Building a Roadmap to Data Quality
Presenters

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What to Expect Today

• Overview of the value of high-quality data
• Discussion of how business rules can support data quality
• An introduction to IDC’s *Business Rules Documentation Protocol*
• Sharing of state experiences with business rules
• Interactive communication about business rules and state practices
The Growing Importance of High-Quality Data

• Shift from monitoring to Results Driven Accountability
• Support increasing data use and building data culture
• Critical for informed decisionmaking
• Organizational asset
High-Quality Data Definition

- **Timely**
  - Current, submitted on time, and still relevant

- **Accurate**
  - Reliable and consistent across time, locations, and methods

- **Complete**
  - Entire population represented; no missing records
Data Quality Quick Fix

The weed killer approach

• Cleaning the data at the SEA level after the LEA submissions are finalized

• No feedback loop back to those submitting the data

• The same types of errors happen year after year
Addressing Data Quality at the Roots

Getting to the root of the problem by preventing errors before they happen through

- Data system edit checks
- LEA data validation and review
- Training of LEAs on data requirements and data quality review
Risks of Poor-Quality Data

- Undermine credibility and breed organizational mistrust
- Make it harder to identify areas for focused effort for improvement
- Inhibit good data-driven decisionmaking
Strategies for Improving Data Quality

- **Prevent**
  - At time of data entry
  - Restrict values

- **Detect**
  - During the data quality review process

- **Repair**
  - Discovered after data are used
  - Find source of error and implement strategies to prevent in the future
High-Quality Data and Business Rules

Relationship between high-quality data and business rules

• Business rules, or edit checks, prevent errors at the point of data entry

• Using edit checks is not a foolproof way to obtain high-quality data, but edit checks are part of a data cleaning process

• Program staff and those responsible for the data system edit checks must work together
Documenting Business Rules
Why Document Business Rules?

• To ensure common understanding about data requirements
• To improve communication with those submitting data
• To confirm automated business rules are working properly
• To increase transparency with internal and external stakeholders
• To provide data users insight into the quality of the data
Examples of Business Rules

- Ensure values are within a given range or set of permitted values
- Ensure the system provides mandatory data elements
- Determine if data are in the correct format
- Check that values are consistent across data elements
- Perform year-to-year comparisons
Detect Missing Data or Null Values

Ensure system provides mandatory fields

- Disability status
- Birthdate or age
- Grade level
- Race/ethnicity
- Gender
- Enrollment date
Prevent Invalid Formats

Enforce proper formatting of data

- Date format: *mm/dd/yyyy*
- Decimals, such as *#.##*
Weed Out Invalid Combinations

• Verify educational environment is valid based on student’s age
• Verify the age is between the state-defined range for students coded with a disability category of developmental delay
Enforce Proper Procedures

Rules can help LEAs and schools follow proper procedures, such as ensuring that a student cannot have a basis of exit of “return to regular education” if there is not an end date on the child’s individualized education program (IEP) record.
Importance of Business Rules Documentation

• Communication tool for stakeholders, data submitters, and data users
• Support to develop common understanding
• Essential step in the process
• Reference for new and existing staff
Sharing Business Rules Documentation

Sharing documentation by
- Posting on public website
- Responding to data requests
- Posting on internal shared drives

Sharing documentation to inform data users about
- The number and types of validity checks
- The rigor of data quality checks

This will result in the data users having more confidence in the data.
Other Best Practices

• Create a business rules repository
• Conduct annual reviews and updates
• Create data flow diagrams
• Create process documentation
• Create documentation repositories with versioning
  (examples: SharePoint, Huddle, Box)
IDC’s Business Rules Documentation Protocol
IDC’s Business Rules Documentation Protocol

- Is an Excel template that states can modify to meet their needs
- Is used to document, record, and communicate business rules
- Includes a change log to track changes over time
Business Rules Documentation Elements

- Rule ID
- Data elements
- Edit type or severity
- Error message
- Error definition or edit logic
- Topic or content area
- Data steward
- Date first implemented
- Approval required (Y/N)
- Notes
Change Log Elements

- Rule ID
- Date revised
- Revised by
- Changed from
- Changed to
- Reason for change
How IDC Can Help

IDC will help facilitate the business rules documentation process by

- Organizing in-person meetings
- Asking directed questions
- Serving as recorder to document the protocol
- Highlighting areas for further discussion
- Following up to maintain protocol
State Example: Business Rules Documentation in Illinois
Determination of Need

- Data discrepancies among Report Card, 616 data, and 618 data
- Data ownership—review of data prior to submission
- Division of duties for data provisioning
- Risk management—business continuity desired
- Data consistency desired
Approach

• Internal SEA resolution
• IDC resolution—Data Processes Toolkit/Business Rules
• SEA Special Education Data Governance (SEDG)
• SEDG monthly meeting—Issue Log and Accountability
• SEDG in place for 3 or more years—still going strong
Participants

• IDC resources (2–4 people)
• Special education executive director (SEA)
• Special education director (SEA)
• IDEA Part B State Performance Plan (SPP) and State Systemic Improvement Plan (SSIP) coordinator (SEA)
• IDEA Part B data manager (SEA)
• Information technology (IT) resources (employees and contractor) (SEA)
• SEA data governance resource
Outcome

• SPP Indicator Business Rules finalized in 2019
• ED*Facts, EMAPS, and Significant Disproportionality Business Rules completed and under review
• Next step identified: Get technical specifications from IT
• Process for annual updates defined
• Data consistency and presubmission approval achieved
Questions?
Group Chat

• If you were to start documenting business rules for a data collection, which data collection would it be and why?
  ▪ Who should be at the table to document business rules for the data collection?

• How would documenting business rules complement or fit in with your data process documentation?
Where to Find the *Business Rules Documentation Protocol*

- Located on the *SEA Data Processes Toolkit* page of IDC’s website:
  https://ideadata.org/sea-data-processes-toolkit

- Located as a single, resource download on the IDC website:
Contact Us

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