Use Case Scenario: *Using the Data Model to Evaluate Potential Student Information Systems for Purchase*

Challenge[1]

The Red River School District (RRSD) wants to evaluate a proposed Student Information System (SIS) to see if it will contain the range of data needed to perform its stated function. They want the District's requirements to drive the purchase rather than the vendor offering. The RRSD also wants to ensure that data definitions in the proposed SIS software are consistent with definitions in software systems already installed in the RRSD and in state reports the District is required to generate.

Summary

Sven McFain, the superintendent of the Red River School District, first convenes a core group of administrators to determine the best approach to the evaluation. Starting with a blank slate, they use the Education Data Model Version 1: PK-12 to articulate the following process to address the challenge:

- The core group uses the Data Model to help identify the initial domains or sub-sets of data to be addressed by the project.
- The core group then selects the persons and the content-area roles in the school district that need to be involved in the SIS evaluation, and forms the evaluation team.
- The evaluation team determines the features/functionalities desired in an ideal SIS, independent from any current SIS.
- The team examines how the desired features/functions of an ideal SIS application would fit with other existing applications in the District (for example, is there an existing grade book application that will be replaced or work in conjunction with the new system).
- The team considers the pros and cons of the current SIS.
- With the help of the data model, the SIS evaluation team performs a data needs analysis, where they identify what data the District needs to collect through the SIS, without considering what the current system collects.
- Based on the data needs analysis, the identified features/functions desired in an ideal SIS and the ways, in which the new SIS will need to integrate with other district systems, the team determines the full set of requirements for the new SIS.
- Gap analysis between the ideal SIS and the proposed SIS being evaluated is performed, to a large extent by comparing the District's data model to the proposed SIS's data model.
- Recommended actions for the purchase of the proposed SIS are developed.

See the *Steps* section below for detail on how this was done.

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[1] This use case example is meant only to illustrate the use of the Education Data Model in addressing the stated challenge. Other Forum documents, such as *Technology at Your Fingertips,* are available and can also be useful in addressing the challenge.

Actors/Positions:
Sven first identified a Core Group to help him devise a strategy for the project. This group identified who needed to be at the table, when, and in what order. Then an SIS Evaluation Team was formed to oversee the work of the project. Individuals came and left the Team as they were needed in the process.

<u>Core Group</u>

Superintendent	Director of Student Achievement
Director of Technology	Curriculum & Instruction staff person
School Business official	Accountability Staff Person
State Reporting Staff Person	

The Core Group identified the following roles as needing to have substantial input in the project and serve on the Evaluation Team:

- Principals
- School Counselors (i.e. those who deal with student schedules and transcripts)
- School Registrars/Administrative Assistants (i.e. those who enter data into the SIS and are major users of the SIS software)

The Core Group also identified the following roles, which were involved in the evaluation process to validate whether their data needs were being sufficiently addressed:

- Support Services (Facilities Department, Transportation, Food Service)
- Personnel Services
- Special Ed
- Board of Cooperative Educational Services (BOCES)
- Department Heads
- Teacher Representative – (e.g. for grade book functions)
- Health Services
- Safety

Steps:

1. The Data Manager provided the core team with a list of entities to help them begin searching the Data Model to identify the functional areas related to SIS. The core group browsed the Data Model and uncovered relationships among data that suggested who else to involve in the evaluation process. For example, during browsing the Data Model, the Accountability Staff Person uncovered the need to involve the Health Services and Safety departments. The idea was to select people on the basis of their relationship to relevant types of data rather than primarily based on the business structure of the organization. As a result, the core group identified the departments that should be involved in the process and in what order and the evaluation team was formed.

2. The SIS evaluation team identified a process to evaluate the SIS and used the Data Model to refine the process, as described in the subsequent steps.

3. The SIS evaluation team researched the District's needs with respect to a Student Information System. Independent of any current SIS product, they listed the features/functions they determined as important to include in an ideal SIS, such as:
    a. Multiple GPAs per student using different criteria.
    b. New race/ethnicity reporting requirements.
    c. Teacher and student scheduling.
    d. Teacher and student daily attendance.
    e. Grade book.
    f. Keeping track of the physical structures involved in scheduling such as available rooms, physical layout of spaces, equipment available, etc.
    g. Keeping track of classroom/space environment such as acoustics, temperature, lighting, and available space.

4. The evaluation team also examined how the identified features/functions relate to the existing applications in the District. The team considered which current applications might be replaced by and which will need to work in conjunction with the ideal SIS.

5. The evaluation team examined the current SIS, asking questions such as:
    a. What do we like about it?
    b. What does the current system lack?

6. The team used the Data Model as a set of high-level, national-standard requirements to create a data needs analysis and determine the base list of data entities for an ideal SIS (at this stage not yet comparing the ideal to the current system):
    a. Harold, the RRSD data manager, went to the Data Model Browser tool that is part of the Data Model Website and ran a query. Since this was for the Student Information System, the data manager ran a query on the word *student*, and ran additional queries based on his knowledge and experience.
    b. As the data manager found entities of interest, he followed their listed relationship links to identify other entities that he judged to be relevant to the desired system requirements, which he achieved by browsing the data model rather than following a structured path.
    c. The data manager then consulted with the SIS Evaluation Team to gain agreement on the list of relevant entities.
    d. From all of the entities found, the data manager compiled a shorter list of entities that were directly related to the future SIS. This list reflected the "Data Model Information Requirements" for the new system.

7. Combining the results of the work in previous steps (the data needs analysis, the identified features/functions desired in an ideal SIS, and the ways in which the new SIS will need to integrate with other district systems), the team determined the full set of data and application requirements for the new SIS.

8. Harold, the data manager, performed a gap analysis between the proposed SIS being evaluated and the full set of requirements for an ideal SIS:

a. The data manager, with help from a vendor, created a mapping document which mapped the information in the proposed system to the Data Model Information Requirements produced in Step 7.
b. Using the mapping document from the previous step, the data manager compared the Data Model Information Requirements to the data elements in the proposed software system being evaluated. This was done by using the descriptions and attributes of each entity in the Data Model Information Requirements.
c. During the mapping process, the data manager discovered whether the proposed system data definitions were consistent with other software systems in the District. This was possible because the Data Model data definitions represent the definitions used in the RRSD.
d. The data manager compared the features/functionalities of the ideal system with those of the proposed system.
e. The data manager examined and listed the ways that the proposed SIS would have to integrate with existing systems. With input from the evaluation team, he answered question such as:
    i. Will some existing systems be replaced?
    ii. Will new processes need to be built in order to share data between the proposed SIS and the existing District systems?
f. The data manager summarized the results in a gap analysis document.

9. The evaluation team formulated recommended actions concerning purchase of the proposed SIS.