The Problem Solving: Systems-Level Problem Identification presentation is intended to be viewed as a stakeholder team. The content of the presentation covers three broad areas including:

- An overview of systematic problem solving and the LEA Self-Assessment and Improvement Process (slides 1-7; 13 minutes)
- A systematic process to synthesize reliable data sources for the purpose of problem identification (slides 8-14; 15 minutes)
- A systematic process to identify patterns across fidelity and outcome data (slides 15-21; 8 minutes)

Your team should choose how this video could be best utilized to facilitate the problem identification process in your district. It is likely that this video and the related activities would not be viewed and completed in one meeting. This video could be utilized over the course of several meetings to introduce a systematic problem solving model and engage in problem identification. The table of contents button under the video can be utilized to access the slides your team wishes to access.

Slide One

Hello everyone and welcome to this brief overview of systems-level problem solving with specific focus related to the problem identification process. The problem identification process will be a critical component of the LEA self-assessment you and your district-level team will be engaged in over the coming years.

Slide Two

Why spend so much time on defining a problem?

Well, a quote that is often attributed to Albert Einstein is, “If I were given one hour to save the planet, I would spend 55 minutes defining the problem and five minutes solving it.”

The key first step to any problem solving process is to clearly operationalize and define a problem. As you will see a little later on, all the work following problem identification assumes that the right problem was identified from the start.

The purpose of this presentation is to provide a structured framework for the organization of your districts’ available data sources and a template that will facilitate objective and trustworthy decision making. Now, a formidable challenge to self-assessment and subsequent improvement planning rests in our own perceptions of the work that we have dedicated ourselves to do. The intent of this systematic problem identification process is really to limit personal biases, understand both the strengths and limitations of the data sources we have available, and bring a team of individuals to agreement surrounding the focused improvement areas within the scope of provision of specialized instruction to students with disabilities.

Slide Three

As the self-assessment process looms closer, this really is a good time for all of us to take a collective deep breath and relax. Remember, the work we are engaged in impacts the lives of the students we
serve. We have to keep that in mind, it is imperative that we conduct this process within the context of open and honest communication. This process is going to occur in meetings where mutual trust and collaboration across LEA and DPI staff is going to be just absolutely critical and necessary for the work to be productive and effective. So, just remember, that the LEA self-assessment process is about improving outcomes for kids – it’s not about detailing what is not going well in a particular district. Remember, this work will be collaborative, it is going to be supportive in nature – it’s not going to be punitive. With that in mind, we are really hopeful that this communication will relieve some of that stress and anxiety and as a result, as these meetings start to get closer and as we really start to get heavy into this work, you do not need to feel your anxiety levels begin to creep up like it is in this slide right now. Remember, this is a process in which we are going to work collaboratively together to do what is right for the students we serve.

**Slide Four**

So you can take a moment here to look at the Feynman algorithm for problem solving and think about this. Within this supportive context - we really do have a lot of difficult work to engage in. Problem solving is not easy - and the path to graduation for students with disabilities is incredibly complex. However, we truly believe that this is not a problem that can’t be solved, particularly with the collective creativity and effort that your teams possess. So we have to remember that going forward we are going to have to do a lot of thinking very hard. But, that is ok, because the results are going to positively impact those kids who walk in our doors every day.

**Slide Five**

This graphic shows a systematic problem solving process with four steps, all of which are informed by the data sources that are available to your LEA. We elected to utilize this model because the four steps contained within it are essentially present in any systematic problem solving model. If your district has adopted or been trained in a different model, for example Team Initiated Problem Solving (TIPS), utilize what your team is most familiar and skilled with.

As you can see, this model contains four steps that include: problem identification, problem analysis, plan implementation, and plan evaluation.

When engaging in systems level problem identification, there are two key questions to ask. These are pretty basic and simple questions. Number one, “is there a problem?” and if so, which is the second question, “what is the problem?” The following slides of this presentation are going to be devoted to a structured process by which your team can reliably and confidently respond to these questions.

It is not really the intent of this presentation to provide a super detailed description of each of these steps. But, a brief summary of the model is necessary to understand how critical the role of problem identification is.

In this model, once a problem is identified and operationalized, the following step is problem analysis. During this step, the primary purpose is to utilize the available data to generate the most probable cause of the problem – in other words – this is really the stage where the problem solving team develops a hypothesis – “why is this problem occurring?”
Following the development of a hypothesis, the team matches a usable intervention and implements that plan. So this intervention needs to be aligned to the hypothesized root cause. It is critical in this step that the plan has a clear evidence base and it is knowable (we know the details of this practice), that it is teachable (there is a professional development plan so that everyone knows how to do this), and doable within the context of classrooms and within the context of the school system in which it is being implemented.

Finally, we always need to evaluate what we are doing. The final step involves using both fidelity data (process data) and student formative assessment data to continually evaluate the plan as it is being implemented. The questions that need to be addressed during this step include questions such as: “Is the plan being implemented as intended?” (Do we have the fidelity of implementation that we want?) and if so, “Are students responding to the plan the way we expected them to?”

As you can see by following the arrows, this is an iterative process that can cycle back to the first step of problem identification if the desired results are not achieved.

**Slide Six**

You have probably had the opportunity to see this graphic previously that outlines the LEA Self-assessment and improvement process.

As you probably see – there are quite a few similarities between the previous slide describing a systematic problem solving model and this slide describing the LEA Self-Assessment and Improvement Process. Those similarities are not by chance and in fact, they are intentional. The LEA Self-Assessment and Improvement process is just that – a systematic problem solving process by which you can utilize the data sources that you have available in your district to problem solve and then develop an effective plan for improving what we have defined as the key elements of service delivery to students with disabilities.

The first thing when thinking about the term “problem solving” – this endeavor is going to need to be completed under mutual understanding that DPI and LEAs - we all have the potential to improve. We can all improve the provision of supports and services to students with disabilities across the state. There are areas which we all can identify for improvement and we really can’t ever be satisfied until all the students are achieving the outcomes we desire. With that being said, there is certainly going to be opportunities to identify the strengths, what’s going well in our district and how can we be really intentional in how we leverage those strengths and scale them and replicate them across the district. But, for this process to be effective we are going to have to dig in and analyze our own data, but we are going to have to do so with a critical eye, we are really going to have to fully confront data that frankly may be uncomfortable for us.

Concerning the available data sources that will drive the LEA Self-Assessment process – you are going to be able to see in this graphic right here that they fall under three broad categories. The first two include indicator and compliance data that you will have the opportunity to get into and access. In addition to that- this LEA Practice Profile will be a critical tool that allows you to summarize your own data sources around those key elements of service delivery to students with disabilities. Those key elements have been defined as: IEP development and implementation, problem solving for improvement, research-based instruction, and communication and collaboration. The way that this tool is structured and
organized – it is going to allow you to synthesize those data sources that are available within your district – and the way that this is structured it will lead directly into the summary and analysis, which essentially is the problem identification process.

Slide Seven

Take a moment to interpret this slide – access to quantitative data sources that you have should not preclude your teams’ ability to utilize the deep understanding they have of the system that is garnered through more qualitative means. All data sources that you have should be analyzed and interpreted based on the quality of the data collection and the trustworthiness with which they can be interpreted. We would ask you utilize caution and restraint when coming to broad and sweeping conclusions based on a single data source. As we know, the path to graduation for our students with disabilities is one that begins as soon as they enter our school doors as bright-eyed kindergartners (or really even before that). There are key variables that we can ascertain from the literature base and from our lived experience concerning what supports or constrains the successful path to graduation. But, anytime we try to identify the interaction of these variables within our own system we have to triangulate multiple data sources (including qualitative and quantitative). Whenever we do so, what we are going to do is increase the fidelity in which we engage in the problem solving process.

Slide Eight

When first analyzing the data sources that are available to your team, these are the questions that can guide your work to interpret meaning from a single data source.

When we look at our data sources, one of the first things that we want to ask, “Are the data reliable and trustworthy?” For example, we want to ask questions like, “Are we confident that the data were collected and reported accurately?” If the data represent a sample of some sort, we want to ask, “Is the sample size large enough to make generalized assumptions?” and “Does the sample adequately reflect the group of students we are making decisions about?” When asking yourself those questions you are going to be able to get past this first hurdle in making a determination about whether the data are reliable and trustworthy.

When doing so, know that you will likely experience that some of your data sources can’t be deemed reliable by your team. This really can be a painful conclusion, particularly in light of the time and effort that has likely been expended in the collection and reporting of whatever data source that is. However, we would urge you that it is critical that if a data source is not reliable, that it is not utilized in the problem solving process. As the old saying goes, “garbage in – garbage out.” Instead, if you deem your data are not reliable, the team can develop a future plan for data collection that will increase the reliability.

The first question that we want to ask, the first hurdle, are the data reliable and trustworthy. If we say yes to that, then we can go through this next process here. The next steps are to determine what is the expected performance on this particular measure, what is the actual performance (what are we actually observing), does a discrepancy exists (does a discrepancy exist between what’s expected – what’s actually happening, and if so, what’s the magnitude of the discrepancy, how big is this discrepancy between what we want and what we are seeing).
Within this problem solving process- you may notice we will characterize problems as a discrepancy between expected performance and actual observed performance. There are several critical reasons to define problems in such a way. First, a discrepancy –when we define it that way- it allows the problem solving team to be objective about the nature of the problem. When we focus on expected and actual performance, that’s what the team can intensely focus on - whether that exists- and we can do that without jumping to blame or excuse making. So the first determination is just – is there a discrepancy? The team can simply agree that if a discrepancy does exist within a reliable data source that this is going to be some important information to guide the process. Remember, at this point we are not trying to determine cause. That is going to come later in the next step of the problem solving process. In addition, describing problems as discrepancies is going to facilitate future steps of the problem solving process as well. For example, when we look at the magnitude of the difference between expected and actual performance – that can be an indicator of the magnitude of the actual problem and it is going to aid us in prioritizing which things we try to tackle first. In addition to that, when we are able to have some mutual agreement upon expected performance that is going to aid us in our future goal setting and our objective progress monitoring that is going to be critical to the plan evaluation phase.

**Slide Nine**

This slide represents a template your team can utilize to analyze individual sets of data as well as synthesize these data sources to refine the problem identification process.

In this template, you see that the columns are represented by: the name of the data source, the determination of the reliability of the data source, whether the data represent fidelity or outcomes, whether the data are most closely associated with academics, behavior, or engagement (the three broad root cause categories identified by the SSIP stakeholder team), the expected performance for this measure, and questions that can be answered by examining this data source.

To provide the context for how this template can be utilized, we will show an example in the following slide of a data source that can be analyzed via these criteria.

**Slide Ten**

In this example which is based on a hypothetical district – the 2015 Math I EOC pass rate for students with disabilities has been analyzed via the template.

As you notice, in this first column, the team determined that these data were reliable and that the pass rate (expressed in the form of a percentage) could be interpreted. In making that determination, what the team found was that the data represent the entire population of students with disabilities who took the Math I EOC and the number of students who did so was large enough for the rate to be meaningfully interpreted.

In addition, some really important work that they did, was they included limitations they found within the data source. These limitations were included to ensure that assumptions that should not be made – that they were not derived from this source. For example, the team could not assume that all students were taking the course for the first time (there were definitely some students who were taking that course for a second or possibly third time), the team did not know the percentage of these students who had participated in a Foundations course offered by the district to prepare students for the math I course, and finally the team wanted to be very cautious when inferring growth from previous year’s Math I scores or
the 8th grade EOGs because these data do not represent a cohort of students. As you can see, they did deem that the data were reliable; however, they also made sure to include the limitations so the team did not jump to any conclusions that really could not be made from this data source.

In the next column, it is worth delineating right now the differences between fidelity and outcome data. Fidelity data represent quantifiable targets that measure whether the plan was implemented as intended. On the other hand, outcome data represent quantifiable targets that measure whether the plan had the intended effect. In this situation, the team determined that the Math I EOC data represent student outcome data. The pass rate represents the percentage of students with disabilities who met a proficiency cut score on the assessment in relation to Math I standards. What they also thought about was some fidelity data that could be examined in relation to this student outcome. For example, it may include fidelity observations of Math I courses, the percentage of a curriculum map or pacing guide that was completed, classroom walkthrough rubrics, and professional development evaluations related to Math I content. Later on we are going to do some analysis that synthesizes fidelity and outcome data – at this point it probably is a good spot to think about - if this is student outcome data what are the potential data sources that are related to the fidelity or process.

In the next column, the problem solving team determined that this data source was most closely associated with academic performance. As you know, academics, behavior, and engagement are obviously intertwined constructs, but, it is probably useful to categorize in this way. When it comes time to synthesize data sources, they can be sorted by these categories which will aid in developing a problem statement.

In the next column, the district has an expected pass rate of 90% for the Math I EOC. This expected performance may be based on the history of previous performance on this assessment with an ambitious, but reasonable, expectation for increased performance. Expected performance may not always be a cut score that has a really definitive reason for being set. Your team should be careful and all efforts should be made to develop reasonable criteria for expected performance that are made as objectively as possible.

Finally- it is critical that the questions that can be answered with the data source are generated. This really is probably one of the most difficult aspects within this process. What is difficult is resisting the urge to make inferences or to answer questions that shouldn’t be done with that data source. For example, for this, the only question that was generated was, “Did students with disabilities who took the math one EOC pass at the rate we expected?” However, you will notice that this question spawned two additional questions that can be answered with additional data sources. For example, questions that could follow this analysis include, “What is the change in probability of graduation within 5 years if a student with a disability does not pass the Math I EOC the first time?” as well as “What supports are in place for SWD to ensure they are prepared for the Math I content?”

Take a moment and look through his data source and think about how it has been analyzed through this template.

Slide Eleven

Now is a good opportunity for your team to practice by utilizing several data sources you have available and enter them into the attached template. The template is going to be available to you in an attached Excel file. For the current time, please leave the columns related to actual performance, discrepancy,
and magnitude of discrepancy blank. We really want to focus on the columns that precede those ones at the current time.

When you are engaging in this process with your team, please think about the following questions that you are going to be able to provide us some feedback through a google form that is going to be linked to on the following slide. We really appreciate the feedback that you can provide us in response to these questions because it is going to be extremely valuable in allowing us to tailor our support of this process. So the questions we want you to think about while you engage in this process are:

1. Did you find this a useful tool for analyzing data sources?
2. Was there anything you found difficult about this process?
3. Was there anything you did not understand about this process?

Again, we really appreciate any feedback you can provide us.

**Slide Twelve**

Please respond to the three questions via the google link on this page.

**Slide Thirteen**

Now that your team has had the opportunity to determine whether your data sources were reliable, whether they were related to fidelity or outcomes, whether they were most closely associated with academics, behavior, or engagement, and the criteria for expected performance – your team can now confidently engage in the problem solving process by conducting the discrepancy analysis. As you will see in this template, the columns for actual performance, discrepancy (which can be answered as yes or no), and magnitude of discrepancy (which can be defined as small, medium, or large) have been added. Your team can now complete this template with the data sources you elected to analyze previously. When determining the magnitude of the discrepancy, there is not an exact science behind this determination. When doing this, think about the range and typical variation of the data source and how the discrepancy that you observe relates to that. Though not a perfect science, this step is a useful one because it will help you prioritize which problems should be addressed first.

**Slide Fourteen**

Once your team has the opportunity to analyze available data sources according to the template presented in the previous slide – the team can begin synthesizing the data by looking for common themes and trends. One way to do this is to use the Excel file to sort the data in the spread sheet by the columns that are associated with academics, behavior, and engagement; as well as the magnitude of the problem.

When you do this – what you are going to be able to identify is what areas demonstrate the most frequent discrepancies and well as which ones demonstrate the largest discrepancies. After your team is able to do that, you are going to have to determine whether that is meaningful? For example, if you have more data sources related to academics – it would likely lead to more discrepancies in that area. However, this sort will likely facilitate your determination of where to target improvement efforts—particularly where to target it so you will have the highest yield in terms of student outcomes.
In addition to looking at where you have discrepancies also be sure to look for themes and trends that may emerge in relation to areas where there are not discrepancies. In these situations it is really important to celebrate the strengths and accomplishments of what’s working well in the district as well as think about how can we replicate what is going on in these areas and scale them throughout district.

**Slide Fifteen**

Another useful way to synthesize your data sources is by examining your fidelity data sources in relation to your outcome data sources. Remember in the previous slide we asked to look at this column and when analyzing a data source, if you found it was an outcome data source to list any associated fidelity measures that were related to a common program, initiative, or plan. On the other hand if it was fidelity data, you would want to list any associated student outcome data. When you do so you are going to see a number of combinations that may emerge from this – a number of combinations of discrepancies that you may have related to expected and actual outcomes – and each combination is really going to provide you with some information when engaging in the problem identification process. So in the next few slides we are going to discuss some of the possible interpretations from the combinations of discrepancies that can be seen on this slide – discrepancies related to your fidelity data and your outcome data.

**Slide Sixteen**

In the first scenario, this is when you might find a large discrepancy within your fidelity data and a large discrepancy with the outcome data. So what we see here is the programs or the plans are not being implemented with fidelity and our students are not responding to what we are doing in the way we expected. When this is the case and the team is engaged in problem identification the team should really consider the impact of the fidelity of implementation on the student outcomes. In this scenario, the initiative or the plan is really not being implemented as intended and this would likely be a place to define and operationalize the problem. If our implementation is not to where it needs to be then we wouldn’t expect for the outcomes to be what we would like.

**Slide Seventeen**

In this situation the fidelity data look strong – there is no discrepancy between what we expect in terms of implementation and what is actually happening. However, there is a large discrepancy in the outcome data – so we are not seeing the student outcomes that we would expect. In this case, where we have what seems to be good implementation, but the student outcomes aren’t happening as a result of that there are a few things that we want to think about. The first of those is perhaps the evidence-based practice is not correctly matched to the needs of the district. If so, we may need to rethink what that usable intervention or evidence-based practice is. Two, it may be that your measurement of fidelity is not reliable or it is not comprehensive enough. Three, it could be that the evidence-based practice is not occurring with the sufficient intensity to actually move the kids the way in which you need to. One other thing to think about is that implementation takes time – so if you are early on in the implementation process know that it is going to take two to three years of strong implementation before you start to see the student outcomes that would result from that strong implementation.
Slide Eighteen

In this situation the fidelity data – you see a large discrepancy which means there is poor implementation. However, somewhat paradoxically, the student outcomes are good. There is no discrepancy between what you would expect and what you are observing. We have poor fidelity of implementation, but we are getting the outcomes that we want. In this situation the team should consider several things when identifying a problem. One of those may be the identification of other initiative or supports that are going on in the district that are actually leading to these good student outcomes. You would certainly want to identify what this is – that potentially is going to be a strength for your district and think about replicating and scaling up whatever that other initiative or practice is. The second potential thing that could be going on is that while your fidelity data don’t look good across the board you have some critical components of the practice that are happening with fidelity and those are the critical components that are actually leading to the student outcomes. If that is the case then what you might want to look at are those components of the program that aren’t being implemented well- they don’t seem to have an impact- so those might be things that you would want to think about discontinuing some of that work if you know it is not impacting kids. Finally, we always need to consider whether the fidelity data we are collecting, whether they’re reliable and is there perhaps some issues with the collection of those fidelity data.

Slide Nineteen

In the final situation what we see is that our fidelity- our implementation data look great- and as well our student outcomes are meeting expectations. If this is the case, I think it is time to celebrate. However, don’t let that celebration last too long because what we know is that raising the goals, that is an important things for students to engage in, it is an important thing for a system to engage in. In this final scenario, certainly take time to celebrate – implementation is good, your student outcomes are good. But, how can we then consider the expected performance, what we expect from ourselves and how can we set higher goals for continual improvement over time.

Slide Twenty

Finally, your team should take some structured time to examine the data for trends and themes related to strengths. So- where are the actual observed data meeting the expectations? In these situations the district can really conduct a mapping of strengths. Through this process the team can ask questions like, “how can these strengths be replicated and scaled to impact students in the district?”

Slide Twenty One

We hope that this presentation and process was a helpful first step in thinking about problem identification within a larger systematic model of problem solving. We particularly appreciate your willingness to engage collaboratively with honest dialogue that is going to be required for any self-assessment process to be effective. Your work toward identifying the strengths and needs of the district is also going to support the work of DPI in tailoring customized support across the state. Once again, we really do appreciate your investment and dedication to this process and if you have any additional questions, please feel free to contact your regional consultant. As you can see, all of their contact information is included here. So once again, thank you from the NC SSIP team and we look forward to supporting you in this process.