The Next Step in the Evolution of Education Data:
Establishing a Cloud-Based Data Platform

Developed in collaboration with Advance Illinois

Agenda

A GROWING NEED FOR DATA

PROBLEM:

- Lack of Depth in Defining Data
- Lack of Breadth in Defining Data
- Need for Improved Data Design

SOLUTION:

- Cloud-Based Education Data Platform
- Better Benefits for More Stakeholders

IMPLEMENTING A SOLUTION

Why More Data?

Reform efforts are driving an
INCREASED NEED FOR DATA:

Revamped summative assessment system that allows for enhanced accountability systems

Principal and teacher evaluations: growth data in both tested and non-tested subjects

Diagnostic and benchmark information about schools and districts

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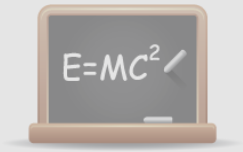

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Issues with Education Data

Two distinct, but related, issues with Education Data Systems:

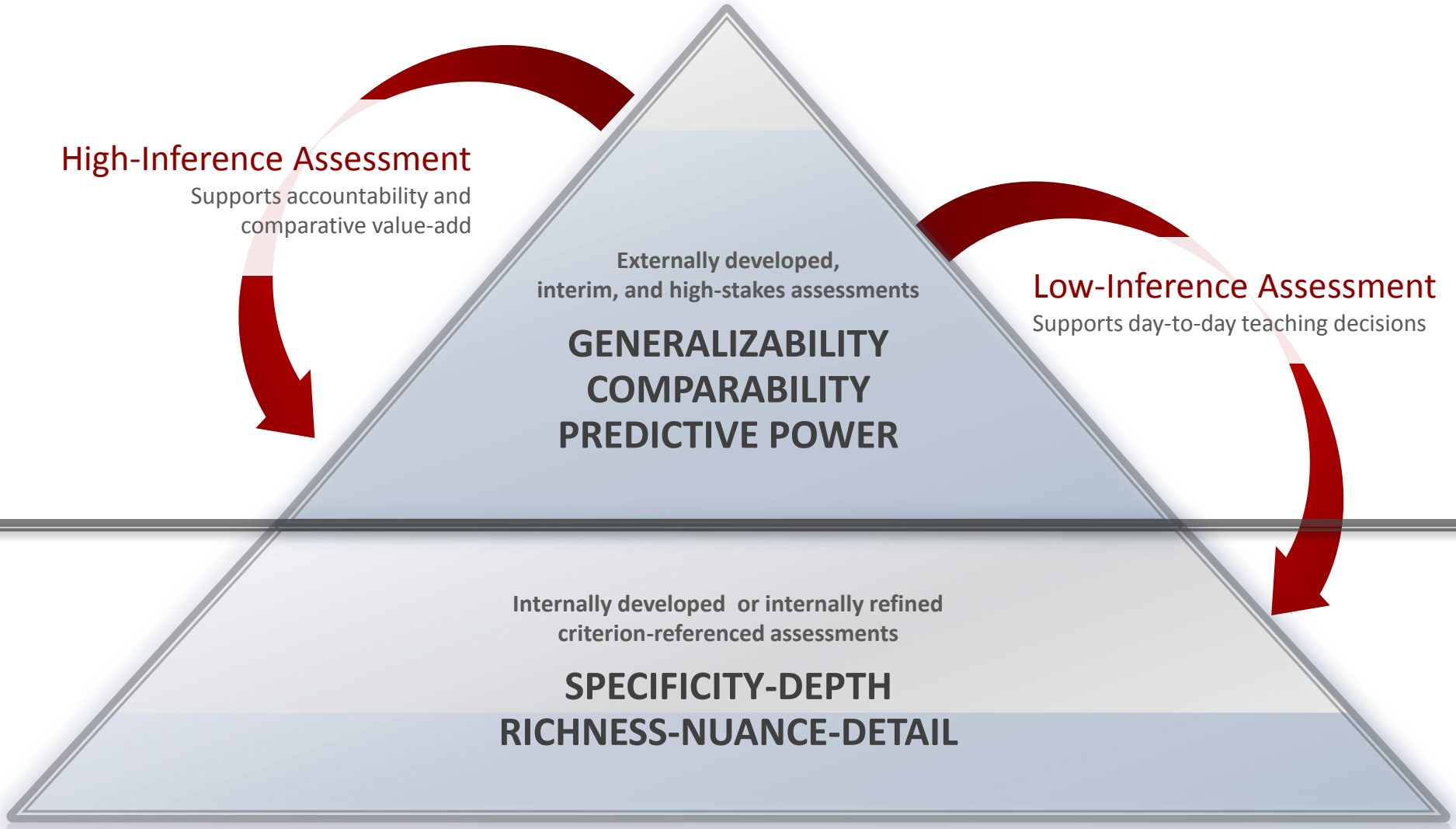
DEPTH: Data systems fail to collect data about teaching and learning.

- Capture operational data, not education use cases
- Do not address all the stakeholders

BREADTH: Data systems are unable to aggregate data across multiple systems.

- Inflexible data models
- Lack of district data warehouses
- Decentralized systems that communicate only through file exchanges

Two Kinds of Authentic Assessment



Source: Urban Education Leadership Program University of Illinois--Chicago

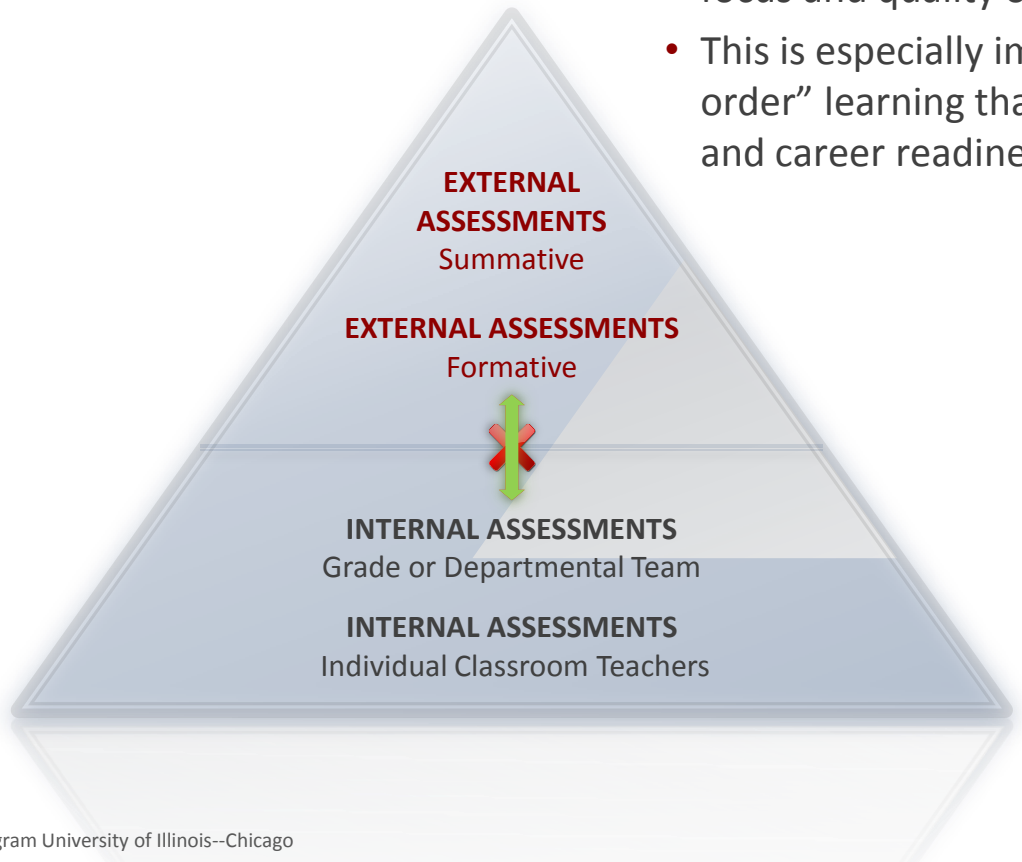
What Does the Data Need to Do?

Where We Are Now:

- Most external assessments do not drill down into internal practices.

Where We Need to Be:

- External assessments need to help shape the focus and quality of internal practices.
- This is especially important for "higher order" learning that supports college and career readiness.



Source: Urban Education Leadership Program University of Illinois--Chicago

Who Is Creating Data?

Data requirements for education are steadily increasing:

- Many vendors = many data silos
- Many data silos = isolated repositories of information



Source: Advance Illinois

Issues with the Current Data Design

DATA CHAOS	30 SISs are trying to talk to 20 mainframe applications at the SEA.
RELATION ISSUES	All the data is there, somewhere, but we cannot connect it.
VALIDITY ISSUES	“Garbage in, garbage out” is propagated through the entire system.
INFLEXIBILITY ISSUES	Current systems are not designed to adequately reflect the reality of what they want to model.

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How Do We Solve these Issues?

SOLUTION: A cloud-based data platform that captures teaching and learning data and is easily aggregated.

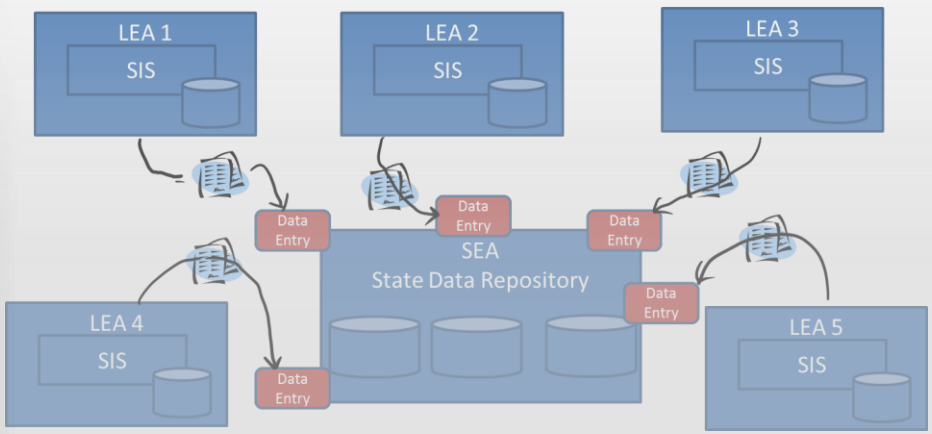
1. Get better data through a better data model.
2. Use the better data model to build a data platform on the Cloud.
3. Data platform reduces the need for isolated vendor data systems and improves interoperability.

Cloud-based, state-level data platforms will provide:

Better **performance management**
Better **collaboration around data**
Better **stakeholder access to data**

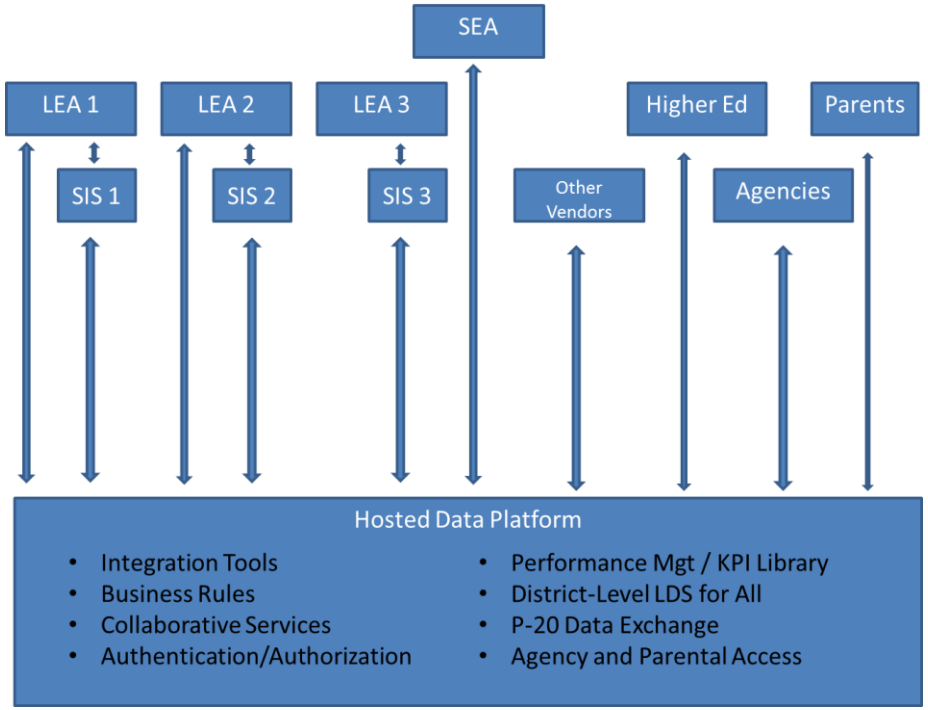
Making the Data Work: Improving the State Data Architecture

Current Architecture:



- Inconsistent Data
- No Business Rule Checking
- No Hierarchical Rules
- Redundant data entry

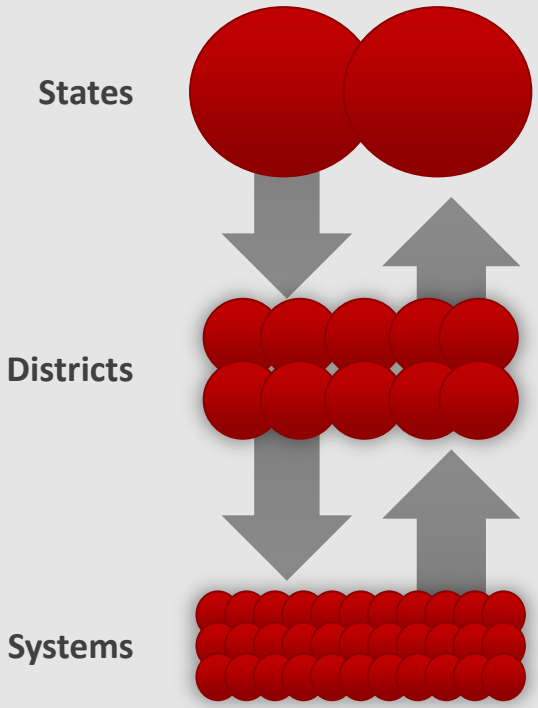
Desired Architecture:



Making the Data Work: Improving Breadth and Depth

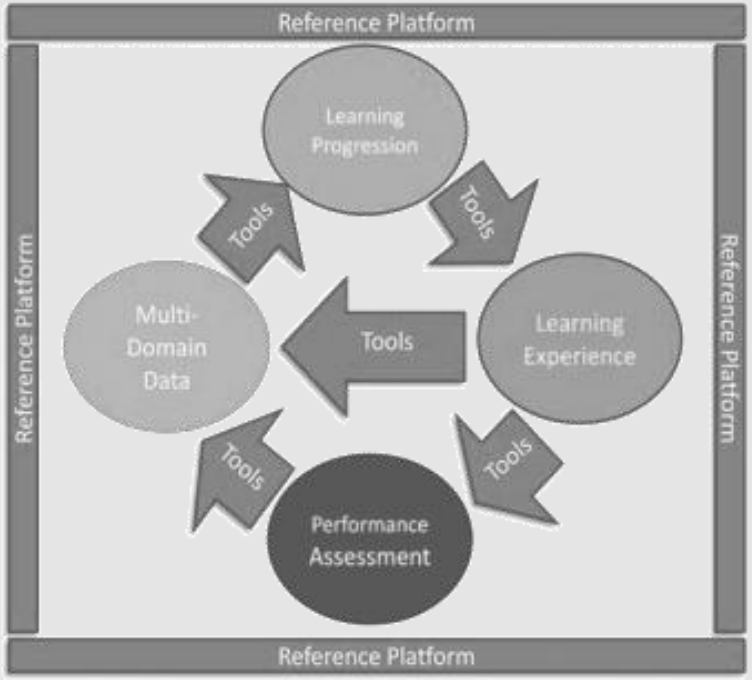
BREADTH: Data Model across Multiple Systems and Contexts

- Districts and the State should have equivalent data warehouses.
- Individual systems (SIS, HR, Assessment) can use these models.



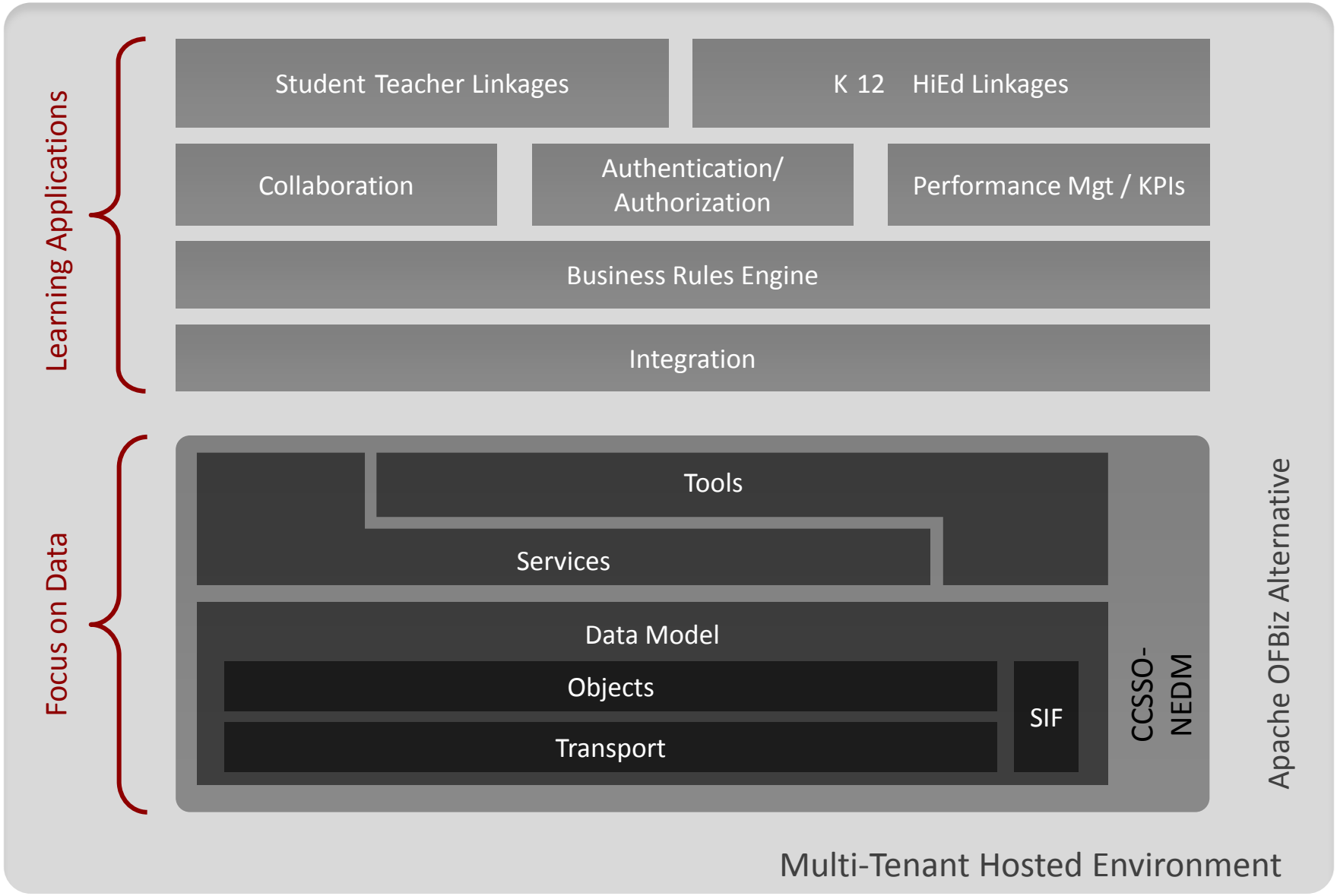
DEPTH: Data Model Focused on Learning

- Isolated pieces of data should be used together so that learning is seen as a cyclical process.



Source: Advance Illinois

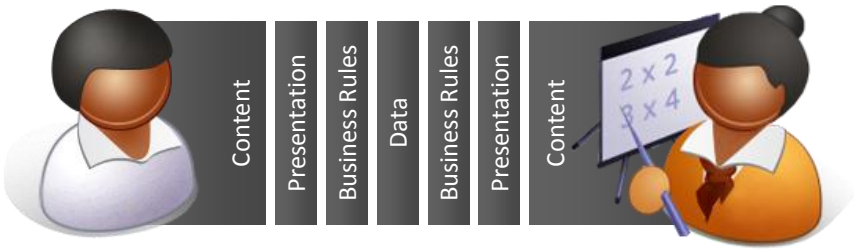
Making the Data Work: Connecting Data and Process



Making the Data Work: Establishing a New Business Model

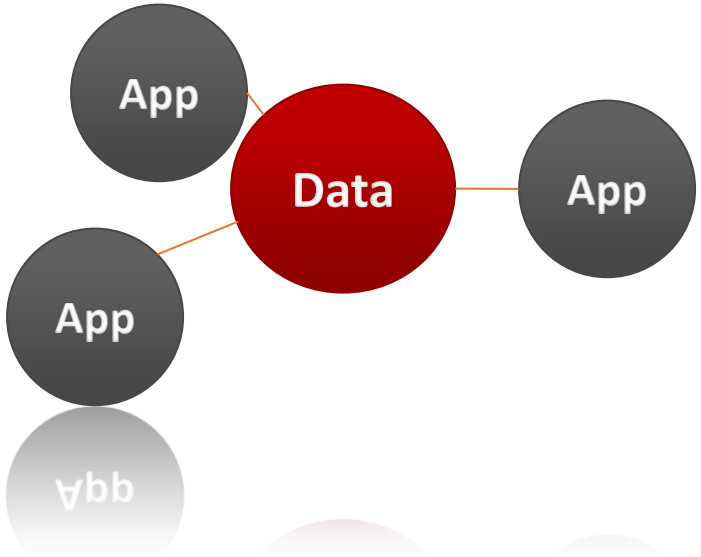
Data Silo/Pipeline Model

- Vendor controls pipeline



Plug-and-Play Model

- Data lives in the cloud
- Vendor applications tap into one common source of data



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Creating & Governing a Data Platform

- **Provide a picture of education data** that is comprehensive—integrating instructional, district, and state data
- **Create an organization** that owns the overarching architecture and manages changes
- **Recruit members** who can provide open source code and technical resources
- **Identify gaps** in the model and fund development or acquisition
- **Develop an operating model** for district data warehouses that increases collaboration and reduces technical needs (national cloud, state cloud, or both)

Implementing a Solution

- To date, the **focus on education data** has been **evolutionary**.
- Integration of **summative and formative** data still needs to be developed within the educational process.
- This integration further hones the **focus on data**, solidly connecting it to the learning process.
- The **cloud** is the next step in this evolution.