

**Logic Models and Systems Models: Two Sides to the Same Coin?  
Presentation Notes**

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**Title Slide: Introduction**

- This think tank grew out of conversations we have been having as program co-chairs of the Systems in Evaluation TIG
- Among evaluators, discussion that has created dichotomy around systems models and logic models – which is better/more accurate/more informative, etc. – essentially an either/or debate at times
- We feel this is a false dichotomy
- Are they, instead, complementary approaches? When used together, potential to help evaluators describe not only context, process, and relationships, but also the relationships between investments, activities, and results – the program theory
  - each contributes value to an evaluation
  - systems models and logic models are not the same thing so much as different perspectives
  - provide different types of insight into programs and processes that inform evaluation design, implementation, analysis, and reporting
- Think tank is a first pass at sharing our thoughts around modeling and its uses in evaluation

**Slide 1: What Do We Mean by System?**

- In bullet 1 – the common definition of a system, what you will find from many sources
  - In general, a good definition, although should note that the “complex and unified whole” is not always obvious to the viewer – sometimes our job to identify how the whole is unified
  - Also, Meg notes that “specific purpose” is not necessarily consistent with her definition of a system; systems have purpose, but “specific” not necessarily implied or present
- Four defining characteristics that must be present in a system; otherwise, might simply be a collection of elements
  - Perspectives and relationships are critical defining characteristics
  - Elements of a system have relationships to each other – may be functional or structural

**Slide 2: Why model?**

- A model is simply a visual representation of a system, program, intervention, etc.
- Provides us with a tool to articulate processes, untangle complications, clarify complexity
- In evaluation, frequently use models to articulate program theory and program logic (logic modeling)
- Integrating systems models into evaluation allows us to situate a program or intervention within the greater context as defined by other elements such as larger organization, legislative/political context, funding, stakeholder relationships, etc.

**Slide 3: What do models tell us?**

- So, what can we learn from systems and logic models?
- Systems models
  - Provide insight into relationships that exist between the different parts of a systems, between the parts of a system and the system itself, and between the system and the greater environment/context within which it functions
  - Attend to boundaries, relationships, diversity, and patterns of behavior, including nonlinear feedback and emergent patterns
  - Consider the whole, its parts, and its context
  - Attempt to identify what is working, what needs to be changed, and what the challenges are to making such changes
  - Should note that systems exist within systems; models can also help us define nestedness – within a school for example
    - School building is system within larger environment defined by district
    - Within building are subsystems defined by grade levels or content areas
    - There are also subsystems defined by classrooms
    - Often in educational evaluation, evaluators must look at students within classrooms, within buildings, within districts, within a state
  - Argument against – systems models operate at scale that is much larger than single program or intervention, best suited to describing program context, process, and relationships
  - Can get complicated if too detailed or trying to define too many things at once
- Logic models
  - Logic models considered more appropriate at specific program or intervention level
    - better suited to describing the sequence of events thought to bring about benefits or change over time and to portraying chain or reasoning linking inputs and strategies to outcomes and impact
  - Typically used to define a sequence of events and relationships between the elements of an intervention or program
    - In US, frequently see 4-Box Model defining inputs, strategies, outputs, and outcomes

- Model may also include anticipated long-term impacts as a result of specific intervention/program
- For evaluators, logic models help define the difference between where the program is now and where it intends to go; guides us in developing a data collection methodology
- Logic models can also define relationships between stakeholders, investments, activities, and results – but this is not their focus and they do so within the tightly prescribed boundaries of the intervention or program being evaluated/implemented
- Often, taken as having an implied linearity that can shroud process and flow – program logic may actually be realized in stages or in recursive manner using straight-line models

#### **Slide 4: Program Theory**

- Systematic process for defining what a program must do to achieve desired goals, anticipated impacts, and the process by which goals and impacts are realized (Chen, 2005)
- Program design and implementation are based on a set of explicit and implicit assumptions held by stakeholders about what is needed to solve an identified problem and how the problem is likely to be mitigated by a set of specific actions
- Chen (2005) defines program theory as being simultaneously descriptive and prescriptive, with a resulting focus on identifying action-oriented, rather than causal, explanations of program assumptions, processes, and activities.

#### **Slide 5: Modeling: The Big Picture**

Action and Change models as exemplified by Chen – way to show how models can complement each other

- Action model defines elements of program and relationships between them (similar to system model)
- Change model defines elements of specific intervention being implemented by program

#### **Slide 6: Two Types of Logic Models**

- Logic models based on two elements of program theory
- Theory of action
  - very basic definition of key program elements
  - a first step in defining the overall program logic
  - “Doing X with these participants will cause Y outcomes/impacts”
- Theory of change
  - the specific details for each element in the theory of action
  - “What inputs/resources will support which strategies with which participants to produce these specific outcomes/impacts”

### **Slide 7: Change (aka Logic) Models**

- Seek to identify descriptive assumptions defining the causal processes underlying a program's ability to successfully impact participants
- The model we most commonly see – could be considered the road map for program design, implementation, and evaluation
- Weaknesses include implications of cause-effect linearity and focus on individuals in data collection and analysis

### **Slide 8: Action (aka System Models)**

- Program evaluators, on the other hand, are increasingly focusing on the role of action models in clarifying program theory and evaluating program, rather than individual, outcomes
- Action models focus on prescriptive assumptions regarding program components and activities that stakeholders view as essential for program success; seek to answer questions such as:
  - What are the crucial elements of the program?
  - What organizational structures and processes are necessary to deliver services?
  - Who is the target audience for these services?
- Prerequisites for change models, establishing the base context within which a change model can then be implemented
- Think of action model as a basic system model – defines elements, boundaries, relationships for specific program being evaluated
  - One of many systems perspectives that can be used in defining program

### **Slide 9: Why Do Both?**

- Defining and mapping the system takes time and may not be something clients want to see taking up dollars in a budget
- Still, important to map both the system within which a program operates AND the logic of the program/intervention you are evaluating
- Why?
- Tempting to jump straight to evaluation of the change model without first taking a closer look at processes defined within the action model
- As a result, many programs attempt to tie program outcomes to inputs and strategies by evaluating individual impact without first examining the systemic, policy, organizational, and implementation processes of the action model that are necessary for success
- If the elements of the action model are not interacting appropriately, it may be impossible to effectively implement the transformative processes defined by the change model
- Thus, it is critical that the prerequisite contextual and organizational elements of the action model be examined prior to evaluating participant impact

**Slide 10: Questions to ponder**

1. What are strengths and weaknesses of each?
2. How can the two approaches to modeling be integrated to provide a framework for understanding both the program and the systems in which it functions?
3. How can they be used to inform an evaluation design?
4. How can you use models to capture critical elements of process, context, content, and program theory in your own work?

**Sample Systems Model: Organizational Change**

Ziegenfuss's (2002) adaptation of the Kast and Rosenzweig model is a comprehensible and helpful model for conceptualizing the organization as an integrated system. The model defines an organization as an "organized, unitary whole composed of two or more interdependent parts, components, or subsystems and delineated by identifiable boundaries from its environmental suprasystem" (Kast and Rosenzweig, 1984, pg. 103).

The model examines five major organizational subsystems: (1) the culture and values in which the program exists, (2) psychosocial influences, (3) the technology and resources available, (4) structural components, and (5) management and leadership within the program. This examination is done in the context of the ever-present environmental forces that influence programmatic and organizational decisions.

**Managerial / Leadership**

The leadership subsystem is the command and control subsystem in the organization. This subsystem plans, directs, and controls the processes of the organization and relates the organization to the environment. The subsystem integrates all other subsystems in such a manner that they are unified to achieve organizational goals.

**Culture and values**

The culture and values subsystem speaks directly to the organization's customary beliefs, rituals, artifacts, rules of behavior, social norms, goals and values that define the organizational culture, and to a large extent considers those basic assumptions that go unspoken but are attached to the organization's identity.

**Psychosocial**

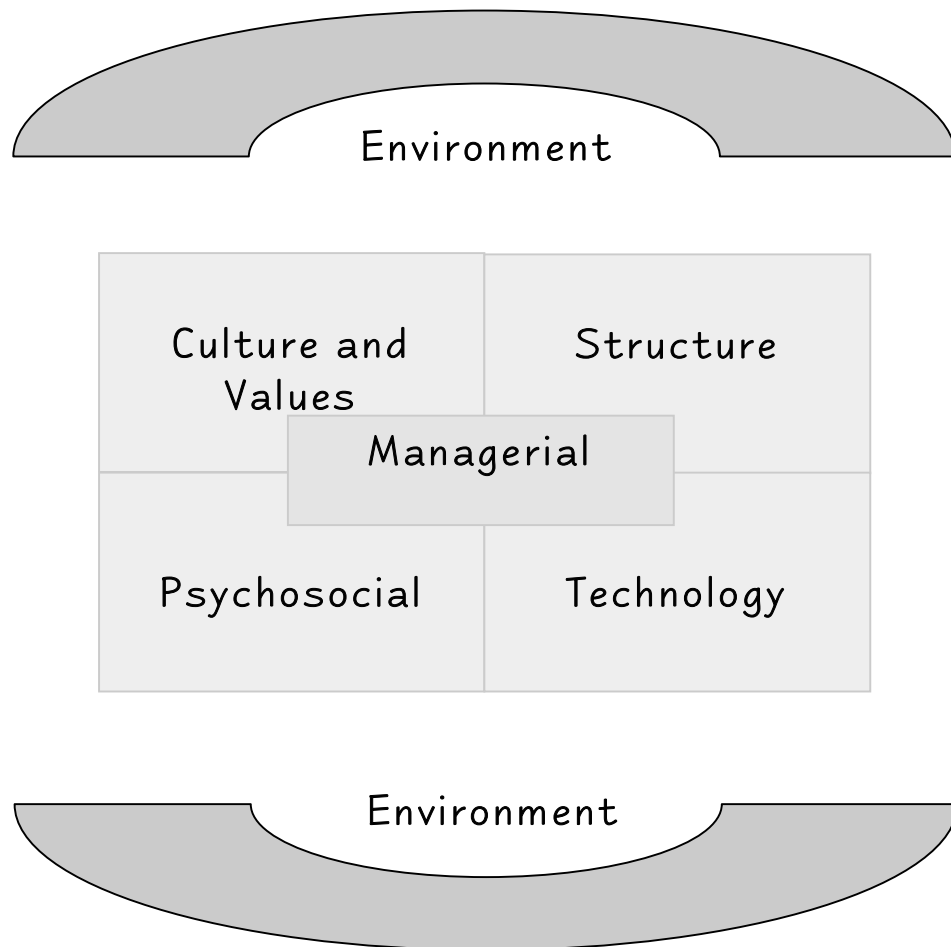
The psychosocial subsystem directs our attention to the social system in the organization. This subsystem considers the important individual characteristics, roles, relationships, and the powerful informal relationships that affect organizational behaviors. It speaks to the organizational climate in which employees and managers act out their roles.

### Technology

The technology subsystem defines the manner in which tasks are completed and specific goals are accomplished with special sets of skills and knowledge. This subsystem relates to specific resources, techniques, physical structure, and equipment that are needed in the organization to produce the services and products.

### Structure

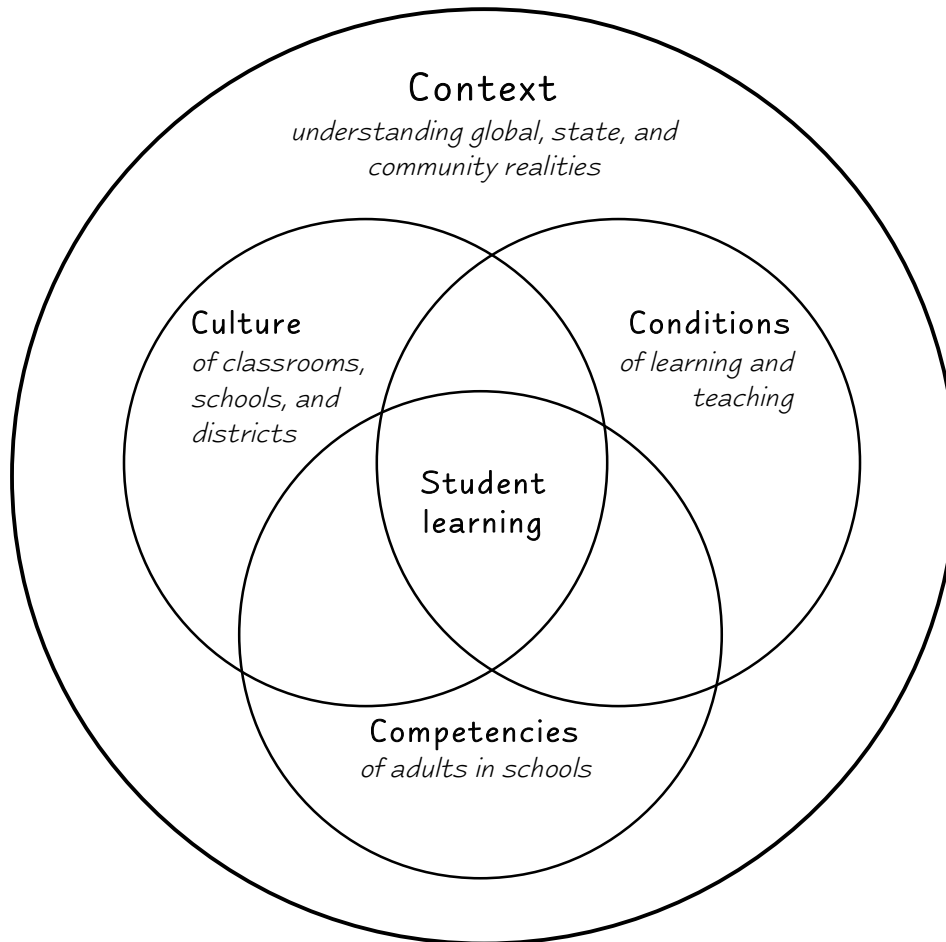
The structure subsystem addresses the formal structures that divide and define how the tasks are completed and the goals are met. This subsystem is defined by the organizational charts, committees, job descriptions, policies and procedures, and patterns of authority.



### Sample Systems Model: 4Cs Model for Systemic Change

Senge (2000) has defined educational systems as holistic and ecological, consisting of interdependent elements that work separately and together toward a common purpose. He defines a system as a "perceived whole whose elements 'hang together' because they continually affect each other over time and operate toward a common purpose" (Wagner, 2006, p. 97).

The Change Leadership Group at Harvard University's Graduate School of Education, Wagner et al (2006) extended Senge's ideas to develop a systemic model for thinking about change in schools across four interdependent, overlapping domains: (1) competencies, skills, and knowledge of adults; (2) conditions of time, space, and resources that support learning; (3) culture and conditions of leadership; and (4) the larger environmental and policy context in which schooling takes place.



**Competencies:**

- The repertoire of skills and knowledge of adults that impacts and influences student learning
- Building these competencies may engage other parts of the system at different times and in different ways
- Not limited to classroom teachers

**Conditions:**

- The external architecture surrounding student learning.
- Represents visible arrangements and allocations of time, space, and resources that support or hinder teaching and learning.
- May also include explicit expectations around roles and responsibilities, student outcomes, laws and policies, and contracts.

**Culture:**

- The invisible meanings and mindsets that are held individually and collectively throughout the system.
- The shared beliefs, values, assumptions, expectations, and behaviors related to:
  - Students and learning
  - Teachers and teaching
  - Instructional leadership
- The quality of relationships within and beyond the school.

**Context:**

- The social, historical, and economic context in which the work of schools takes place.
- The worlds from which students come and those for which they must be prepared.
- The demands and expectations, formal and informal, of the larger organizational systems within educators work.



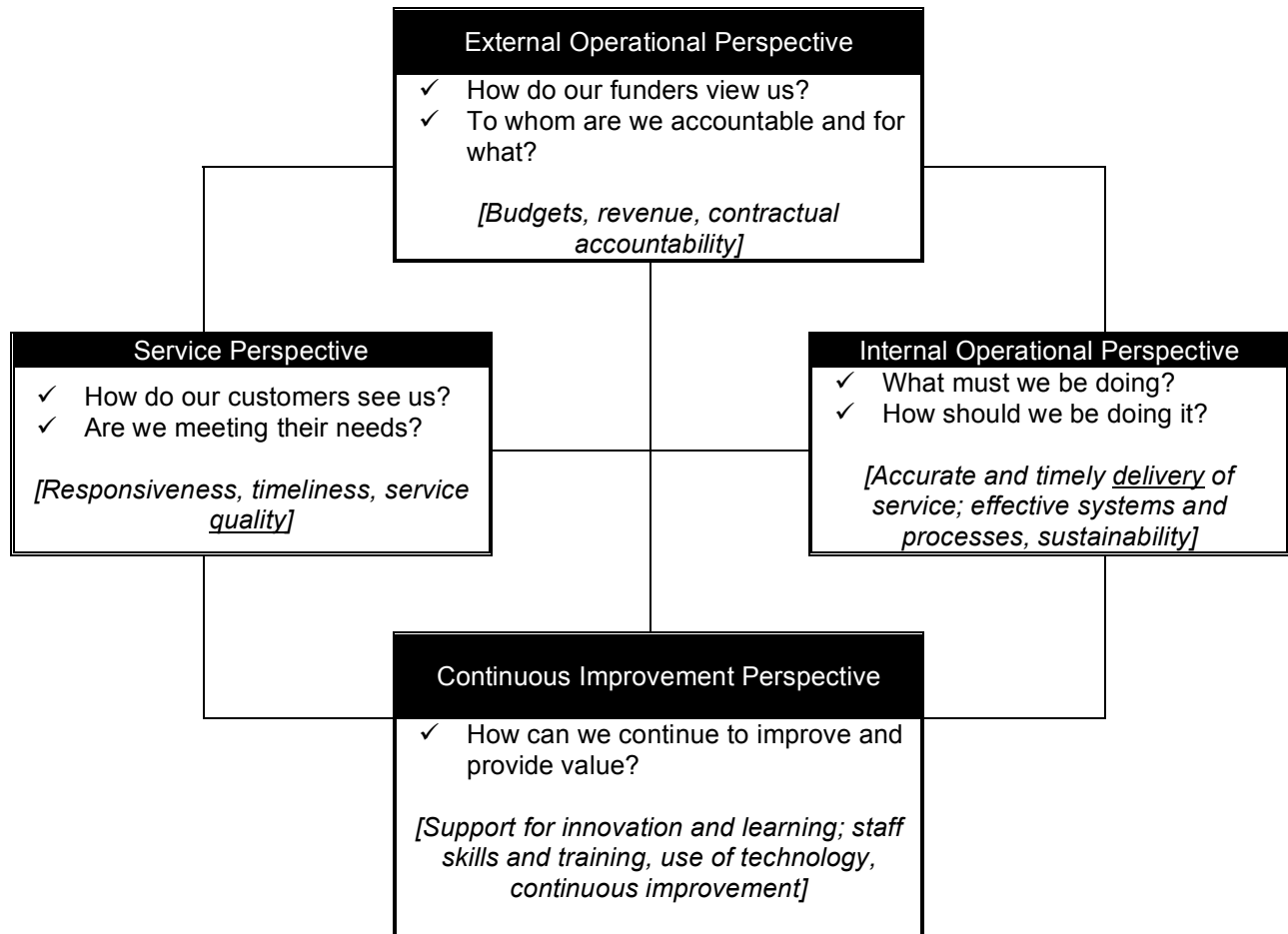
### **Sample Logic Model: Integrating A Systemic Perspective using Program Logic Models**

In 2005 the Ohio Department of Education created a Technical Advisory Panel (TAP) to recommend a set of performance measures for its Regional School Improvement Teams (RSITs), contractors who provide school improvement services to schools and districts. The Department's purposes were to clarify the RSITs' responsibilities for professional development and technical assistance, and to ensure accountability for services as well as documentation of the impact of services.

University-based evaluators were contracted to assist the TAP over a period of four months in the creation of these measures. The lion's share of the effort was turned to developing common understanding across team members of the work of school improvement. After identifying intended outcomes and impacts of school improvement, four logic models were created using a framework based on the Balanced Scorecard for accountability, one each for externally focused processes, internally focused processes, continuous improvement processes, and services rendered. Implicit and explicit assumptions, as well as facilitators and barriers, were identified. Finally, indicators of success were identified for the outputs in the logic models, leading to a set of agreed upon performance measures.

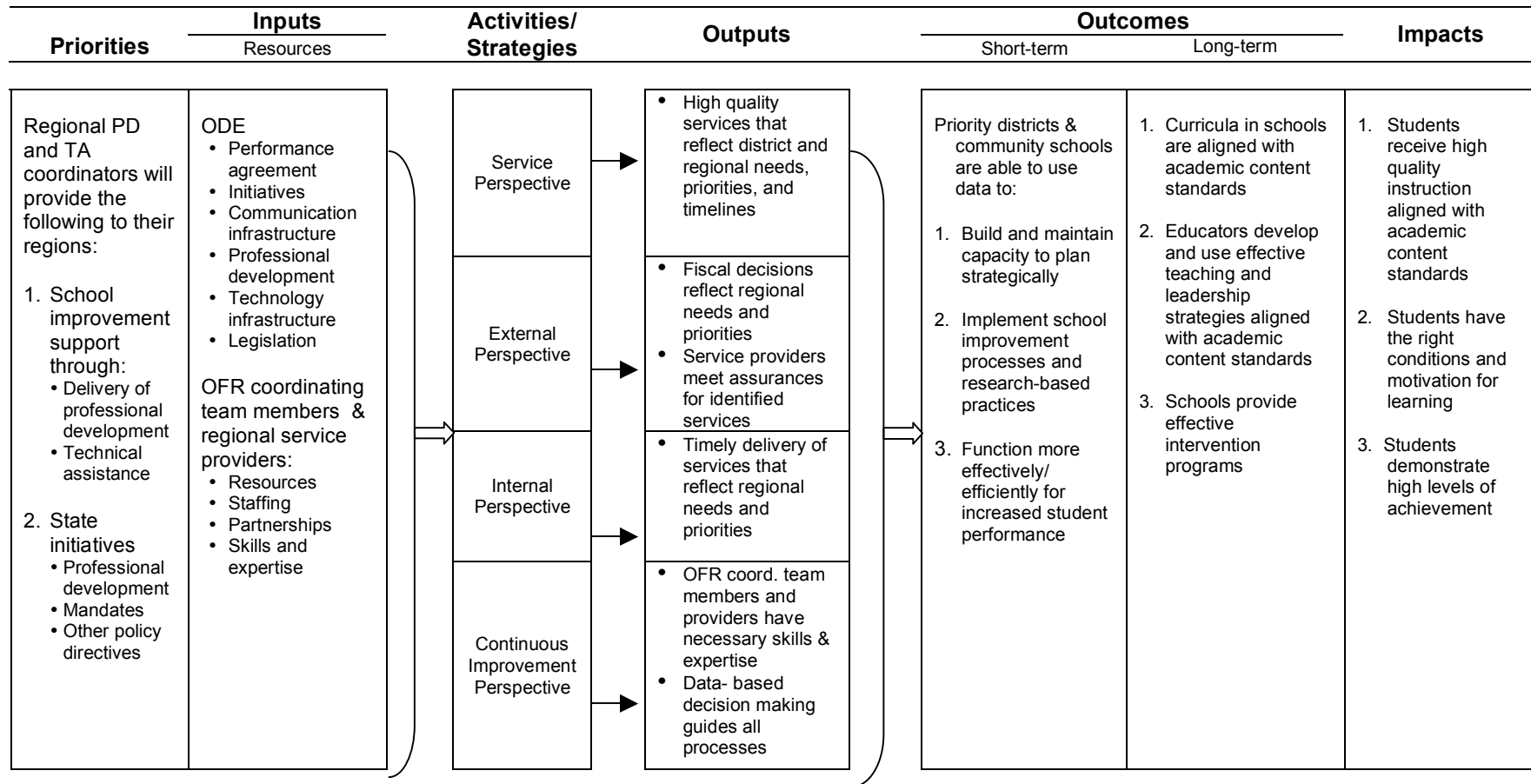
As the Department and the regional teams worked to implement the performance measures for school improvement, they found, in addition to accountability, that they were better able to clarify roles, the contingencies and interdependencies of their work, and alignment of timelines, budgets, and products. They also found that the work on performance measurement helped inform understanding of the intersections among various centers in the Department and new pathways toward vertical and horizontal integration and alignment.

## Field Relations Regional Accountability Systems Project

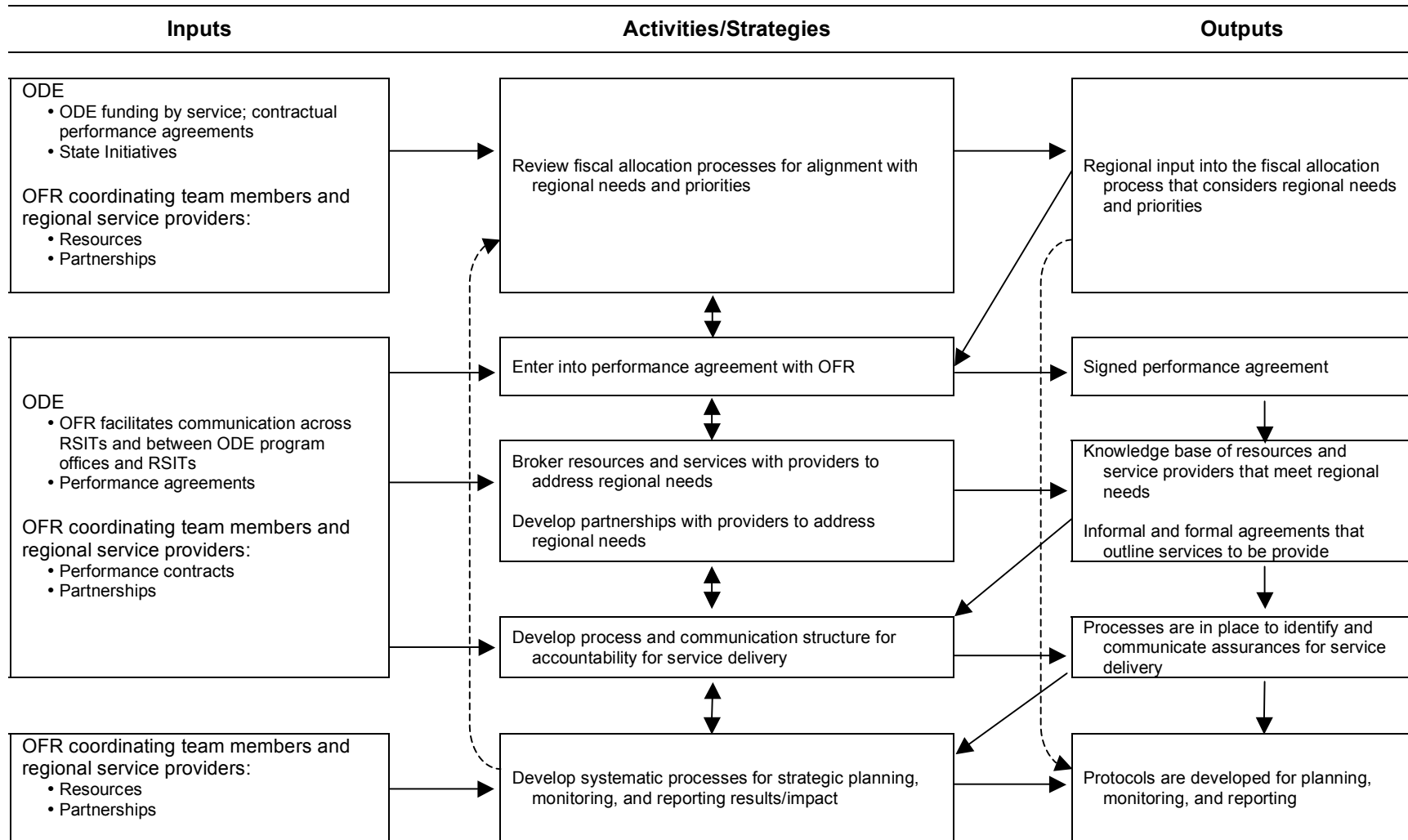


**Sources:** Brown (1998). Accountability and performance measurement. <http://www.accglobal.com/publications.>; Kaplan and Norton (1992). The balanced scorecard. **Harvard Business Review** (Jan/Feb).

## Field Relations Regional Accountability Systems Project Program Logic Model

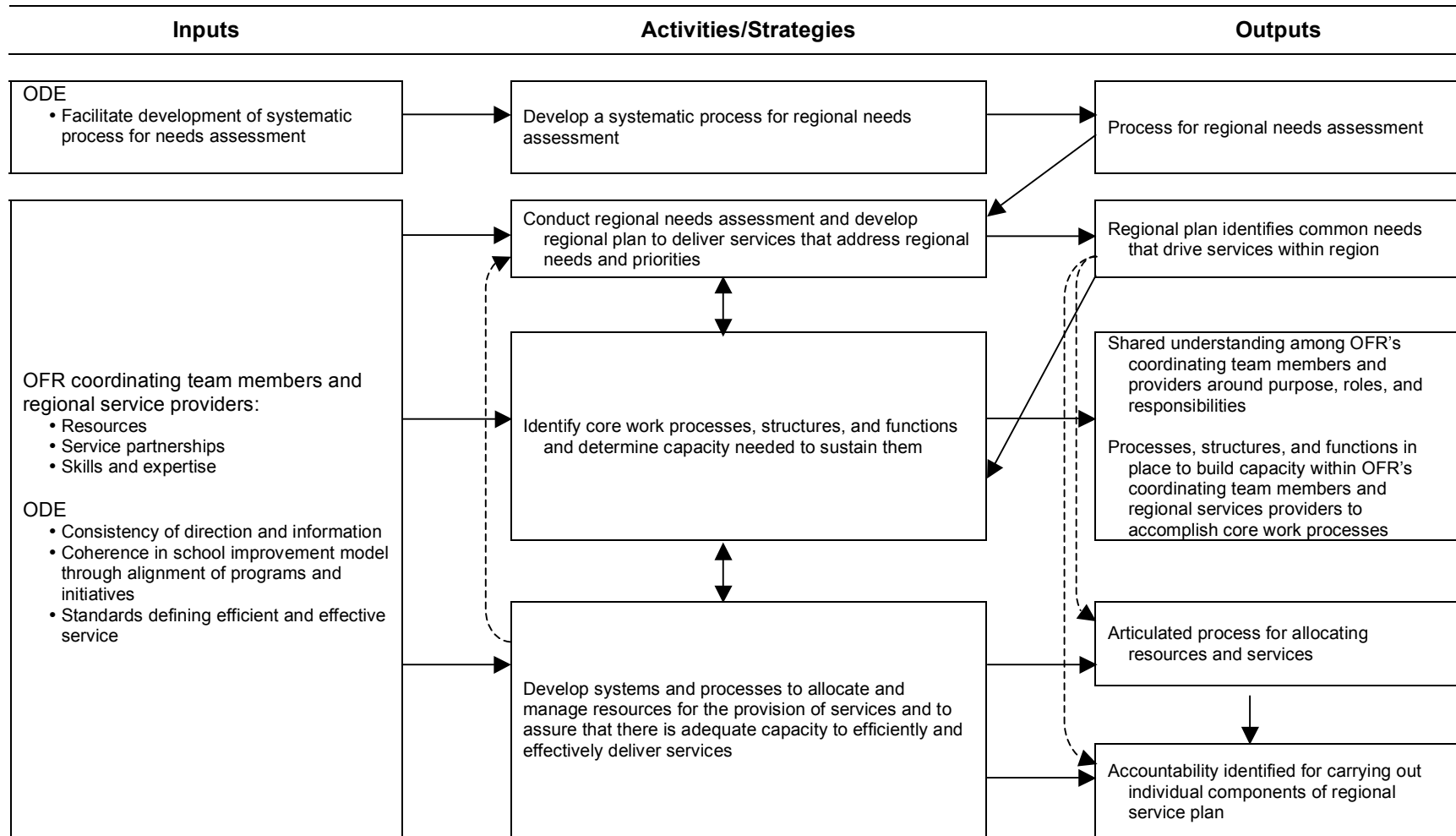


## Field Relations Regional Accountability Systems Project Program Logic Model: External Perspective



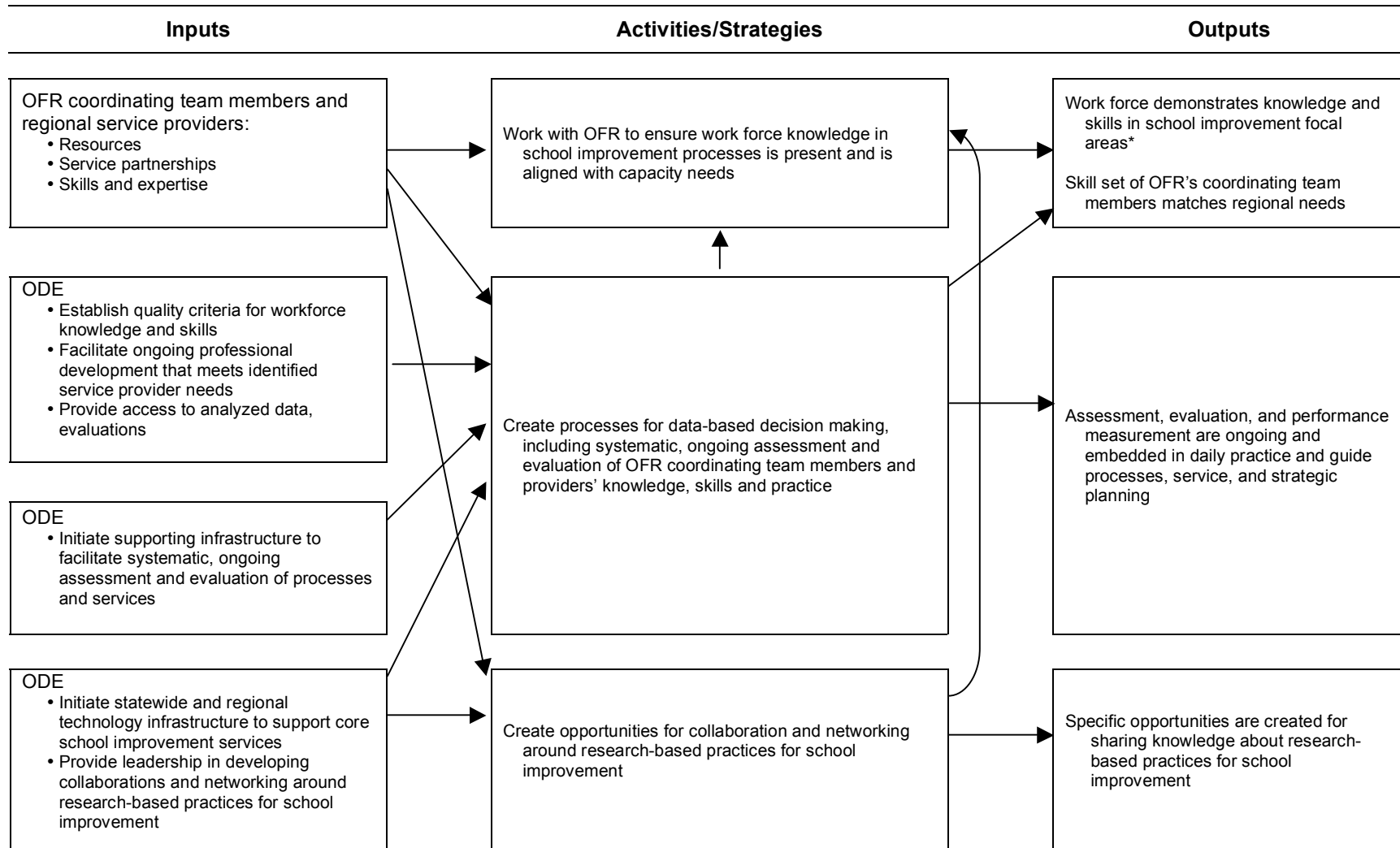
*Note: Solid lines denote direct influence or connection between elements; broken lines denote an indirect influence*

## Field Relations Regional Accountability Systems Project Program Logic Model: Internal Perspective



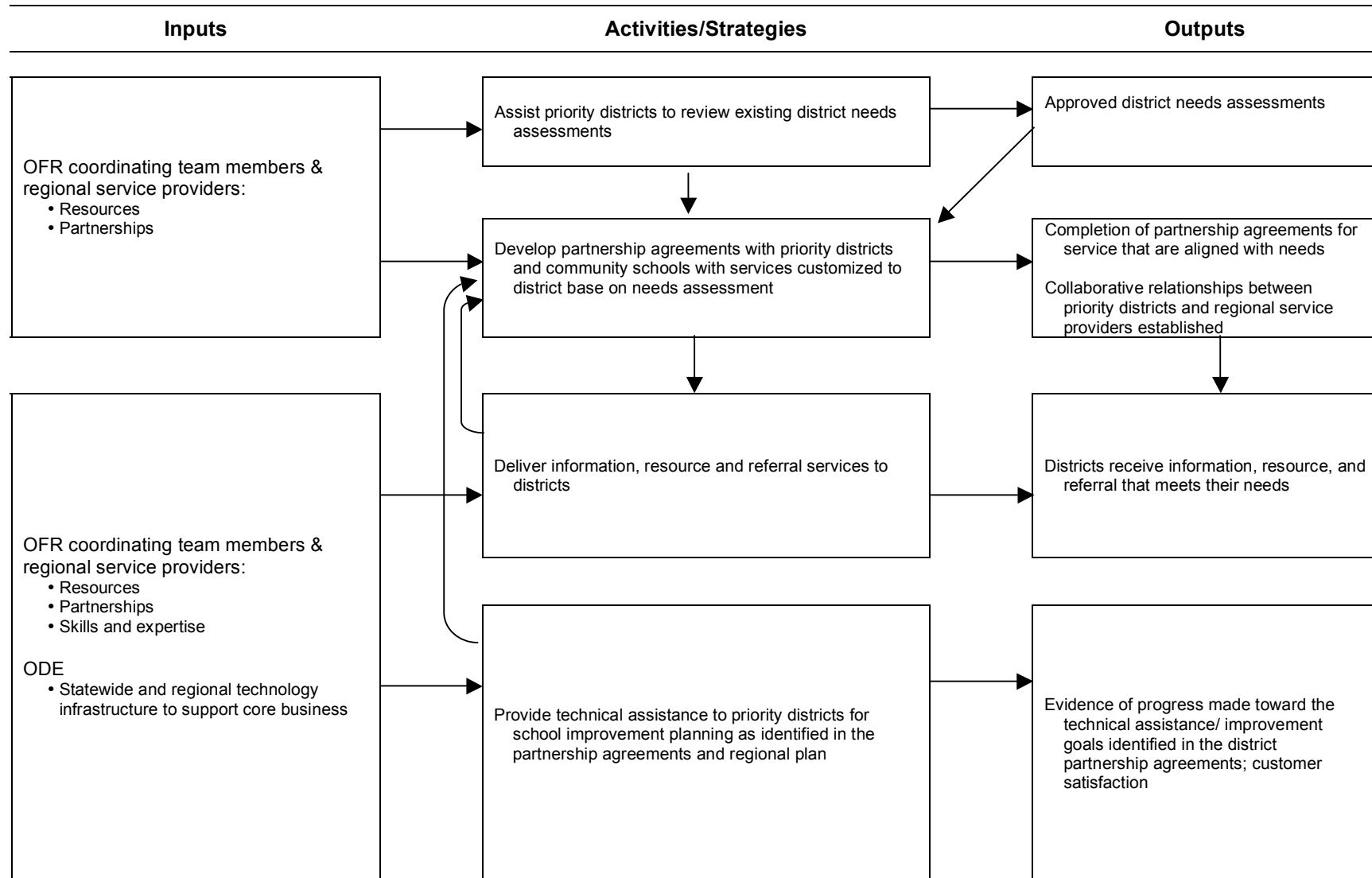
*Note: Solid lines denote direct influence or connection between elements; broken lines denote an indirect influence*

## Field Relations Regional Accountability Systems Project Program Logic Model: Continuous Improvement Perspective



\* School improvement focal areas: data analysis, research-based practices, focused planning, resource management, monitoring and implementation, and high quality professional development delivered to school/district site

## Field Relations Regional Accountability Systems Project Program Logic Model: Service Perspective



## Field Relations Regional Accountability Systems Project Program Logic Model: Service Perspective

