capacity districts? (You may need two variations.)
 - f. Will the delivery chain be different for the various activities in your strategy?
2. Draw the single, more important line of influence between the system leader and the student, and articulate how you would like it to function. Some questions to keep in mind:
 - a. What options are available to the state?
 - b. What are we (at the state level) particularly good at?
 - c. What historical lessons have we learned in rolling out prior professional development?
3. Identify and draw secondary lines to other actors who need to be involved.
4. On the delivery chain, identify the feedback loop — the method you will use to identify whether or not implementation is working.
5. Identify potential weaknesses in the delivery chain and the ways you will address them. Use the worksheet template on the next page.

(continued on next page)

Delivery chain analysis of weaknesses and solutions worksheet

	Potential weaknesses	Potential solutions
Individual relationships		
Complexity		
Funding flows		
Feedback loops		
Choke points		
Other		

Draft the Delivery Plan: Connecting Activities to Expected Outcomes

Implementation planning typically ends once planned professional development activities have begun. Yet equal attention is needed to ensure that classroom instruction *actually changes*. Is the professional development sufficiently aligned to the CCSS and of value? How are these lessons being used? What impact are they having on classroom teaching and student learning? To answer these questions, the working group should connect activities to their expected outcomes and create or leverage the feedback loops in the delivery chain to track impact.

The first step is to identify a clear **timeline** of when planned activities need to occur. Sequencing the key deliverables will show when the benefits of the activities will be felt in the field. A “deliverable” is a milestone or end product for an activity. For example, if the state plans to provide low-performing districts with CCSS coaches, a deliverable might be that all the curriculum directors in these districts have received this resource by a certain date. Tracking whether these deliverables are met is an important first step to ensuring that the necessary work occurs.

Next, articulate the **success measures** that you want to track. Consider the impact you expect to achieve by launching the professional development effort. This will help you decide how to measure success and whether this level of impact is sufficient. What might this look like? If the right professional development offerings occur, and if principals and teachers participate in them, their practice will improve, and student learning will be affected. Four potential types of success measures follow from this logic:

- **Alignment:** To what extent are principals and teachers participating in professional development that is aligned to the state’s models? Potential metrics include the number of providers that provide aligned professional development or the number of participants (teachers and principals) in professional development of any kind that is provided by an aligned provider.
- **User satisfaction:** To what extent do principals and teachers who participate in aligned professional development find it to be helpful in aiding student learning on the new CCSS? The potential metric in this area would be a user satisfaction survey for principals and teachers.
- **Classroom practice:** To what extent do teachers participating in aligned professional development change their practices? Potential metrics include self-reporting of changed practice by teachers who participate in aligned professional development (versus those who do not) or observations of teacher behavior for a sample of classrooms that do and do not participate in aligned professional development, either observed directly or reported by principals.
- **Impact on student outcomes:** To what extent do principals and teachers participating in aligned professional development achieve better results for their students? Potential metrics include formative or summative assessment data, comparing teachers who participate in aligned professional development with those who do not.

At the highest level, these success measures are outcome oriented. At the most basic, they are process oriented. Both types of success measures, and the intermediate metrics that connect them, demonstrate your system’s theory of action for how the prioritized activities will actually result in real impact. Making this connection is hard work, and there will be disagreements about what to measure. However, without having the difficult conversations on this topic, you will not have a true compass to know if your activities are being selected or executed to influence the things you care most about.

You may also need to design **new mechanisms for data collection**. Some examples include requiring professional development providers to submit certain data on participation to the state agency, conducting audits of professional development providers to check fidelity, adding questions to an existing teacher working conditions survey, developing an online teacher/principal survey and creating incentives for participation, using technology to conduct some observations, building mechanisms for data collection into new teacher evaluation systems, and linking teacher identification to professional development activity to use student performance results to gauge the impact of professional development that teachers received. The feedback loops you have identified in the delivery chain exercise should get you part or all of the way there — and in the end, this discussion will also influence how those feedback loops are designed.

Finally, you will want to **set targets**. Consider what you want the overall impact on student outcomes to be as new professional development occurs. To get that level of impact, how strong will your alignment, user satisfaction and changes in classroom practice have to be? If you hit the milestones in your timeline, what impact will that have on the success metrics? How should you see them move over time? Now that you have articulated your success metrics, activities and implementation timeline, it is time to put them together to estimate the impact of these activities over time. The resulting trajectory will help you monitor progress over the next several years and will give you an early indication of whether you are on track to achieve your desired results.

Like the discussion about success metrics, this one will be challenging. Trying to estimate the future is uncomfortable, especially when you are accountable for it. Moreover, the various components are interdependent: Your expected impact over time is based on your selection of success metrics and activities, but your selection of activities may in turn be influenced by a need to achieve the targets you have set. Two things are worth bearing in mind:

- The estimate of impact over time is a *guideline* for you, not a hard prediction. The real purpose of the estimate is to compare it to what actually happens and use the differential to drive any mid-course corrections. It is not to create additional accountability with consequences.
- Revisiting prior discussions is good, and even necessary, at this stage. Activities, success metrics and impact over time are interdependent variables. As you discuss one, it makes sense to revise and refine the other two until you have a balance that represents an ambitious but realistic plan for real progress.

EXERCISE: CREATE A TIMELINE OF DELIVERABLES FOR PROFESSIONAL DEVELOPMENT

Purpose: To create a specific sequence of activities and deliverables for ensuring that all educators receive professional development that will allow them to become practitioners of the new standards.

Who should participate? The working group for professional development should complete this exercise.

Directions:

1. Think through the prioritized activities and the delivery chain you drew, and create a list of the deliverables for CCSS-related professional development for which the state will be responsible.
2. If any deliverables already have hard dates associated with them, place those in the appropriate place in the template below.
3. Use the template below to create a timeline for the other deliverables between now and 2014. Prioritize, where necessary, based on the impact you have already identified. The model timeline in Chapter 3 can aid your thinking.

Deliverables by year and quarter

Activity					
2011	Q1				
	2				
	3				
	4				
2012	Q1				
	2				
	3				
	4				
2013	Q1				
	2				
	3				
	4				
2014	Q1				
	2				
	3				
	4				

EXERCISE: SET SUCCESS METRICS AND TARGETS

Purpose: To set metrics and targets for your activities so you can assess success according to the feedback loop.

Who should participate? The working group for professional development should complete this exercise.

Directions:

1. Determine how you will measure success in terms of alignment, user satisfaction, classroom practice and impact on student outcomes, and record this in the Metrics column in the template below.
2. Next, identify specific, numerical targets you aim to achieve, based on the metrics you established. Record these in the Targets column in the template below.
3. Finally, identify the mechanism(s) through which you will collect these data. Record this in the Data Collection Mechanism(s) column in the template below.

	Metrics	Targets	Data collection mechanism(s)
Alignment			
User satisfaction			
Classroom practice			
Impact on student outcomes			

EXERCISE: ESTIMATE IMPACT OVER TIME

Purpose: To connect planned activities to success metrics and targets to create a trajectory of estimated impact over time.

Who should participate? The working group for professional development should complete this exercise.

Directions:

1. For each of your success metrics, create a baseline by estimating what the current level is (where possible). Can you audit existing professional development offerings for alignment? Do you have current surveys of teacher and principal satisfaction with professional development that you can use? What do you know about the relevant student outcome measures? Make the best estimate that you can — it will not be perfect because many of these input measures are new.
2. Connect the key deliverables to the impact you expect your selected activities to have. Specifically, given the timing of the deliverables you have previously identified, consider the potential impact on alignment, user satisfaction, classroom practice and student outcome metrics. Designate impact on each measure in each time period as “zero,” “low,” “medium” or “high,” and record this on the template on the next page.
3. Assign a value to the “low,” “medium” or “high” categories, and calculate the expected numerical impact on each of your success metrics. Does this picture look plausible? Are there areas where you overshoot or undershoot? Are there assumptions underlying your estimates that need to change?

(continued on next page)

Impact on success measure by year and quarter: Success measure 1

Metric	Alignment	User satisfaction	Classroom practice	Impact on student outcomes
2011	Q1			
	2			
	3			
	4			
2012	Q1			
	2			
	3			
	4			
2013	Q1			
	2			
	3			
	4			
2014	Q1			
	2			
	3			
	4			

Conclusion

You should now have a road map for how high-quality professional development can help educators across the state align their instructional practice to the expectations in the CCSS. The plan considers what success in 2014–15 will look like; key activities and the delivery chain(s) through which the professional development will be provided; and the necessary action steps, sequence, and roles and responsibilities. The plan also identifies key milestones and a feedback loop that will allow the working group to monitor implementation progress. It is now time to put all this planning together by creating a set of routines that will allow the strategic implementation team to drive implementation and solve problems as they arise.

ENDNOTES

- 1 Hawley Miles (Summer 2003). *The Big Picture: A Systems Perspective*. National Staff Development Council. Volume 24, No. 3.
- 2 Hirsch, Koppich & Knapp (1998). *What States Are Doing To Improve the Quality of Teaching: A Brief Review of Current Patterns and Trends*. Seattle: The Center for the Student of Teaching and Policy, University of Washington.
- 3 Wei, Darling-Hammond & Adamson (2010). *Professional Development in the United States: Trends and Challenges*. Palo Alto: Stanford University.
- 4 Jaquith, Mindich, Wei & Darling-Hammond (2010). *Teacher Professional Learning in the United States: Summary Report*. Palo Alto: Stanford University.
- 5 Ibid.
- 6 Jaquith, Mindich, Wei & Darling-Hammond (2009). *Professional Learning in the Learning Profession*. Palo Alto: Stanford University.
- 7 Professional development must comprise professional learning that (1) is aligned with rigorous state student academic achievement standards as well as related local educational agency and school improvement goals; (2) is conducted among educators at the school and facilitated by well-prepared school principals and/or school-based professional development coaches, mentors, master teachers or other teacher leaders; (3) primarily occurs several times per week among established teams of teachers, principals and other instructional staff members such that the teams of educators engage in a continuous cycle of improvement that (i) evaluates student, teacher and school learning needs through a thorough review of data on teacher and student performance and (ii) defines a clear set of educator learning goals based on the rigorous analysis of the data.
- 8 Hawley Miles (Summer 2003). *The Big Picture*.

NOTES