

*The Optimal Reference Guide:*  
**IT Defined...**  
**For the Educator, v.3.0**

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*Extraordinary insight into today's education topics*



**ESP Solutions Group**



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# Preface

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I am relatively new to the world of information systems in education agencies, and over the past year, I have come across a lot of unfamiliar terminology. I have noticed, too often, that terms and acronyms get misinterpreted with the main party not realizing anything was lost in translation. How are we supposed to keep up with all the terminology to communicate effectively?

Surrounded by the experience that is ESP Solutions Group, I have been able to absorb IT terminology as it comes up in conversation. Whenever I have been uncertain of a term's meaning or its context, I have had the personnel resources to give me clarity on the questionable terms. ESP's staff has been my personal glossary, explaining more than the definition of terms. The "What This Means" section of this glossary is just that, an explanation of the distinctions of the terms. For me, this section is the most practical. Knowing why a term is meaningful helps everyone commit to making data accurate. My degree is in mathematics, and the best example I have come across to show a subtle nuance that would need more than a definition to understand are the terms "speed" and "velocity." Reading definitions of these would leave many asking the question, "What does this mean?" "Speed" is defined as the change in distance over time, where "velocity" is defined as the change in displacement over time. Most, after reading both definitions, would need someone who understands the slight, but significant, difference to explain that "speed" is non-directional, and to describe "velocity," there must be a directional component. Speed could be 55 MPH, but "velocity" must be defined as 55 MPH east.

Not everyone has the luxury I have had, being surrounded with people who are more than willing to explain a term's meaning rather than just give a definition. Sometimes people just don't have the time to find the right person to ask. In this ORG, questions about IT terminology have already been answered hundreds of times by ESP's subject area specialists. This glossary has been developed and will keep being expanded to provide a quick reference for all of us to ensure we can verify that we understand all the terms we have to master to work with education data.



# Introduction

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Precision is a necessary characteristic of our communication when we design education information systems—or even when we talk about them informally. Defining our terms precisely ensures we are in agreement. A common vocabulary also guarantees we walk away with a meeting of the minds about what our expectations are of the information system we just envisioned.

The place where the “freeway of education jargon” and “tollway of technology acronyms” intersects is one of the most confusing in any language. When education policy makers and agency information system administrators partner with vendors and contractors to whiteboard a solution for a decision support system—have a high-tech dictionary handy. Wikipedia is useful, but isn’t honed to the special interests and needs of the education data niche.

[www.edtechglossary.com](http://www.edtechglossary.com)

Bookmark this one.

ESP’s role as a thought leader in the education information space includes helping to clarify the precise meanings of the terms we use to describe solutions for data-driven decision making needs. At [edtechglossary.com](http://edtechglossary.com), just as in this Optimal Reference Guide, we have compiled almost 400 terms so far and will continue to add more.

Some are those highly technical ones, like asynchronous, that we hear in presentations. Others are specific to the education context (e.g., National Education Data Model, Growth Model, Schools Interoperability Framework).

For each term, we have provided a definition, then a description of “What This Means.” The meaning is within the education context and is the value-add that is missing in Wikipedia or Webster’s.



# Definitions

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## 508 Compliance

Definition: Standards that allow disabled persons to use software applications.

What This Means: In 1998 the US Congress amended the Rehabilitation Act to require Federal agencies to make their electronic and information technology accessible to people with disabilities. Inaccessible technology interferes with an individual's ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. § 794d), agencies must give disabled employees and members of the public access to information that is comparable to the access available to others. States which were recipients of Federal funds under the State Technology Act Grant must also comply with the Access Board standards for Electronic and Information Technology.

## Action Reports

Definition: Reports that are generated specifically targeted to an audience at a time and with content in a format to inform a decision in such a way that action can be taken.

What This Means: The challenge with data and reports has been how to get the right data in the right format to the right person to support decision making. A true action report does that.

## Actionable Data

Definition: Actionable data are bits of information that can lead to change.

What This Means: The term actionable data arose because the proliferation of data became overwhelming and the use of data remained low. "Actionable" is earned by data when they inform a decision or action leading to change—or continuation of a successful process. For data to be actionable, they need to be presented in a form that provides the insight a user must have to take action. The term data might better have been "[indicator](#)" or "information" to emphasize that decision making requires that the data be analyzed and presented to be understandable and interpretable. So, all data are not actionable. (See [Max Yield Data](#).)

## Ad Hoc Query

Definition: An *ad hoc* query is an analysis run on-demand because no standard [report](#) already exists. *Ad hoc* query may also refer to the unanticipated question for which no ready answer exists.

What This Means: When an action or decision requires data but there is no standard, pre-defined, or existing [report](#) available, then special effort is required to generate a custom [report](#). *Ad hoc* queries cause inefficiencies in information systems and organizations. The goal should be to standardize [reports](#) as much as practical to avoid *ad hoc* queries. Reporting tools running on a [data store](#) or [warehouse](#) allow the user to run *ad hoc* queries as long as the data are already in the [data store](#). In some cases the *ad hoc* query tool requires that the data already be calculated into statistics rather than being able to calculate any statistic on demand. ([See OLAP.](#))

## After Action Review (AAR)

Definition: A simple, adaptable technique originated in the U.S. Army to improve team performance by comparing what was intended to what actually happened, asking what caused actual results, and asking what to improve next time around.

What This Means: This is a natural methodology for education agencies. AAR can be formal or informal.

## Agent

Definition: An Agent is software that works as a liaison between the [ZIS \(Zone Integration Server\)](#) and the [application](#). It takes data stored in its own [application's](#) format and translates it for the [ZIS](#).

What This Means: An agent is a piece of software that translates [SIF](#) requests to and from the proprietary format of an application and the [SIF](#) Specification. When a new student registers in a district [Student Information System \(SIS\)](#), it is the [SIF](#) agent for that [SIS](#) that recognizes that event, reads the proprietary [database](#) to build a "New Student" [SIF](#) object and sends the object to the [Zone Integration Server \(ZIS\)](#). The agent also subscribes to [SIF](#) events from the [ZIS](#). When the state gives a new student a state ID, for example, the [ZIS](#) will publish a "Change Student" event to the [SIS](#) agent. The [SIS](#) agent reads the [SIF](#) object and stores the appropriate information in the [SIS's](#) database.

## Algorithm

Definition: An algorithm is a finite sequence of instructions, an explicit, step-by-step procedure for solving a problem, often used for calculation and data processing.

What This Means: Algorithms are essential for computer [applications](#) that process information or automate processes for educators.

## American Productivity and Quality Center (APQC)

Definition: The American Productivity and Quality Center (APQC), is a nonprofit organization focused on helping all organizations adapt to changing environments



through benchmarking and metrics, best practices, knowledge management, performance improvement, and professional development.

What This Means: The APQC has targeted improvement in education in this century. Its founder, Dr. C. Jackson Grayson, Jr., has been recognized as the leader in organizational improvement through benchmarking, process improvement, knowledge management, and quality and productivity tools. APQC and Grayson originated the [Malcolm Baldrige National Quality Award](#).

## API (Application Programming Interface)

Definition: An application programming interface is a language and message format used by an [application](#) to call another part of the system into action.

What This Means: Every [application](#) does not have to do everything when APIs are used to call upon other programs or the [operating system](#) to perform certain tasks. This makes programming more efficient. Writing APIs is a major part of what a programmer does.

## Application

Definition: An application refers to a software program.

What This Means: An application automates one or more functions. Examples of an application include a [student information system](#) (creating and maintaining [student records](#) for enrollment, attendance, grade reporting, etc.), a human resources system (hiring, certifying, and assigning employees), and a financial system (budgeting, purchasing, and inventorying).

## Application Layer

Definition: In the Open Systems Interconnection (OSI) communications model that guides software developers and hardware vendors in the design of network communications products, the application layer (the top layer) defines [standards](#) for interaction at the user or [application](#) program level.

What This Means: The [application layer](#) manages formatting electronic mail messages, reading and writing files, and file transfer. It is the highest layer of the [protocol](#) stack.

## ASP (Application Service Provider)

Definition: An application service provider hosts software [applications](#) on its servers at its location. An organization registers to use the [application](#) and accesses it over the Internet or a private connection.

What This Means: Instead of paying the expense to buy hardware and software, an organization can “rent” them. Additionally, the vendor will install and maintain the

software on its own computers in a secure location. The organization delegates not only that responsibility to the vendor, but also the responsibility to hire and train staff to operate the [application](#).

## Assessment

Definition: An assessment is a standardized measure of proficiency, academic success; a test.

What This Means: The term test has been replaced by assessment to acknowledge that we now measure proficiency and academic success in many different ways. The degree to which an assessment is standardized in its administration, scoring, and interpretation determines its reliability. The validity of an assessment relates to how well the results match the intent and target of what is being measured.

## Asynchronous

Definition: Asynchronous describes events that are not coordinated in time.

What This Means: To the user of an information system, this is almost irrelevant. Whether a piece of information travels by its own schedule or in sync with others is for the techies to determine. Some examples of asynchronous communications are exchanging email messages with someone, starting a new task on the computer before the last task has finished running, and using [SIF](#) to keep multiple [applications](#) up to date. (Contrast with [Synchronous](#).)

## Atomic

Definition: Anything atomic is at the lowest or simplest level possible. An atomic operation, or atomicity, implies an operation that must be performed entirely or not at all. For example, if machine failure prevents a transaction to be processed to completion, the system will be rolled back to the start of the transaction.

What This Means: Understanding the atomic operations in an [application](#) is important to be able to integrate data exchanges and align operations across [applications](#). This is crucial in today's [environments](#) where every [application](#) is linked to others in some way.

## Authentication

Definition: Authentication is verifying the identity of a user logging onto a network.

What This Means: Any system that contains confidential information has to know who is accessing that system. Authentication is the gatekeeper task. Passwords, digital certificates, smart cards, and biometrics can be used to prove identity. This is especially difficult in an education setting where principals, superintendents, and staff too often give their sign-ons and passwords to someone else such as

assistants, parent volunteers, or even student office aides. (See [Authorization](#) for a complementary term.)

## Authoritative Data Source

Definition: A data source is authoritative when it is the one all others rely upon for the [official data](#).

What This Means: Designating the authoritative data source is important to ensure an agency knows what data count. Conflicting data from contrasting [periodicities](#), varying definitions, or different people plague agencies that do not designate their authoritative data sources and insist everyone honor them.

As used in [DataSpecs](#), authoritative source is a checkbox to indicate whether this field should be considered the “authoritative source” of the content for use in analysis or [reporting](#). (NOTE: Data often move from field to field and from repository to repository as they are processed and cleaned. The final resting place is the authoritative source.)

## Authorization

Definition: Authorization is clearing a person to access a system or information within a system.

What This Means: Once a user has been [authenticated](#), then a software [application](#) must determine what level of access that person has. Access can be to everything and every function in an [application](#) or a [database](#) or it can be very specific to only selected pieces of information. [FERPA](#) guidelines are crucial to determining the proper authorization for individuals. For example, a principal may be able to see an [assessment](#) report, but small cells may be masked except for the principal’s own school.

## AYP (Adequate Yearly Progress)

Definition: An accountability measurement defined by the [No Child Left Behind Act](#) that requires states to determine how every public school and school district in the country is performing academically in order to identify schools in need of improvement.

What This Means: [NCLB](#) is generally understood by educators. How an individual state implements the AYP process is approved by the U.S. Department of Education. The concept behind [NCLB](#) is that all students should be proficient or progressing towards proficiency, that is, no individual student should be left behind. This means that the average of all students in a school, district, or state is not adequate to indicate how an individual student is performing. The most controversial requirement is for 100% of all defined subgroups of students to be at a proficient academic level by 2014. Schools and districts are supposed to have procedures in place to ensure proficiency is attained.

## Back Office

Definition: A back office [application](#) does not deal directly with the customer.

What This Means: When you hear “back office,” it means that the [application](#) is used by the workers, not the decision makers. A [data warehouse](#) is a back office [application](#), but the reporting tools used by principals, teachers, or the public are front office.

## Balanced Scorecard

Definition: A strategic management approach developed in the 1990's by Robert Kaplan and David Norton with four perspectives to view an organization: learning and growth, operational, customer, and financial.

What This Means: For education agencies, the balanced scorecard has four quadrants: processes (curriculum and instruction), teacher/staff focus (professional development, mentoring/coaching), results (assessment results, graduation rates), and stakeholder focus (safety/security, customer satisfaction).

## Batch

Definition: A group of similar items produced, processed, or gathered together and treated as a single unit.

What This Means: Tasks performed by a computer, in which processing-intensive activities are grouped and processed as units, rather than being processed immediately on-demand. Examples of batch jobs in a PC are a printing request or an analysis of a website log. In larger commercial computers or servers, batch jobs are usually initiated by a system user. Some are defined to run automatically at a certain time.

## Beta Testing

Definition: Testing an [application](#) in the phase just before it is placed into production.

What This Means: Beta testing is not performed until an [application](#) is almost ready to launch. The beta test, coming after the earlier alpha test, may be distinguished from a [pilot](#) or field test because the beta test is vetting the [application](#) itself more than the processes involved in final implementation.

## BI (Business Intelligence)

Definition: Business intelligence encompasses [applications](#) and technologies for gathering, providing access to, and analyzing data for the purpose of supporting [Data-Driven Decision Making \(D3M\)](#).

What This Means: The business world has contributed the term "business intelligence" to information technology, but for an education agency, the best term is "data for [data-driven decision making](#)."

## Blog

Definition: A blog is a website that contains text entries in reverse chronological order (most recent first) about a particular topic.

What This Means: Blogs serve many purposes from online newsletters to personal journals to "ranting and raving." They can be written by one person or a group of contributors. Entries may contain commentary and links to other websites, images, as well as a search facility. A blog that includes video clips is a "video weblog" or "Vlog." For an education agency, independent blogs can be sources of unofficial information that may contradict official views or statistics. Although some blogs invite feedback and comments from visitors, Internet newsgroup discussions, which started long before the web, tend to be more question-and-answer oriented.

## Boolean Data

Definition: Boolean data are values that can be only Yes or No, True or False, or On or Off. Boolean data may be stored as one byte or as little as one bit (1 or 0).

What This Means: Computers use Boolean data, but they run so fast that the inefficiencies of stating everything in sets of Boolean values is offset. Boolean values impact the designers of questionnaires or tests where only right or wrong answers are desired. But mostly, computer users are far removed from Boolean logic.

## Bread Crumbs

Definition: Breadcrumbs typically appear horizontally across the top of a web page, usually below title bars or headers. They provide links back to each previous or parent page from the path the user has taken to get to the current screen that is being viewed.

What This Means: As used in [DataSpecs](#), Bread Crumbs show the user the parent pages, in [DataSpecs'](#) hierarchical structure, of the page the user is currently viewing. Bread Crumbs provide the user with links to the parent pages of the page the user is currently viewing, originating with Home.

## Broadband

Definition: Broadband typically means high-speed Internet access via [cable](#) or DSL.

What This Means: Speed is everything to schools and other education entities trying to access huge amounts of data or use on-line [applications](#). The T1 is no

longer the most affordable fast connection since [cable](#) modems provide speeds up to four times that of T1.

## Business Continuation Plan

Definition: The business continuation plan specifies how the agency will perform essential tasks after a disaster has disabled its software [applications](#), network, and/or information system.

What This Means: Above and beyond [disaster prevention and recovery](#), the business continuation plan details how tasks such as payroll, grade reporting, instructional management systems, e-mail, and other now-crucial processes will be done while recovery is in process after a disaster. An education agency must know how it will respond to keep student learning going in the aftermath of a disaster. (See our Optimal Reference Guide, **"Disaster Prevention and Recovery for School System Technology"** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Business Rules

Definition: A business rule is a regulation, policy, or procedure within an organization (or outside sources such as government regulations) that is translated into a software [application](#).

What This Means: Business rules enforce [data quality](#), which is why they are important to education agencies. Business rules are written to check data to ensure they meet the organization's [standards](#). Simple business rules may merely check to ensure a value in a data file is numeric or alphabetic. More extensive business rules verify changes from year to year or relationships between data within a [database](#).

## Cable Categories

Definition: The cables (copper or fiber optic) that hard wire computer networks are categorized by the speed and quality of the information they move. Categories (CAT) 1 through 6 are based on the EIA/TIA-568-B [standards](#). Most new wiring for [LANs](#) (Local Area Networks) is CAT5e, an improved version of CAT5.

What This Means: Mission-critical networks require CAT5 or better. A professional electrical engineer should specify the category of wiring for any new building.

## Cache

Definition: Pronounced "cash," a cache is used to store data temporarily to speed up processing.

What This Means: A large cache allows a computer to move the data needed at the moment out of larger tables and into a temporary area where calculations and other actions can be done faster. Cache capacity can affect performance of software as much or more than other factors. Browser caches and Internet caches

store copies of web pages to speed up retrieval the next time the same page is requested.

## Certify

Definition: Refers to the confirmation of certain characteristics of an object, person, or organization. This confirmation is often, but not always, provided by some form of external review, education, or [assessment](#).

What This Means: In education we certify data, making sure they meet [data quality rules](#) and [standards](#). Data reported to a state or derived for reporting by a state, e.g., [AYP](#), must be certified by the reporting agency to be official.

## Change Order

Definition: In project management, a change order is a component of the change management process, whereby changes from the agreed upon [scope](#) of the project's work require a mutual agreement.

What This Means: Managing a major project requires juggling the contractual obligations and the practical implementation realities. When these diverge, the change order ensures all parties mutually understand what the new requirements are and how any costs associated with the change are to be covered. Even when dollars are not involved, a formal change order documenting the new deliverables ensures the project management and final product will be acceptable—or at least accepted.

## Choreography

Definition: A description or symbolic representation of the interaction among a variety of peer processes.

What This Means: The root of the term Choreography is literally "dance writing." In dance, each of the players has a role and function and there is not a central point of control. In the IT world, the term is used when describing the interaction (the "dance") that occurs among independent processes or [applications](#) so they can interoperate.

## Client/Server

Definition: A computing architecture which separates a client from a server, and is almost always implemented over a computer network. This type of architecture is sometimes referred to as *two-tier*.

What This Means: Client/server configurations devices (and people) to share data, files, and resources. The client is both the end user and the personal computer being used. The server is the centrally located computer managing the [application](#). This configuration is significant because it does not require the user (i.e., a principal

or teacher) to manage the administration and hosting of the more complex [application](#)—merely to sign onto the server and work.

## Collection

**Definition:** A process by which data are gathered from data providers into a central repository. Although this is defined as a process, a collection is physically represented in many ways, e.g., a file transmitted over the Internet, a Web form, a pdf file, a paper form, an interview, etc.

**What This Means:** As used in [DataSpecs](#), a Collection consists of a set of data items that are grouped together and “collected” from one or more sources. For state education agency operation, collections are usually data brought in from districts and schools. For district operation, collections usually include data brought in from schools and other operational entities in the district, including transportation and school food service. In many organizations, the data items appear on a form (or several forms) or in electronic format(s). The individual fields or components of the collection are called “items.”

## Collection Item

**Definition:** In a collection process, each data element that is submitted/collected is a collection item.

**What This Means:** Collection items are typically enumerated for the data provider's convenience, or separated into distinct fields or boxes for entry.

As used in [DataSpecs](#), collection item is the unique name of the data item within the collection.

## Collection Method

**Definition:** The method for submitting data for a collection.

**What This Means:** The way a collection is presented to the person/people filling out the form. Collections can be submitted on paper or digitally.

As used in [DataSpecs](#), the options for Collection Method include: Email, Paper Submission, [SIE](#), Web Form, and Web [Upload](#). The choices for this list can be edited in the “System Options” table.

## Community of Interest

**Definition:** A community of interest is a group of people with a common issue, job, or interest.

**What This Means:** Communities of interest have been created to share tacit knowledge that otherwise would never be documented and known by other users.



High school registrars form a community of interest to share shortcuts, controls, and contact information when sending electronic [student records](#) and [transcripts](#).

## Community of Practice

Definition: A community of practice is people who share data, insight, experience, tips, information, knowledge, and advice about common interests or practices.

What This Means: Across education agencies, portals and websites have connected educators who are helping to solve problems together, sharing knowledge and best practices.

## Confidentiality

Definition: Confidentiality refers to the obligation not to disclose or transmit information to unauthorized parties. In technology, this refers to a designation of the [security](#) classification below secret.

What This Means: In education, confidentiality is especially important with regard to individually identifiable student information, which must be maintained confidential according to the [Federal Education Right and Privacy Act \(FERPA\)](#). Education organizations must have policies and procedures that ensure that no one has unauthorized access to confidential student data.

## COTS (Commercial Off-the-Shelf)

Definition: COTS refers to ready-made merchandise that is available for sale.

What This Means: This term is used to describe software and hardware products. A COTS product is often used as an alternative to a product that is developed in-house. The motivation for using COTS components is that they will reduce overall system development costs and involve less development time because the components can be bought instead of being developed from scratch. (See [MOTS](#).)

## Coursewalk™

Definition: CourseWalk is a tool that facilitates the matching of local school or district course codes to state or national course codes. The tool can also be used by a state education agency to match the state's set of secondary course codes to the national coding system called Secondary School Course Classification System: [School Codes for the Exchange of Data \(SCED\)](#).

What This Means: CourseWalk provides an "easy" way to match local or state course codes to [SCED](#) or local codes to state codes. Easy is in quotes because it is somewhat labor intensive; however, doing this process manually is much more tedious. CourseWalk offers recommended matches for local or state course codes based on the subject area, the name of the course and the description. Subject area specialists can focus on their own subject areas. New courses are easily added. ESP's CourseWalk is an add-on to [DataSpecs](#).

## CRM (Customer Relationship Management)

Definition: A term representing the business strategy built around the concept of improved customer service. The CRM definition involves all aspects of communications an organization has with its clients.

What This Means: Typically this term refers to a software [application](#) used to manage relationships with customers. Each interaction (phone conversation, marketing campaign, etc.) with a customer is generally added to a customer's contact history and staff can retrieve information on customers from the [database](#) as necessary.

## Crosswalk

Definition: Crosswalks establish how values in one system are transformed into values in another system.

What This Means: The last name, first name, middle initial, birth date, and gender fields as defined in one [application's database](#) must be crosswalked to the first name, middle name, last name, gender, date of birth fields in another when data are shared. [Legacy systems](#) are seldom changed to match a new data format. Instead a crosswalk table is built to change the [legacy system's](#) layout around to match the new format.

## Crosswalking

Definition: Crosswalking (at times called mapping) is matching a data [element](#) in one location with a data [element](#) in another location. Crosswalking is typically used to show which data [element](#) in a source file will be moved into a designated field in a destination file.

What This Means: Education agencies must move data from their local systems into compliant file formats for state or federal reporting. To do so, they must [crosswalk](#) the data [elements](#) in the local files to the correct fields in the mandated submission file formats. In the process, transformations may also be required if calculations are needed, if data [elements](#) must be combined, or if business rules must be applied.

## CSV (Comma Separated Value)

Definition: CSV or comma-separated values (or comma delimited) describes a data file in which there is a comma between two pieces of data to allow [applications](#) to read the information correctly.

What This Means: This is one of the most significant aspects of managing education data. Spreadsheets, [student information system applications](#), and most other software packages can produce these simple CSV files as the most expedient way to exchange data. CSV files can also be read by the human eye—an advantage

over [EDI](#), [XML](#), and other formats. However, continued reliance upon CSV files for exchanging education data is holding back progress in many agencies. Software vendors and education agencies should be transitioning to more interoperable [standards](#) such as [XML \(SIF\)](#).

## Cycle Time

Definition: The elapsed time taken for a process to be completed.

What This Means: Reducing cycle time is a significant factor in improving processes. For education, an excellent example has been the reduction in cycle time for scoring and reporting [assessment](#) results. If state [assessment](#) results are not reported back to schools for months, until the beginning of the next school year, teachers and students have moved on and the results are less useful for instruction. Diagnostic testing relies upon a short cycle time for scoring.

## D3M (Data-Driven Decision Making)

Definition: When a decision is based upon supportive data rather than opinion or personal experience it is called data-driven decision making.

What This Means: Decision makers can be anyone in the education arena—parents, taxpayers, teachers, policy makers, legislators, etc. When one of the stakeholders must make a choice, having supportive data to point to is comforting and politically safe. (See our Optimal Reference Guide, **“D3M Framework for Building a Longitudinal Data System”** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## D3M Framework

Definition: The D3M Framework is ESP’s definition of the components and their relationships as required for an education enterprise information system, or, to use NCES’s terminology, a [longitudinal data system](#).

What This Means: The D3M Framework provides a comprehensive, high-level picture of the components needed by an education agency to support [data-driven decision making](#). (See our Optimal Reference Guide, **“D3M Framework for Building a Longitudinal Data System”** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Dashboard

Definition: An online tool for graphically displaying a complex set of [indicators](#).

What This Means: Educators, administrators, parents, and others can use dashboards to get a quick overall picture of student data. Dashboard seems to be an archaic, limited analogy for the rich, analytical nature educators seek in an [indicator](#) system. (See [Scorecard](#) for a more illustrative term.)

## Data Access and Management Policy

Definition: A Data Access and Management Policy is a document describing the policies and procedures used by an education agency to ensure the confidentiality and security of student and staff data. It is based on state laws and regulations as well as federal laws such as the [Family Educational Rights and Privacy Act \(FERPA\)](#). It addresses issues related to providing access to data, sharing data across agencies, and making data available to parents.

What This Means: Every education agency should have a data access and management policy for several reasons. It helps agencies to identify and codify policies and procedures that will prevent negligence or abuse. It serves as a training tool for staff and reassurance to those whose data are collected and maintained. Not all staff data are private; however, conscientious decisions are needed to ensure data are handled appropriately. For more information about ESP's assistance in developing a data access and management policy, visit [www.espsg.com](http://www.espsg.com).

## Data Architecture

Definition: Data architecture describes how data are processed, stored, and utilized.

What This Means: An education agency must have a clear data architecture to manage the flow of data in and across all information systems.

## Data Dictionary

Definition: A Data Dictionary is a centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format.

What This Means: To the educator, the data dictionary is the [authoritative source](#) for definitions, codes, and interpretations for all data [elements](#) and derived statistics for an education agency. At this level, the term [metadata](#) dictionary is appropriate. For the IT professional, the data dictionary is more technical, describing the tables, fields, and codes around which a [database](#) is designed and constructed.

## Data Management

Definition: Data management includes all of the policies and processes related to defining, collecting, storing, and reporting data.

What This Means: An education agency that delegates all data management to the IT staff may lose the full benefits of the data, encounter policy conflicts when people use the data, or experience burden that interferes with the willing reporting of data. (See [Max Yield Data](#).) An overall data management plan or [information systems architecture](#) should be developed and maintained with the participation of all stakeholders.

## Data Model

Definition: The data model describes the design and organization of a [database](#). The data model is often represented in an [entity relationship diagram](#).

What This Means: A data model designed specifically for an education agency is a critical success factor in the implementation of a [data warehouse](#). Education data are different and more complex than most business data. For an education [database](#) to be efficient, it must be built upon an appropriate data model.

## Data Quality

Definition: Quality of data is defined by the match between the data and their acceptability for their intended purpose.

What This Means: To achieve data quality, an education agency must have [metadata standards](#), [quality assurance](#) processes, and a high level of use of the data to ensure that everyone who touches the data has a stake in their quality. ESP's Hierarchy of Data Quality is part of the U.S. Department of Education's National Education Technology Plan. (See our Optimal Reference Guides, "[The Data Quality Imperative, Data Quality Series Part I](#)" and "[The Data Quality Manual, Data Quality Series Part II](#)" at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Data Quality Rules

Definition: Data quality rules are applied to data to maintain data consistency, formatting, and fidelity to mandated definitions.

What This Means: The only difference between [business rules](#) and Data Quality Rules is the emphasis in the first case on accuracy and in the second case on validity for use.

## Data Source

Definition: A data source is the location (e.g., file, software [application](#), folder, form, [data store](#), etc.) where data are accessed.

What This Means: Identifying and documenting the source for each datum is crucial in an education agency to understand [data quality](#), to establish confidence in the data, and to interpret the meaning of the data. The [metadata](#) dictionary establishes the data source for all data. At times, multiple data sources exist. The [metadata](#) dictionary must then designate the [authoritative data source](#) for an [element](#).

## Data Steward

Definition: The data steward is responsible for the quality of the data in a designated [application](#) or [database](#) (i.e. collection, repository, etc.).

What This Means: The designation of data stewards by an agency ensures that someone is taking responsibility for the data (i.e., definitions, user compliance, completeness, access, etc.). The data steward needs to be more of a content or education program expert than a [Database Administrator](#); although, the data steward could be both.

As used in [DataSpecs](#), data steward is the person responsible or the contact person for the data or data group.

## Data Store, Database, Data Warehouse, Data Mart, Analysis Database

Definition: All these terms describe a place where data are consolidated to make using them more efficient.

What This Means: Regardless of the term used, the data are organized into related tables or hierarchical files for easy access. An education agency may have several of these depending upon how data are managed. The key is to know where the data are and how they are defined. *Please note*—a data store does not encompass the reporting tools that allow someone to use the data. Some data warehouses are sold with their reporting tools.

## Data Type

Definition: A datum is categorized into one of many types that represent not only descriptive dimensions but also designate how the datum is to be used in analysis. Data types (not mutually exclusive) include continuous, discrete, binary, categorical, Boolean, date, time, memo, number, text, integer, nominal, ordinal, equal interval, etc.

What This Means: Knowing the data type is essential to understanding the proper analysis methods to apply to the data. For example, a continuous variable can be averaged, but a categorical/discrete one (binary such as yes/no, or on a five-point scale) cannot. That is why we revere standardized scores for [assessments](#) and warn users not to average percentiles. When defining the [metadata](#) for a collection, the data type is essential to ensure comparability, consistency, and conformance across all the data providers, repositories, and [reports](#).

As used in [DataSpecs](#), data type is the data type of the item: Binary/BLOB, Boolean, Date/Time, Memo, Number, Text, etc. (The choices for this list can be edited by the System Administrator.)

## Database

Definition: A database is a data store that provides a means for updating, expanding, deleting, and accessing the data.

What This Means: Any software [application](#) keeps its data in a database. However, see the definition of [data store](#) to understand how many different ways databases are named.

## DataSpecs™

Definition: DataSpecs is a [metadata](#) management [application](#) for an education agency. Data collections, repositories, [outputs/reports](#), data [elements](#), [data stewards](#), calendars, gap analysis reports, and other key features are provided.

What This Means: ESP's DataSpecs is a [metadata](#) inventory [application](#) that compiles information about data resources and standardizes data definitions, codes, and formats to facilitate sharing of information across all [applications](#) without the need to reformat data time and time again. Reducing the burden of redundant data collection and [reporting](#) begins with understanding what is being collecting, by whom, when, for what purpose. Improving [data quality](#) begins with clear definitions and codes for what is being collected—and ensuring that those definitions are the same every time, for every [report](#). This is simple to write, but difficult to do when an education agency has hundreds of collections, repositories, and [reports](#) to manage with thousands of data [elements](#). To complicate the challenge, a single [element](#) like "name" can be labeled dozens of ways across hundreds of fields making linking records electronically virtually impossible. DataSpecs maps, aligns, and sorts this out to create a manageable [database](#) of [metadata standards](#) and rules for the education agency and can align them with national [standards](#) such as NCES handbooks, [EDFacts](#), and [SIF](#).

## DBA (Database Administrator)

Definition: The person responsible for the physical design and management of a [database](#) and for the [database management system](#) (DBMS) that manages it.

What This Means: Be very nice to the DBA. This is the person who ensures that the [database](#) and the data inside are always working, efficient, and available. The DBA's advice is crucial to any decisions related to other [applications](#) that use the data.

## DBMS (Database Management System)

Definition: The database management system controls the organization, storage, retrieval, [security](#), and integrity of data in a [database](#).

What This Means: The database management system is the key to the administration and use of a [data store](#). The major DBMS vendors are Oracle, IBM (DB2), Microsoft SQL Server), and Sybase (ASE). MySQL is a very popular [open-source](#) product.

## Decision Support System

Definition: An information system that provides data to decision makers in a timely and usable manner.

What This Means: [Data-driven decision making \(D3M\)](#) in education must be supported by an information system that collects, stores, analyzes, and provides ([reports](#)) the data at the time a decision must be informed. Decision support systems take many forms from simple [reporting](#) systems to sophisticated [query](#) and analytical [applications](#). So this is a general term that applies to one or more [applications](#) that an education agency uses to provide data for decision makers.

## Directory Service

Definition: A directory service is a shared information [infrastructure](#) for locating, managing, administering, and organizing common items and network resources, which can include volumes, folders, files, printers, users, groups, devices, telephone numbers and other objects.

What This Means: For educators, the directory services most often heard of will be the user accounts that manage your sign-ons and passwords. These will determine the access you have to data, [applications](#), and functions within [applications](#). You will be authenticated (identified and your credentials verified) and authorized (your level of security clearance verified and matched to the functions and data you can access). An administrator will manage your account—a real person, even though you will be able to change many of the settings yourself, e.g., your sign-on, password, profile, address, favorites, etc.

## Disaster Prevention and Recovery

Definition: The disaster prevention and recovery plan details how technology services will be rebuilt or repaired after a disaster.

What This Means: A disaster prevention and recovery plan in an educational setting is necessary to mitigate the negative effect of not having access to information. Some examples are: denial of services to a student who is moved after an event occurs, payroll checks not being issued on time, incorrect district or school accountability ratings. (See our Optimal Reference Guide, **“Disaster Prevention and Recovery for School System Technology”** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Download

Definition: To transfer data or programs from a server or host computer to one's own computer or digital device.

What This Means: When data are in one place and need to be moved to another, a download occurs. [Upload](#) means the same if you are sending your data rather than getting someone else's data.



As used in [DataSpecs](#), Download is a term used for the export of [metadata](#) from [DataSpecs](#).

## **EDEN (Education Data Exchange Network)**

Definition: As defined by the U.S. Department of Education, [www.ed.gov](http://www.ed.gov), the Education Data Exchange Network (EDEN) is a centralized [portal](#) through which states submit their educational data to the U.S. Department of Education. Critical directory data are submitted, as well as data on schools, services, staffing, students, and educational outcomes in order to meet the data requirements of annual and final grant reporting, specific program mandates, and the Government Performance and Results Act.

What This Means: EDEN provides the structure for submission of data by state education agencies to the federal government on programs such as Title I, Title III, Special Education, Vocational/Career Technology, and Migrant Education. The information collected meets most of the needs for [No Child Left Behind reporting](#), including [assessment](#) data and highly qualified teacher data. In addition, it provides directory and summary information formerly collected by NCES in the Common Core of Data, and data needed by the Office for Civil Rights. The EDEN network collects data at the school, district and state levels for some data [elements](#), thus providing more useful information for monitoring program success. EDEN files are submitted throughout the school year as data become available.

## **EDFacts**

Definition: As defined by the U.S. Department of Education, [www.ed.gov](http://www.ed.gov), EDFacts is a U. S. Department of Education initiative to put performance data at the center of policy, management, and budget decisions for all K-12 educational programs. EDFacts centralizes performance data supplied by K-12 state education agencies (SEAs) with other data assets, such as financial grant information, within the Department to enable better analysis and use in policy development, planning, and management.

What This Means: EDFacts absorbed [EDEN](#) as the method for obtaining the data from the state education agencies. EDFacts provides the mechanism for [reporting](#) out the data, including providing the relevant data to program offices within USED.

## **EDI (Electronic Data Interchange)**

Definition: Electronic data interchange is a standard format for exchanging business data.

What This Means: In the early 1990's, the [SPEEDE/ExPRESS](#) format for [student transcripts](#) was developed using EDI [standards](#). To exchange data using the [SPEEDE/ExPRESS](#) format, an education organization had to have established trading partnerships with other education organizations. While many postsecondary institutions have implemented [SPEEDE/ExPRESS](#), few elementary/secondary

organizations have done so. Newer formats for [student transcripts](#) use [XML](#) and promise to be more user-friendly for PK-12 education organizations.

## Element

Definition: Element or data element is the building block of the metadata dictionary. A term, word, value, number, statistic, code, etc. that fills the cell or field in a database, a form, a collection, etc.

What This Means: The metadata dictionary for an education agency should include all the data elements across all collections, repositories, and outputs/reports. Then the definitions of each element should be standardized to be consistent wherever that element occurs.

As used in DataSpecs, elements are the individual data elements that make up a Data Dictionary.

## Enterprise

Definition: An enterprise is a company, business, organization, or other purposeful endeavor.

What This Means: When planning for technology, it is important to consider the needs of the entire enterprise rather than just a portion. Within a school district, technology is used both for administrative purposes in school and district offices and for instruction in schools. (See [ERP \(Enterprise Resource Planning\)](#).)

## Entity Relationship Diagram

Definition: A diagram that describes what is inside the [database](#) and how each part relates to all others.

What This Means: When the time comes to produce [reports](#) or to perform a [query](#), the data must be arranged in the [database](#) such that they can be accessed and related to each other appropriately. In the software developers' quest to be efficient, the relationships among the entities within a [database](#) document how to get to everything after redundancy is reduced.

## Environment

Definition: Environment is simply the layout, context, and configuration of all the IT resources.

What This Means: When someone refers to the environment, this means any and all of the components that make up the total information system. IT people typically think of several key characteristics of their environment. These include: [network topology](#), [operating systems](#), hardware [platform](#), [security](#), etc.

## ERP (Enterprise Resource Planning)

Definition: ERP results in an integrated information system that serves all departments within an [enterprise](#). Evolving out of the manufacturing industry, ERP implies the use of packaged software rather than proprietary software written by or for one customer. ERP modules may be able to interface with an organization's own software with varying degrees of effort, and, depending on the software, ERP modules may be alterable via the vendor's proprietary tools as well as proprietary or standard programming languages.

An ERP system can include software for manufacturing, order entry, accounts receivable and payable, general ledger, purchasing, warehousing, transportation and human resources. The major ERP vendors are SAP, PeopleSoft, Oracle, Baan and J.D. Edwards. Lawson Software specializes in back-end processing that integrates with another vendor's manufacturing system.

What This Means: It is important to make technology purchases that fit the ERP to ensure technology is interoperable and benefits all relevant users within the education organization.

## ETL (Extract, Transform, Load)

Definition: ETL is the process of pulling data from one [application](#), formatting them as needed, and putting them into the target [application](#).

What This Means: Data are kept in different ways inside various software [applications](#). When we must move the data from one to another, we have to reformat and at times, change codes to match what the target [application](#) wants. ETL is how this is done.

## Extensibility

Definition: In software engineering, extensibility is a system design principle where the implementation takes into consideration future growth. It is a systemic measure of the ability to extend a system and the level of effort required to implement the extension.

What This Means: Extensibility is your insurance that an [application](#) will not be limited to only today's functionality or [interoperability](#) with other [applications](#). Newer [applications](#) are not necessarily more extensible—it's all in their architecture.

## Fail Over

Definition: Fail over is a term for redundancy that allows a system to continue running when there is a failure of a key component.

What This Means: Fail over systems automatically keep things running when a system failure would otherwise bring down an [application](#) or service. A teacher's

class taking an on-line benchmark [assessment](#) would not notice a server crash if the failover system performs adequately.

## **FERPA (Family Education Rights and Privacy Act)**

Definition: As defined by the U.S. Department of Education, [www.ed.gov](http://www.ed.gov), the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.

What This Means: FERPA mandates how personally identifiable must be protected by an education agency. (See our Optimal Reference Guide, “**FERPA: Catch 1 through 22**” at [www.espsg.com/resources](http://www.espsg.com/resources).)

## **Filter**

Definition: A filter is a set of criteria established to select desired data.

What This Means: Often a filter is set up when a report is being run to include only those individuals desired. For example, a filter may select only students on the free-lunch program with greater than five absences.

## **Firewall**

Definition: A software [application](#) that allows only authorized users through and blocks all others.

What This Means: A firewall keeps a computer, and the data on it, secure from intruders. Firewalls may provide a first line of defense against unauthorized access to data and systems; however, an education agency must take additional steps to ensure that those users who pass through the firewall are allowed access only to authorized data as per [FERPA](#) and local policy. (See [Proxy Server](#).)

## **Front-End Processor**

Definition: A front-end processor is a computer that handles communications processing for a [mainframe](#). It connects to the communications lines on one end and the mainframe on the other. It transmits and receives messages, assembles and disassembles [packets](#), and detects and corrects errors.

What This Means: A computer that is used to process data before it is sent to a mainframe computer for analysis or further processing.

## **Fuzzy Logic**

Definition: Fuzzy logic was created to manage imprecise data and solve problems that have many solutions rather than one. Fuzzy logic was conceived by Lotfi

Zadeh, former chairman of the electrical engineering and computer science department at the University of California at Berkeley. In 1964, while contemplating how computers could be programmed for handwriting recognition, Zadeh expanded on traditional set theory by making membership in a set a matter of degree rather than a yes-no situation.

What This Means: The terms may be used more in the future as actionable [reports](#) are created from analyzing conditions that exist in schools or with individual students. Fuzzy logic works in digital computers which make only yes-no decisions (see [Boolean Data](#)), but solves problems in a way that resembles human logic.

## Gap Analysis

Definition: A gap analysis describes what is missing between available data and the requirements being mapped.

What This Means: An education agency is required to submit multiple data files or [reports](#) to other agencies. A gap analysis will determine the [authoritative data sources](#) within the education agency for the required data [elements](#) for a specific mandated submission (e.g., [EDFacts](#) or a state report) and show where there are individual data [elements](#) missing or where definitions are misaligned. If no [authoritative data source](#) is available, that will be shown as well.

As used in [DataSpecs](#), a gap analysis is a report that shows what data are available for a specified use. An [EDFacts](#) gap analysis shows what [Table Fields](#) are missing to complete an [EDFacts](#) submission.

## GPS (Global Positioning System)

Definition: A Global Positioning System is a satellite-based radio navigation system run by the U.S. Department of Defense.

What This Means: Signals from at least four satellites on the horizon at all times are sufficient to compute the current latitude, longitude, and elevation of a GPS receiver anywhere on earth to within a few meters. GPS coordinates are used to locate school buildings and other facilities for emergency plans. Bus routes, school boundaries, and geography lessons use GPS data.

## Growth Model

Definition: A growth model measures change in student academic performance rather than status.

What This Means: When [NCLB](#) mandated a status [standard](#) for [AYP](#) and described only quasi-longitudinal growth as an alternate [indicator](#), failing schools that seemed to be improving but not reaching the annual objective for [AYP](#) sought recognition for growth in student performance. The U.S. Department of Education now allows states to use a growth model under specific guidelines if acceptable growth is great

enough to move students toward proficiency by the end of a school's grade span. States have also embraced growth models irrespective of [NCLB](#) acceptance.

The essence of a growth model is that it detects whether or not a student's [assessment](#) scores from one year to another are improving that student's proficiency level. Some growth models project a student's longitudinal trend on an [assessment](#) to estimate whether or not the student will be proficient by a target grade level. How much growth is enough is a significant decision for any growth model. (See [Value-Added Model](#).) (See our Optimal Reference Book, "**Growth Models—Finding Real Gains**" at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Horizontal Interoperability

Definition: Horizontal Interoperability occurs when applications run and conduct the business of an organization by sharing data automatically.

What This Means: Horizontal interoperability in an education setting refers to the automatic sharing of data and information among [applications](#) within the same organization (within a school or within a district). This can be achieved using the [SIF](#) specification and framework. (Contrast with [Vertical Interoperability](#).)

## Hot Back-Up Site

Definition: A hot back-up site provides all the major services of an agency's primary IT [infrastructure](#) in the event the primary site crashes or is taken out of service.

What This Means: The hot back-up site is essential for those services that an agency cannot afford to lose for an extended period of time.

## HTML (HyperText Markup Language)

Definition: HTML defines the page layout, fonts, and graphic elements as well as the hypertext links to other documents on the Web.

What This Means: HTML is not a programming language. However, the complexity of an education agency's web pages demands complex HTML to produce the graphics and links demanded.

## HTTP (Hypertext Transfer Protocol)

Definition: Hyper Text Transfer Protocol is the protocol used most commonly to transfer web pages and accompanying data over the Internet.

What This Means: HTTP is the engine of the World Wide Web that allows separate documents to be quickly accessed.

## HTTPS (Hypertext Transfer Protocol Secure)

Definition: Hyper Text Transfer Protocol that provides [security](#) to protect data and identities.

What This Means: A secure HTTP engine is referred to as HTTPS. Education agencies insist on HTTPS to protect their data from unauthorized access.

## Identity Management

Definition: Identity Management allows an organization to maintain the [authentication](#) and [authorization](#) information on users, their roles, and group memberships.

What This Means: Well beyond the annual staff directory, identity management must define for each individual precisely what that person can access within an education agency's information system.

## Index

Definition: An index combines metrics and [indicators](#) into a high-level measure.

What This Means: [AYP](#) is an index combining annual objectives, participation rates, and alternative [indicators](#). The advantage of an index is that the decision maker is using fewer measures which have already been combined and weighted to represent the agency's goals. (See our Optimal Reference Guide, "[From Information to Insight - the point of indicators](#)" at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Indicator

Definition: An indicator is a statistic that is calculated and reported to measure a useful condition or status.

What This Means: Indicators are also called metrics or analytics. They are used to provide guidance to answer a key policy question or make some other [data-driven decision](#). [Adequate Yearly Progress](#), dropout rate, and average daily attendance are indicators. The goal within an education [environment](#) is to find those indicators that lead to actions. (See our Optimal Reference Guide, "[From Information to Insight - the point of indicators](#)" at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Information Systems Architecture (ISA)

Definition: The information systems architecture is the reference to which everyone goes to when a decision needs to be made regarding the technology, [standards](#), systems, and policy that guide the use of data within an education agency for [data-driven decision making](#).

What This Means: The information systems architecture guides an education agency in the governance and management of all of its information systems. ESP has crafted its ISA template using best practices gathered from work across all states and multiple school districts. Seven major components for a [longitudinal data system](#) guide the ISA (governance, portal, collections, [data stores](#), [D3M](#), user support, and [infrastructure](#)). The ISA is the starting point for all information and technology planning and design efforts for an agency. At a very high level the purpose is to ensure that when students and the adults who support them reach a decision point, all the information they need to make the right choice will be at their fingertips. When teachers and parents need to know how to accomplish [data-driven decision making](#), they will be supported by the education agency's ISA to make it happen.

All the agency's information systems will be integrated to share data embracing adopted [standards](#). Confidentiality, security, integrity, validity, quality, and timeliness will characterize this sharing process. Technology and the creative architecture that takes advantage of it will leverage open [standards](#) that allow a single "information network" to evolve. Submitting [reports](#) will be replaced by using [reports](#). [Assessment](#), accountability, and accounting will be unobtrusive processes performed by the information network using the transactional [applications](#) that make individuals productive.

## Infrastructure

Definition: The basic underlying framework and components of an education agency's information system is the infrastructure.

What This Means: The infrastructure needs to be up-to-date, robust, and well-maintained or the more evident technology features such as software [applications](#) and web sites will not function well. An education agency's infrastructure includes the network, systems hardware components, [operating systems](#), [database management system \(DBMS\)](#), [enterprise software applications](#), and [information systems architecture](#).

## Integrated Notification System

Definition: When something happens of significance, the Integrated Notification System alerts the appropriate person.

What This Means: [Applications](#) with an integrated notification system ensure that important events, changes, or problems get immediate attention. Notification can be by e-mail, posting of a message on a [portal](#), etc.

## Internet2

Definition: Internet2 is the second generation of the Internet, developed by a consortium of more than 200 universities, private companies, and the U.S. government. Internet2 is designed for full-motion video and 3D animations—for research purposes (for now).



What This Means: Clearly (some) schools (already) use video and animations extensively. The interest in and demand for Internet2 functionality will rise but may be momentarily tempered by the speed and capacity of schools' Internet access.

## Interoperability

Definition: Information systems are interoperable when they can share data—without re-keying those data.

What This Means: Interoperability means that the burden of entering data is experienced only once. To be truly interoperable, systems must share common data definitions, the same codes or have a [crosswalk](#) for the codes, and be physically linked together (that is by fiber, wire, wireless, Internet).

## ISDN (Integrated Services Digital Network)

Definition: Integrated Services Digital Network is an international standard for switched, digital dial-up telephone service for voice and data.

What This Means: Analog telephones and fax machines that are used over ISDN lines have their signals converted into digital by the ISDN terminal adapter. ISDN enjoyed a surge of growth in the early days of the Internet because it provided the only higher speed alternative to analog modems in many areas. Still working in many behind-the-scenes [applications](#), ISDN is rarely used for Internet access.

## ISInsight™

Definition: A product of ESP Solutions Group, provides a process flow map depicting the information ecosystem of an education agency.

What This Means: Very few education agencies have a current, comprehensive picture or map of their information system ecosystem showing how each component exchanges data with the others. This process flow map and the detailed chart that supports it documents the components that collect, store, and provide data throughout an education agency. The official, unofficial, and even the "stealth" information components are identified. In a single picture, the organization can understand how complex the exchange of data is, how to begin to make the processes more efficient, and how important communications not only among the systems but among the people are. *ISInsight* maps are also created to depict the future configurations for how the systems will be configured for greater efficiency and effectiveness.

## ISO 9000

Definition: ISO 9000 is a family of [standards](#) and guidelines for quality in the manufacturing and service industries from the International Organization for Standardization (ISO). ISO 9000 defines the criteria for what should be measured.

ISO 9001 covers design and development. ISO 9002 covers production, installation, and service. ISO 9003 covers final testing and inspection.

What This Means: ISO 9000 certification does not guarantee product quality. It ensures that the processes which are used to develop the product are documented and performed in a quality manner.

## Java

Definition: Java is an object-oriented programming language that is [platform](#) independent (the same Java program runs on all hardware [platforms](#) without modification).

What This Means: Java embodies the "write once-run anywhere" model, which has been one of the Holy Grails of computing for decades. Developed by Sun, Java is widely used on the Web for both client and server processing. Modeled after C++, Java tightened up much of the syntax and added features to reduce and isolate programmer errors. It was also designed to run on small amounts of memory.

## JDBC (Java Database Connectivity)

Definition: The JDBC application programming interface can access any kind of tabular data, especially data stored in a [relational database](#).

What This Means: JDBC helps write [java applications](#) that manage these three programming activities:

- Connect to a data [source](#), like a [database](#)
- Send [queries](#) and update statements to the [database](#)
- Retrieve and process the results received from the [database](#) in answer to your [query](#)

## Knowledge Management

Definition: Knowledge management is a systematic process for identifying, capturing, organizing, sharing, transferring, adapting, and using data, information, knowledge, and best practices that exist in organizations.

What This Means: The estimate from businesses is that only 20% of all valuable knowledge is explicit, 80% is tacit. Tacit knowledge is best conveyed person-to-person through dialog, conversations, stories, etc. Education agencies, especially in their information management have undocumented processes that have been developed by, are managed by, or are known by single individuals. Development of a comprehensive [metadata](#) dictionary and/or an [ISInsight](#) data map are examples of processes that document this tacit knowledge.

## KPI (Key Performance Indicator)

Definition: Key performance indicators are those metrics by which we judge the effectiveness and success of both processes and outcomes.

What This Means: Adding the word “key” to this term emphasizes the importance of the [indicator](#). Some education agencies use school improvement methodologies that refer to their main [indicators](#) as KPIs.

## Lagging Indicator

Definition: A lagging indicator is a measure of an outcome.

What This Means: Lagging indicators come at the end of a process or program to measure success. They are also known as [trailing indicators](#). A lagging indicator may be used as a [leading indicator](#) in an historical or longitudinal analysis.

## LAN (Local Area Network)

Definition: A communications network that serves users within a confined geographical area.

What This Means: A LAN could connect users within a single school or within a school system’s central office. LANs provide more [security](#) than a broader network across locations might.

## LDAP (Lightweight Directory Access Protocol)

Definition: LDAP is a process used to access a directory listing.

What This Means: LDAP provides a common method for searching information in a directory. LDAP is a companion protocol to [HTTP](#) and FTP. An agency-wide LDAP implementation can enable almost any [application](#), running on almost any computer [platform](#), to obtain information from your LDAP directory. And that directory can be used to store a broad range of data: email address and mail routing information, HR data, public [security](#) keys, contact lists, etc. By making an LDAP directory a focal point in your systems integration, you're providing one-stop shopping whenever people go looking for information within your company—even if the primary [source](#) of the data lives elsewhere.

## Leading Indicator

Definition: An indicator that is predictive of an outcome.

What This Means: A leading indicator is a measure that is made at a time when changes can still be made in a process or program to improve outcomes. Identifying leading indicators in education is challenging because we measure more outcomes (See [Lagging Indicator](#) and [Trailing Indicator](#)). Some potential leading indicators are benchmark [assessment](#) results, weekly attendance rates, monthly discipline

incidents, and report card grades. [Lagging](#) or [trailing indicators](#) may also be used as leading indicators in an historical or longitudinal analysis.

## Legacy System

Definition: A legacy system is a computer system that has been in existence for a number of years. Often this system is a [mainframe](#) system that does not take advantage of new technologies such as [client/server](#).

What This Means: Many education organizations have legacy computer systems that no longer provide the capacity needed for [interoperability](#), multitasking, [data-driven decision making](#) and other capacities now considered essential. Moving from a legacy system to a state-of-the-art system often requires many dollars, much staff time, staff development, parallel systems, and other seemingly unconquerable issues to arrive at a more useful and friendly system.

## Level 1, 2, 3 Business Rules

Definition: Business rule levels are defined by the breadth of the characteristics that must be checked. Level 1 rules are simple ones that can be verified using only readily available data; whereas, Level 3 rules may require referencing data from across the entire agency.

What This Means: Most [applications](#) check Level 1 rules whenever data are entered. The highest degree of enforcement of [data quality](#) requires that the relationship of a datum be checked against other data. For example, when a new student enrolls in a school, a Level 1 business rule might be to check that all the required information fields are filled in, e.g., name, date of birth, etc. A Level 3 business rule might be to check whether the student was a former student who had been previously reported as a dropout.

After searching the Internet, Level 1, 2, and 3 business rules can be defined freely. The notion of levels is very esoteric—merely indicating a level of complexity. So, has anyone found a definitive definition of levels for business rules? Until then, let's use these.

Level 1: a rule that describes characteristics of and relationships across data within a single record

Level 2: a rule that describes characteristics of and relationships across data within a single data set

Level 3: a rule that describes characteristics of and relationships across data among multiple data sets. What distinguishes level 3 rules is that they cannot be tested using only data within a single data set.

There is some definitional confusion about using other tables to test rules, e.g., identifiers, school codes, etc. Within each level are rules that are categorized as:

Look Up: Another table is referenced.  
Historical: A series of past values is compared.  
Projected: A value is compared based upon a projection of the value expected.

These rules are not Level 3 necessarily because the look-up table, historical values, or projected value can be readily available to test the rule without reliance upon other data sets being available.

## Level 1, 2, 3 Support

Definition: Multi-tiered [support](#) is used to efficiently answer basic to advanced technical questions. The levels of [support](#) define which resource is going to handle which [support](#) requests, as well as the protocols and escalation measures to be used for requesting and providing [support](#).

What This Means: Technical user [support](#) is generally separated into levels of support. Level 1 [support](#) is used to answer basic questions of functionality, data definition, and basic process flow. If Level 1 [support](#) cannot answer a question it is then escalated until it is resolved. Level 2 [support](#) is required for resolving more technically advanced issues. Level 3 [support](#) generally requires advanced expert assistance to resolve only the most technical issues that cannot be not resolved by Level 1 or 2 [support](#).

## Liquidity

Definition: Liquidity is the characteristic of data to be interchangeable from the currency of one organization's system to another's.

What This Means: Liquidity for education information systems is not an institutionalized term. The characteristics of liquidity should include the capability of data to be exchanged across education agencies in a timely manner without any loss of accuracy or precision. Liquidity is important when education records are being exchanged PK-20, or for migrant or mobile students, or for LEA to SEA reporting. One sense of liquidity is that the data within the information systems of one education agency would not need to be crosswalked, mapped, or otherwise modified to be exchanged with another agency if there were complete liquidity of the data between the two agencies.

## Logical Data Model

Definition: A logical data model in systems engineering is a representation of an organization's data, organized in terms of a particular data management technology.

What This Means: In the national education environment, the [National Education Data Model \(NEDM\)](#) is emerging as a universal logical data model. Each [application](#) in an education agency will have its own [physical data model](#) that should be consistent with the education agency's logical data model and with the agency's

[metadata standards](#) as documented and referenced in its [Information Systems Architecture](#).

## Longitudinal Data

Definition: Longitudinal data represent more than one point in time about an individual, program, or organization.

What This Means: In education, decision makers want to consider not just the status of a school, program, or student, but also the trend. Making progress is valued as well as current high performance. Information systems are being re-engineered to hold data across time and run analyses of trends. A common perspective is to think in terms of annual measures. However, decisions may best be driven by much shorter [periodicities](#).

## Longitudinal Data Store

Definition: A database that holds data in a format optimized for linking records across years and across entities (e.g., schools, districts, etc.).

What This Means: Not everything needs to be linked across years—or can be. Many processes do not need to be held up waiting for the longitudinal data store to be created, so a separate [data store](#) makes sense. The longitudinal data store can also grow quite large over time and needs to be scaled carefully. Tasks that do not require longitudinal data can be taken care of by the other [data stores](#).

## Longitudinal Data System (LDS)

Definition: A data system capable of tracking information over multiple years across multiple data sources.

What This Means: Records for mobile students can be combined across schools, districts, even states. Progress of students can be tracked across test administrations, grade levels, even programs.

## Mainframe

Definition: Mainframe computers are enterprise-level machines that can manage multiple, large-scale processes simultaneously.

What This Means: Mainframe computers in education agencies have largely been replaced by servers, typically multiple servers, for flexibility, cost savings, and software [application operating system](#) requirements. Mainframes continue to have viability for certain large installations. Determining whether a mainframe or a series of servers meets an agency's needs is a complex technical decision. Today, many, if not most software [applications](#) for schools and education agencies are architected to run on servers.

## Malcolm Baldrige National Quality Award

Definition: The Malcolm Baldrige National Quality Award was authorized by Congress and initiated by [APOC](#) to recognize quality in American businesses.

What This Means: Education winners are now included. Criteria include leadership; strategic planning; student, stakeholder, market focus; measurement, analysis, and knowledge management; workforce focus; process management; and organization performance results.

## Mandate

Definition: The category of mandate is broad and includes any reason that data are collected or reported.

What This Means: In the education world, mandates range from the official to the unofficial. Laws, policies, regulations, court orders, etc. can be very official, even if they are not very specific. Research requests, evaluation questions, and program objectives can be very specific even if they are not very official.

As used in [DataSpecs](#), mandate is a description of the source of requirements for the Collection or [Output/Report](#). “Mandates” might include a legislative act, a section of law, administrative code or procedure, or local policy.

## Mapping

Definition: Mapping (at times called [crosswalking](#)) is matching a data [element](#) in one location with a data [element](#) in another location. Mapping is typically used to show which data [element](#) in a source file will be moved into a designated field in a destination file.

What This Means: Education agencies must move data from their local systems into compliant file formats for state or federal reporting. To do so, they must map the data [elements](#) in the local files to the correct fields in the mandated submission file formats. In the process, transformations may also be required if calculations are needed, if data [elements](#) must be combined, or if [business rules](#) must be applied.

As used in [DataSpecs](#), mapping refers to linking one [element](#) to an equivalent element.

## Max Yield Data

Definition: Max Yield Data are those data that everyone agrees are worth the effort required to collect, clean, and report them.

What This Means: Data reporting burden and information overload are symptoms of today’s explosion in the data we have available to us. Now it’s time to be more selective in what we require schools to report and what we generate in [reports](#).

Finding and focusing on [actionable data](#), mandated [reports](#), and the data that actually drives decision making will result in Max Yield Data.

## Metadata

Definition: Data about data, metadata are used to facilitate the understanding, characteristics, use, and management of data.

What This Means: Every education agency must have control over its metadata. Metadata [standards](#) are part of a comprehensive [Information Systems Architecture](#). Metadata are the authority for how data [elements](#) are defined, [reported](#), and stored across all information systems. Metadata are the single most important part of reducing reporting burden from schools to districts to states. Consistent compliance with metadata [standards](#) negates the necessity for [crosswalks](#) and other burdensome processes to share the data across individual systems.

## MHz (MegaHertz)

Definition: One million cycles per second equals one megahertz. MHz is the unit used to measure the transmission speed of electronic devices, including networks. One-gigahertz means one billion times per second.

What This Means: The more MHz, the faster something exchanges information. As software [applications](#) get more complex and data grow, large increases in MHz are required to achieve even small, noticeable improvements in performance of computers and [applications](#).

## MOTS (Modified Off-the-Shelf)

Definition: A product that is a [COTS](#) (Commercial off-the-shelf) product whose [source](#) code can be modified. The product may be customized by the purchaser, by the vendor, or by another party to meet the requirements of the customer.

What This Means: Education organizations often want products that meet certain specific requirements not covered by existing [COTS](#) products. As a result, they may want to purchase a MOTS product. (See [COTS](#).)

## National Transcript Center (NTC)

Definition: Partnering with K-12 schools, state education agencies, colleges and universities, and co-academic organizations, the National Transcript Center network allows member institutions to communicate with the NTC server using the open standard of its choice. A proprietary data translation engine expands the trading partner network to include schools on any major protocol.

What This Means: States are using NTC to help districts exchange standard transcripts with postsecondary institutions and with each other when a student moves to another district. Districts get an extract from their student information



systems which is then sent to NTC where it is translated into [PESC](#) High School Transcript format, the [SIF](#) Student Record Exchange format, or the [EDI](#) [SPEEDE/ExPRESS](#) format. Some states also have their own proprietary format. The beauty of NTC is that it is easy for school registrars and counselors to use, and the received can be downloaded into the [student information system](#) without rekeying. More information about NTC is available at [www.transcriptcenter.com](http://www.transcriptcenter.com).

## NCLB (No Child Left Behind Act)

Definition: Federal legislation aiming to improve the performance of U.S. primary and secondary schools by increasing the [standards](#) of accountability for states, school districts, and schools, as well as providing parents more flexibility in choosing which schools their children will attend.

What This Means: NCLB is the source for many of the data collection and [reporting](#) mandates for schools, districts, and states. Complying with NCLB has motivated states to upgrade their information systems to be more flexible and based upon individual records rather than pre-calculated, aggregate statistics.

## NEDM (National Education Data Model)

Definition: As defined by [SIFA](#), [http://nedm.sifassociation.org/datamodel\\_review/Index.aspx](http://nedm.sifassociation.org/datamodel_review/Index.aspx), the [data model](#) is a catalogue of the data used in PK-12 education and a description of the relationships among those data.

What This Means: NEDM is a CCSSO/USED/NCES sponsored effort to collect definitions and [metadata](#) on all of the key data [elements](#) in the PK-20 education space. The initial scope includes all the Federal reporting requirements (including [EDFacts](#) and many others), NCES Handbooks, and the [SIF data model](#).

## Network Topology

Definition: A network topology refers to the physical configuration of [cables](#), computers, and other peripherals.

What This Means: An education organization should have a network topology to ensure that any new equipment will work with existing equipment and be able to exchange data as needed.

## NRP (Network Resource Planning)

Definition: NRP is the planning, scheduling, and control of a computer network.

What This Means: NRP includes all the planning and design necessary to ensure a network works as required. NRP includes documentation writing and network diagramming, analyses of traffic and congestion, analyses of [application](#) behavior

and demand, procedures for failsafe and [disaster recovery](#) operation, and forecasting requirements and redesign.

## ODBC (Open Database Connectivity)

Definition: ODBC is a database programming interface from Microsoft that provides a common language for Windows [applications](#) to access [databases](#) on a network.

What This Means: For [client/server database](#) systems such as Oracle and SQL Server, the ODBC driver provides links to their [database](#) engines to access the [database](#). For desktop [database](#) systems such as Access and FoxPro, the ODBC drivers actually manipulate the data. ODBC supports SQL and non-SQL databases. Although the [application](#) always uses SQL to communicate with ODBC, ODBC will communicate with non-SQL databases in its native language.

## ODS (Operational Data Store)

Definition: A [database](#) designed to integrate data from multiple sources to make analysis and reporting easier. Because the data originates from multiple sources, the integration often involves cleaning, resolving redundancy, and checking against [business rules](#) for integrity.

What This Means: The ODS makes that important step to bring data from various sources together. The ODS relies upon the [metadata standards](#) to ensure the data are compatible and understood.

## Official Data

Definition: Data become official when an agency certifies them for public [reporting](#) and uses them for their official purposes.

What This Means: Education agencies are required to report certain data and choose to report others. Because today's information systems facilitate the calculation of interim statistics, [leading indicators](#), research findings, and query results, the necessity for an agency to [certify](#) the data and statistics that are considered to be final, accurate, and usable for comparison has increased. Every board member, legislator, superintendent, and other official wants the assurance that when they cite a statistic that it is the real one.

## OLAP (Online Analytical Processing)

Definition: OLAP is a category of software tools that provides analysis of data stored in a [database](#). OLAP tools enable users to analyze different dimensions of multidimensional data.

What This Means: OLAP enables end-users to perform *ad hoc* analysis of data in multiple dimensions, thereby providing the insight and understanding they need for better decision making.

## Open Architecture

Definition: A type of computer or software architecture that allows adding, upgrading, and swapping components.

What This Means: With full knowledge that claims to be open architecture vary in their accuracy, the advantage of an open architecture is that an agency has at least the possibility that they will not be tied to a single vendor in the future for changes, upgrades, enhancements, and access to their own data.

## Open Source

Definition: Software in which the source code is openly available.

What This Means: There is often no cost for use of open source [applications](#); however, some companies offer value added support at a fee that is typically less than the license for a commercial product.

## Open Standards

Definition: Open standards are those [specifications](#) for hardware or software that are developed by a standards organization or a consortium involved in supporting a standard and which anyone can adopt or use.

What This Means: Open standards are available to anyone. Complying with open standards implies that an existing component in a system or a product can be replaced with one from another vendor. Education agencies conforming to open standards have alternative commercial sources for products that are compatible with any other products complying with the same [standards](#). This can save significant initial procurement or replacement costs.

A proprietary [standard](#) has been developed by a single vendor who controls the use of that [standard](#). Products using proprietary [standards](#) typically do not work with or exchange data easily with open [standards](#) or other proprietary [standards](#).

## OS (Operating System)

Definition: The operating system is the master program that runs the computer, sets the standard for all [applications](#) that run on the computer, manages all files, and displays the [user interface](#).

What This Means: The operating system determines which software [applications](#) will run on a computer. Examples are DOS, Windows (95, 98, NT, ME, 2000, XP), Macintosh OS X, Linux, and Unix (Solaris, AIX, HP-UX, etc.), OS/400 (IBM iSeries),

and z/OS (IBM zSeries [mainframes](#)). When an education agency had only a few computers, a single operating system was typically chosen. Today, an agency can have many computers running multiple operating systems to match the individual [applications](#) each is supporting.

## Output

Definition: Data or information may be presented to a user in multiple formats or outputs for use. Often called "[reports](#)," the term output is more expansive to include data files, oral presentations, web pages, books, notes, pictures, DVDs, and so many other ways that information can be shared today.

What This Means: Education agencies are using multiple media to communicate information to their various audiences today. Simply using the single term [report](#) has become too restrictive.

## Output Item

Definition: In an output, each data element that is presented is an output item.

What This Means: In order to manage and identify data elements in the metadata dictionary, each data element in an output needs to be identified.

As used in [DataSpecs](#), the individual fields or components of the outputs or [reports](#) are called "items."

## Packets

Definition: A formatted block of data.

What This Means: This is something hidden from the user and of interest to the technical professionals. For the educator, packets simply mean that the full set of data being exchanged is broken up when sent and reassembled when received. A single packet, if intercepted, is not likely to contain usable data.

## PBDMI (Performance-Based Data Management Initiative)

Definition: The Performance-Based Data Management Initiative was a [pilot program](#) to enable states to compile data normally submitted to the U.S. Department of Education into a standard format for electronic submission. It later became known as the [EDEN](#).

What This Means: PBDMI was important because it represented the desires of the state education agencies to provide data electronically from their existing systems, rather than filling in paper documents or online data entry screens. The goal was to include all Federal programmatic data that normally came from SEA administrative records systems. As more and more states became interested in participating in the

pilot, USED moved toward actual implementation of the project as [EDEN](#) and later [EDFacts](#).

## Periodicity

Definition: The schedule on which data are collected or reported.

What This Means: Periodicity is important because it defines when data must be collected and when data will be reported. Combine this concept with [official data](#) and an agency has a calendar of when its official statistics will be reported. Another aspect of periodicity is defining the timeframe or point in time represented by the data, e.g., from April 3 through May 14, as of October 1, quarterly, etc.

## PESC (Postsecondary Electronic Standards Council)

Definition: The Postsecondary Electronic Standards Council is a voluntary membership organization that develops [standards](#) for exchanging higher education data.

What This Means: PESC has developed an [XML](#) format for exchanging high school transcripts.

## Physical Data Model

Definition: A physical data model (a.k.a. database design) is a representation of a data design which takes into account the facilities and constraints of a given [database management system](#). A complete physical data model will include all the database artifacts required to create relationships between tables or achieve performance goals, such as indexes, constraint definitions, linking tables, partitioned tables or clusters. The physical data model can usually be used to calculate storage estimates and may include specific storage allocation details for a given [database](#) system.

What This Means: The physical database model is the actual design for a specific software [application](#) or a data repository. Each [application](#) will have its own physical data model that should be consistent with the education agency's [logical data model](#) (possibly [NEDM](#)) and with the agency's [metadata standards](#) as documented and referenced in its [Information Systems Architecture](#).

## Pilot Program

Definition: A pilot program is a test run of a software [application](#) before full implementation.

What This Means: Pilot programs take many forms. Some use volunteers; some carefully select a representative sample of users to ensure all possible issues are identified. A pilot should come after all [beta testing](#) and [QA](#) processes are complete.

## Platform

Definition: The platform includes the [operating system](#) or software tool set upon which an [application](#) runs or was developed.

What This Means: Platform is significant because it determines and limits the compatibility of hardware or software with others. Education agencies at times narrowly define the platforms they will use to simplify procurement, implementation, maintenance, and staffing.

## Platform Dependent

Definition: [Platform](#) dependent means that an [application](#) runs under only one [operating system](#) and runs in only one series of computers (one operating [environment](#)).

What This Means: If you buy a [platform](#) dependent [application](#), you have to have or buy the computer and or [operating system](#) it runs on. In contrast, a [platform](#) independent [application](#) can run in different operating environments.

## Politimetrics

Definition: Politimetrics is both the cause and the result of a political decision about the appropriate psychometrics to use when establishing cutpoints and other criteria for success.

What This Means: Most decisions about where to set the score for proficiency, how many credits to require for graduation, or what score qualifies a student to enroll in a special program are made through a combination of science (psychometrics) and policy (politics). Neither the pure psychometricians nor the pure politicians should make those decisions independent of the data and wisdom of the other.

## Portal

Definition: A portal is a web "supersite" that provides a variety of services including web search, news, e-mail, discussion groups, and links to other sites.

What This Means: Every education agency is likely to have a portal to manage communications and access with their tremendously varied user community.

## Portlet

Definition: A portlet is an application or site that is accessible through a portal's [user interface](#).

What This Means: [Portals](#) manage a user's experience with an agency's information. Instead of sending the user off to another web site, a [portal](#) can open

a portlet which provides a specific function. The portlet can even be a full-screen [application](#) that is integrated with [single sign-on](#).

## Post

Definition: Publishing data to a website.

What This Means: We used to say disseminate, distribute, pass out, send, mail, etc. Now, with websites, [blogs](#), and other electronic media, the word most often used is "post."

## Presentation Layer

Definition: The second highest layer (layer 6) in the OSI seven layer model is the presentation layer. It performs functions such as text compression, code or format conversion to try to smooth out differences between hosts. It allows incompatible processes in the [application layer](#) to communicate via the [session layer](#).

What This Means: The presentation layer is the first one where people start to care about what they are sending at a more advanced level than just a bunch of ones and zeros. This layer deals with issues like how strings are represented. The idea is that the [application layer](#) should be able to point at the data to be moved, and the presentation layer will deal with the rest.

## Primary Key

Definition: Within a [database](#), the primary key is the [element](#) that is used to link records.

What This Means: The unique statewide [student identifier](#) has become the most famous primary key, used to link a student's records across years, schools, and even districts. [Databases](#) create or use primary keys to make these links quickly and accurately for [queries](#) and analyses.

## Privacy Restriction

Definition: Privacy Restriction is a determination of the confidentiality of a data [element](#) or data collection. An item is considered restricted if it is thought that access to the item might lead to a compromise of security or confidentiality. Generally this means that data are restricted to only those with a "need to know" in order to do their jobs.

What This Means: As used in [DataSpecs](#), privacy restriction is a description of the general level of privacy restriction associated with the Collection, Repository Table, or [Output/Report](#). The privacy restriction options can be updated through System Administration/System Tables.

## Process Management

Definition: Process management is the focus on how activities are performed across an organization, without being bound by organizational structure.

What This Means: See [APOC](#). Most education agencies are functionally managed, e.g., food services, finance, instruction, HR, etc. Many processes are cross-functional, e.g., hiring personnel, professional development. Process management activities focus on defining a process, establishing responsibilities, evaluating process performance (metrics for measurement are important), and identifying opportunities for improvement.

## Protocol

Definition: A protocol is a set of rules for formatting messages sent between computers.

What This Means: Protocol is simply a standard way to do something. In the computer world, everything has to be standardized so the machines do not have to think about the data before performing the expected action with them.

## Proxy Server

Definition: A proxy server acts as a relay between two networks.

What This Means: This server acts as an intermediary between a workstation user and the Internet to ensure [security](#), administrative control, and [caching](#) service.

## Pull Technology

Definition: Pull technology requires the user to ask for something by performing a search or requesting an existing report, video, or other data type.

What This Means: When using pull technology, the user must ask it to perform an action to get the desired results. Web pages use pull technology—the user must initiate the interaction. (Contrast with [Push Technology](#).)

## Push Technology

Definition: Push technology delivers data automatically into the user's computer at prescribed intervals or based on some event that occurs.

What This Means: When using push technology, the user does not need to do anything to get data. The choice of whether to use push or pull technology is dependent upon the workflow for a given task. E-mail is an example of a push technology—it is delivered to the user automatically. (Contrast with [Pull Technology](#).)



## QA (Quality Assurance)

Definition: Quality assurance is a process, procedure, or program that tests hardware or software to ensure that all products and systems perform as originally specified.

What This Means: Quality assurance processes have grown in importance to ensure software [applications](#) work before they are launched. QA cannot be left up to the developers of an [application](#). Independent QA is necessary.

## QPM (Quality Project Management)

Definition: A term used by ESP to describe their project management methodology.

What This Means: Education agencies require customized project management approaches. ESP has adapted the Project Management Institute's methodology and enhanced it for the education information arena. (See our Optimal Reference Book, **"Project Management Success Factors"** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## Query

Definition: A query is a custom [report](#) generated by a statement (question) posed to a [database](#).

What This Means: Standard [reports](#) are somebody else's idea of what's important to know. A query is your own idea of a [report](#) you want. Reporting [applications](#) have [user interfaces](#) for composing a query that typically allows the user to select available measures or "facts" and designate the breakouts/disaggregations or "dimensions" of interest.

## RAID (Redundant Array of Independent Disks)

Definition: A redundant array of independent disks uses more than one disk drive to back up data or enhance performance.

What This Means: Instead of having to copy data onto another computer or tapes for back up, RAID performs back ups in [real time](#). The redundant disks also allow [applications](#) to keep running even if one of the disk drives fails.

## Real Time

Definition: Real time is a level of computer responsiveness that a user senses as sufficiently immediate or that enables the computer to keep up with some external process (for example, to present visualizations of the weather as it constantly changes). Real-time is an adjective pertaining to computers or processes that operate in real time.

What This Means: Real time describes a human rather than a machine sense of time. When an [application](#) performs its work in real time, it is keeping its [database](#) up to date as each transaction or entry is made. Real time is important for [applications](#) that must provide immediate reports or when data entered into one [application](#) must be shared instantaneously with other [applications](#).

## Relational Database/RDS (Relational Data Store)

Definition: A relationship database is a [database](#) that has separate files (tables), but each is related to others.

What This Means: Relational databases allow [queries](#) and [reports](#) to run faster. The concept was developed in 1970 by Edgar Codd, whose objective was to accommodate a user's *ad hoc* request for selected data. Almost all [database management systems \(DBMS\)](#), including Oracle, DB2, SQL Server, MySQL, etc., are relational.

## Reliability

Definition: The probability that a system, including all hardware, firmware (code that manages individual hardware components), and software will satisfactorily perform the task for which it was designed or intended, for a specified time, and in a specified [environment](#).

What This Means: If a solution is found reliable that means the components (normally refers to hardware components) that make up that solution can be expected to perform for the duration needed in order for the solution to be successful. This is often achieved through hardware redundancy (See [system redundancy](#)).

The [No Child Left Behind Act](#) advanced the use of reliability rules for determining the number of students in a category needed to ensure the data could be considered a true indication of student performance in a group.

## Report

Definition: A report is a method for presenting data or information to users.

What This Means: See [Output](#) for a distinction between reports and outputs.

As used in [DataSpecs](#), [Outputs](#) and Reports are the methods of presenting data using the contents of repositories. The reports or outputs created (or being designed) are documented as [Outputs](#) and Reports.

## Reporting Data Store

Definition: A reporting data store holds data in a format optimized for access for reporting.

What This Means: Other types of [data stores](#) are optimized for their own purposes but may be inefficient for analysis and reporting. Especially time consuming [queries](#) can be optimized in a reporting data store to run quickly. Those [reports](#) that are predictable or scheduled can be precalculated. Multiple reporting [data stores](#) can be created for greater efficiency.

## Repository

Definition: Repositories are data storage resources where data are protected, classified according to captured metadata, and processed.

What This Means: As used in [DataSpecs](#), once data have been received in a [collection](#), these data are typically stored in one or more [databases](#). The most common database structure is a [relational database](#). The storage locations are called Repositories. These data repositories are structured as data tables that consist of strictly defined fields or columns.

## Repository Table

Definition: Repository tables are sets of cells defined by rows and columns containing data elements.

What This Means: Repositories store data in tables similar to the charts and tables we see in [reports](#).

As used in [DataSpecs](#), repository table is the name of the Table to which the Field is associated.

## Repository Type

Definition: [Data stores](#) or repositories serve different purposes, here called types, e.g., transactional, staging, development, operational, longitudinal, reporting, back-up, etc.

What This Means: As used in [DataSpecs](#), repository type is the type of Repository: Staging, Development, Operational, [Data Warehouse](#), etc. The choices for this list can be edited in the table System Options.

## RFP (Request for Proposals), RFO (Request for Offers), RFI (Request for Information)

Definition: An invitation for vendors to submit a proposal on a specific commodity or service.

What This Means: These public processes not only ensure the agency receives competing proposals from which to choose, but also imposes upon the agency the

requirement to describe their requirements to a level of detail that potential bidders can understand them.

## **Risk Mitigation**

Definition: A structured approach to identifying and avoiding risk.

What This Means: A major project is always accompanied by risks, e.g., will there be enough money, will the launch deadline be met, will the users change their old ways and adopt the new ones, will the technology work, etc. Knowing those risks upfront and devising a plan to avoid, reduce, or respond to the risks is responsible management. (See our Optimal Reference Guide, **“From Risk to Reward - A Guide to Risk Management, Project Management Series Part II”** at [www.espsg.com/resources](http://www.espsg.com/resources).)

## **RSS (Really Simple Syndication)**

Definition: RSS is a set of web communications formats used to publish frequently updated content such as [blogs](#), news, or podcasts.

What This Means: Viewers of RSS content use special browsers called aggregators to watch for new content from dozens or even hundreds of web sites. RSS formats are specified in [XML](#).

## **SCED (School Codes for the Exchange of Data)**

Definition: School Codes for the Exchange of Data (SCED) consists of a comprehensive listing of secondary school courses and a set of codes to provide unique identifiers for the courses. It also provides a framework for recording detailed information about the nature and structure of the courses.

What This Means: SCED was developed with substantial state and local input. It is anticipated that use of this coding structure by districts will help to ensure that students are appropriately placed into courses when they move from district to district. It will also help postsecondary institutions to evaluate the quality of the academic programs completed by applicants.

## **Scope**

Definition: The identifying factors and requirements that define a project. The scope provides limitations on what a project does or does not cover.

What This Means: One of the most essential requirements for project management is to define the scope. The project's owner and those responsible for delivery must agree on scope to ensure everyone agrees when deliverables are acceptable. A statement of work or work breakdown structure typically defines scope. Knowing what is out of scope is just as important as defining what is in scope.

## Scorecard

Definition: A scorecard is a report that summarizes the status on [key performance indicators](#).

What This Means: Decision makers can quickly see current status and meaningful comparisons represented at a high level. Business scorecards report [indicators](#) across a variety of agency areas. There is typically no consolidation across those areas into a single performance index such as [AYP](#). In education scorecard [applications](#), the [key performance indicators](#), if presented in a web-browser format, can be selected to drill down to a finer level of detail, possibly even to an individual's performance level.

Scorecards represent a level of forethought as do [leading](#) and [lagging/trailing indicators](#) that inform action. Like traditional statistical reports, scorecards are intended to display significant annual and other static measures. Unlike traditional statistical reports, scorecards are also intended to be accessed frequently to monitor changes in formative, [leading indicators](#).

## Security

Definition: Security is the protection of data against unauthorized access and unauthorized changes.

What This Means: Security ensures that data are available for use by those that need it when they need it. Security is achieved with policies, [firewalls](#), [authentication](#), [authorization](#), physical barriers, audits, training, and constant vigilance.

## Session Layer

Definition: In a multi-level [application](#), the session layer is where the user's current experience is managed.

What This Means: The session layer keeps track of the user's current entries and clicks to make the experience more user-friendly and efficient.

## SIF (Schools Interoperability Framework)

Definition: SIF is an open standard for exchanging data from one education software [application](#) to another.

What This Means: SIF has become widespread at the school district level to allow data entered into one [application](#) to update all other [applications](#). For example, when a new student enrolls, entering basic information into the [student information system](#) would update the library, food service, transportation, instructional management, and other [applications](#). State education agencies have

begun to incorporate [SIF](#) into their collections to accommodate the school systems that are ready to have their data move directly from their local [applications](#) to the state.

## **SIFA (Schools Interoperability Framework Association)**

Definition: As defined by SIFA, [www.sifainfo.org](http://www.sifainfo.org), the SIF Association brings together the developers and vendors of school technology with the federal, state, and local educators who use that technology. To define the rules for data movement between [applications](#)—efficiently, accurately and automatically—in the [SIF](#) specification.

What This Means: The SIF Association is the governing body that manages the [SIF](#) specification. It is a group of both vendors and end user organizations that define what data needs to be exchanged between different educational software [applications](#) and the process for that exchange.

## **SIFA University**

Definition: SIFA University is an online series of courses covering [SIF](#) theory and improving educational data that offer certificates of completion that may, in some cases, be used for professional development credit.

What This Means: The [SIF Association](#) creates on-line courses that describe what [SIF](#) is and how to implement [SIF](#) in a school or district. The on-line courses are available through SIFA University -- a website sponsored by the [SIF Association](#). [SIF](#) members get access to these courses for free.

## **Single Sign-On**

Definition: A single sign-on is a specialized form of software [authentication](#) that enables a user to [authenticate](#) once and gain access to the resources of multiple software systems.

What This Means: Instead of signing on and off each time a user moves from one [application](#) to another, the user can be [authenticated](#) once, and move between [applications](#).

## **SIS (Student Information System)**

Definition: A software [application](#) for educational agencies to manage student data. Student information systems provide capabilities for entering student test and other [assessment](#) scores, building student schedules, tracking student attendance, and managing many other student-related data needs in a school, college, or university.

What This Means: The SIS has become central to a school's and district's information ecosystem. Over time, more districts have used the SIS as a

consolidator of all information for a student, even though the design of such [applications](#) did not envision such a broad use originally. The SIS has become the central provider of [official data](#) about students to other transactional systems within a district, e.g., transportation, library services, food services, etc.

The basic functions of the SIS include registration, enrollment, attendance, and scheduling. Many SISs also perform grade reporting, discipline accounting, program participation, [assessment](#) recordkeeping, etc.

## Six Sigma

Definition: Six Sigma is a systematic approach to reduce errors, decrease waste and costs, improve customer satisfaction, and increase revenues. Six Sigma is based upon quality principles but is more structured, project oriented, and bottom-line focused.

What This Means: For education, a Six Sigma quality standard would be equivalent to having only nine dropouts nationally a year. All products and services are the results of processes, which is why Six Sigma monitors processes, not the outcomes. Schools with a Six Sigma approach would work on prevention and use data heavily.

## SOA (Service Oriented Architecture)

Definition: SOA is the modularization of business functions for greater flexibility and reusability.

What This Means: SOA is a technique for presenting technology and information system components as individual services. When functions in a large [application](#) are made into stand-alone services that can be accessed separately, they are beneficial to more users.

## SOAP (Simple Object Access Protocol)

Definition: SOAP is a message-based standard process based on [XML](#) for accessing services on the Web.

What This Means: Initiated by Microsoft, IBM and others, SOAP provides a way to communicate between [applications](#) running on different [operating systems](#), with different technologies and programming languages.

## Software as a Service (SaaS)

Definition: Software as a Service (SaaS) is a model of software deployment whereby a provider licenses an [application](#) to customers for use as a service on demand.

What This Means: SaaS is also used loosely to describe a variety of functions that can be accessed by the user using the "cloud" or "grid." In other words, a function

that can be called and used over the Internet without having any code outside a browser loaded on one's machine.

## Source

Definition: The source is where the data we want are found.

What This Means: The source is highly important to know because there can be many sources for the same data. In reality, there should be only one "[authoritative data source](#)." This is where the [official data](#) are kept. This is the only place to go if you want the real data. If you ask for the [authoritative data source](#), and you get more than one possibility, then your agency is not in full control of its data.

## Specifications

Definition: A specification is a set of requirements.

What This Means: A specification document details the exact operations and functionality of a system. Specifications must be as precise as possible to ensure an education agency gets what it needs from a technology product. Many education agencies do not have the expertise in-house to produce a fully functional specifications document. These specifications need to be both technical and representative of what the users really need.

## SPEEDE/ExPRESS

Definition: SPEEDE/ExPRESS is a set of [Electronic Data Interchange \(EDI\)](#) formats for exchanging [student records](#) and [transcripts](#) among educational institutions. SPEEDE stands for Standardization of Postsecondary Education Electronic Data Exchange. ExPRESS stands for Exchange of Permanent Records for Students and Schools (K-12). The SPEEDE/ExPRESS formats were jointly developed by a group of postsecondary and PK-12 education data specialists, supported by the NCES, and approved through the ANSI X12 ([EDI](#)) committee.

What This Means: SPEEDE/ExPRESS was the first format for electronic [student records/transcripts](#). It was developed through the [EDI](#) process because that was the only relevant [standards](#) body. The format is a bit clunky because the data [elements](#) are not unique to education, but are often shared by other industries. The [Postsecondary Electronic Standards Council](#) developed the [XML](#) High School Format based on the SPEEDE/ExPRESS format. The [Schools Interoperability Framework \(SIF\)](#) Student Record Exchange format is also an [XML](#) format, but reflects a different type of [standards](#) format. SPEEDE/ExPRESS records are exchanged using the Texas SPEEDE Server, for the most part, and an effort is underway to move to [XML](#) formats. [NTC](#) can also exchange [EDI](#) formats, and can translate them into [PESC](#) or [SIF](#) formats.



## Staging Data Store

Definition: A staging data store holds data in a format optimized for collection and aggregation, and verification of [business rules](#) for [data quality](#).

What This Means: Just getting data into the front door can take time and slow down the data provider out in the districts, so staging data stores make that process efficient. Optimized for that task alone, they can run only the [business rules](#) required to ensure quality data get in, but save the longer processing for later.

## Standards

Definition: Standards are developed by organizations as a basis of comparison or to establish an ideal. Standards used in education technology include [ISO](#), [EDI](#), [XML](#), [ODBC](#), [SIE](#), PMI, [EDEN/EDFacts](#).

What This Means: Data that are shared or reported according to standards are higher quality and more useful than data that are not.

## State Report Manager™

Definition: SRM is ESP's product for exchanging electronic data files from schools and districts to state education agencies to meet reporting mandates.

What This Means: SRM's is unique because it accomplishes not only more efficient submissions of electronic records from local districts to states, but significantly enhances the quality of the data exchanged. SRM employs a simple [user interface](#) that allows local data providers to run trials of their data against the state's [business rules](#) before certifying their submission as compliant and ready for use by the state. The great advantage for the state is that when they receive the data, they are ready to do their own work as opposed to spending months cleaning up local data problems. [Data quality](#) is achieved when each person handling the data at each level understands the rules for quality, sees the level to which the data meet those rules, is responsible for meeting the rules, does so, certifies the data before sending them on, and ensures that the data in hand meet the rules for any future uses.

## Student Identifier

Definition: A number assigned to a student for tracking purposes.

What This Means: All states have accepted the reality that a permanent identifier is necessary to manage the education records of all students statewide. Although the Social Security Number is still used in a few states, all newer systems rely upon random or algorithmic numbers. (See our Optimal Reference Guides, **"Statewide Student Identifier Systems"** and **"Requirements for an RFP for Student Identifiers"** at [www.espsg.com/resources](http://www.espsg.com/resources))

## Student Record

Definition: A student record contains information about the education process and outcomes for an individual student.

What This Means: Long known as the cumulative folder, the move to electronic records has changed the name of the accumulated data on a student to a “record,” which can be paper or electronic. See [Student Transcript](#) for the difference between a student record and a [student transcript](#). Multiple national [standards](#) are emerging that define the contents and formats for a student record, e.g., [SPEEDE/ExPRESS](#), [SIF](#), [PESC](#), and many state-specific [standards](#).

## Student Transcript

Definition: A student transcript is a student's permanent academic record.

What This Means: The student transcript is now defined narrowly to be the secondary school document that certifies the student's academic record, typically for exchange with a postsecondary institution, employer, or other agency.

The student transcript's contents and formats have been defined by [SPEEDE/ExPRESS](#), [SIF](#), [PESC](#) High School, and various state-specific [standards](#). The contents actually exchanged are determined by the sender, the receiver, and the purpose of the record.

## Support

Definition: Support is a service that is provided to business users in order to resolve basic questions to advanced systemic or technical issues.

What This Means: User questions are to be resolved via a well defined and managed support process. The timely resolution of user support questions instills confidence and buy-in.

## Synchronous

Definition: Synchronous events are coordinated in time.

What This Means: For example, the interval between transmitting A and B is the same as between B and C, and completing the current operation before the next one is started is considered synchronous operations. (Contrast with [Asynchronous](#).)

## System

Definition: A system is more than one software [application](#) working together to achieve more than the individual [applications](#) can do on their own.

What This Means: You want systems more than [applications](#) because a system provides added value above and beyond what the individual [applications](#) can.

## System Redundancy

Definition: System redundancy is the duplication of critical components of a system with the intention of increasing [reliability](#) of the system, usually in the case of a backup or fail-safe.

What This Means: Solutions often incur extra expenses to duplicate critical systems and sub-systems. Automated and quick manual recovery plans are often designed to ensure systems maintain a reliable status. Stringent hardware replacement agreements with hardware vendors are commonplace in this process.

## Table Field

Definition: A cell and its contents are defined by the row and column within a table.

What This Means: This term has the same meaning as a cell in a table or a chart.

As used in [DataSpecs](#), table fields are the elements contained in a Repository.

## Target Audience

Definition: The target audience is a general or very specific group of people who are the primary users for which the information is being reported.

What This Means: In education, the target audience is significant in determining how we format or compose reports. With the use of public web sites, knowing our target audience does not ensure that they are the only ones that will be using our data. The target audience is often the determiner in how esoteric the descriptions, labels, and legends are in tables and reports.

As used in [DataSpecs](#), target audience is the group of persons who are the expected primary users of the data or data grouping (Collection, Repository, etc.).

## TCP/IP (Transmission Control Protocol/Internet Protocol)

Definition: TCP/IP is a communications protocol.

What This Means: This is how data are communicated over the Internet. TCP ensures that data arrive intact and complete. Every location in a TCP/IP network requires an IP address to be found on the Internet.

## Thin Client

Definition: A computer that works like a terminal when all the processing is done on another computer.

What This Means: For a software [application](#), thin client means that all the user needs is a basic PC. Little or no software must be loaded to run on the PC; therefore, updates and performance issues are not the responsibility of the user. Thin clients may not store any data on the user's PC.

## Trailing Indicator

Definition: A trailing indicator is a measure of an outcome.

What This Means: Trailing indicators come at the end of a process or program to measure success. They are also known as [lagging indicators](#). A trailing indicator may be used as a [leading indicator](#) in an historical or longitudinal analysis.

## Transactional Software

Definition: Transactional software manages work at a basic level.

What This Means: [Student information systems](#), general ledger [applications](#), discipline accounting programs are examples of transactional software [applications](#) with the main purpose of recording and maintaining a record of actions as they occur.

## Transformation Rules

Definition: Transformation rules document how data are derived, calculated, or translated from one format to another, or from source data elements into a derived element.

What This Means: Transformation rules must be clear and specific to ensure that anyone or any [application](#) that accesses raw or source data will result in the same derived or calculated value.

## UI (User Interface)

Definition: The user interface is what's displayed on the computer monitor for the user to understand and follow what's required to successfully use the [application](#).

What This Means: Interfaces are expected to be user friendly. The best UIs require the user to navigate a minimum number of screens in order to complete a task.

## UNIX

Definition: UNIX is an [open source](#), multiuser, multitasking [operating system](#) that is widely used as the master control program in workstations and servers.

What This Means: The Open Group holds the trademark for the UNIX name (spelled in upper case) on behalf of the industry and provides compliance certification to the UNIX standard. Both UNIX and the C programming language, which UNIX is written in, were developed by AT&T. UNIX and C were freely distributed to government and academic institutions, causing it to be ported to a wider variety of machine families than any other [operating system](#). As a result, UNIX became synonymous with "open systems."

## Unofficial Data

Definition: Unofficial data are those that do not represent statistics certified or published as official by an agency.

What This Means: Unofficial data can be some of the most useful for [data-driven decision making](#). [Leading indicators](#) are often unofficial. Unofficial data may be reported for trial analysis, early identification of trends, or trouble shooting.

## Upload

Definition: The opposite operation of a [download](#), to *upload*, is to send data from a local system to a remote system, FTP server, or website.

What This Means: Uploading data skips the risky process of re-entering data by sending all the data in a batch from one system to another. The [metadata standards](#) are crucial to a successful upload.

As used in [DataSpecs](#), Upload is a term used for the transfer of a file, in the form of a DataSpecs Excel Upload Template, into DataSpecs. In this way, the user is able to upload multiple data at once without having to manually enter the data one by one.

## Upload Template

Definition: An electronic file with a predesigned, customized format and structure, as for a fax, letter, expense report, etc., ready to be filled in to upload to a bulletin board service, mainframe, or network.

What This Means: As used in [DataSpecs](#), an Upload Template is an Excel spreadsheet formatted specifically for data to be uploaded into [DataSpecs](#).

## User Acceptance Testing (UAT)

Definition: User Acceptance Testing (UAT) is a process to obtain approval, by the owner or client of an object under test, through [beta testing](#) to confirm that the modification or addition meets the mutually agreed-upon requirements. UAT is a form of [beta testing](#).

What This Means: UAT is absolutely essential to validate that the [application\(s\)](#) or service(s) being developed meet the actual business need of the customer. Although the technical functionality of the [application](#) or service can be determined in unit or integration testing you must put the [application](#) or service in front of the end-user or their proxy in order to make a final determination for pre-release.

## Value-Added Model

Definition: A value-added model is a [growth model](#) capable of differentiating the influence of factors of interest, e.g., schools, teachers, demographics, programs, etc.

What This Means: Without being able to evaluate the influence of factors of interest, a model is merely a [growth model](#). Value-added models level the playing field, compensate for factors out of the control of the student, even out the challenges different teachers face with the group of students in their classes—generally, they make things “fair.” Although some value-added models are very simple (i.e., group schools into broad categories by percent economically disadvantaged students), others require sophisticated statistical software [applications](#) to calculate complex formulas.

## Vertical Interoperability

Definition: The ability to move data from one entity, such as the school or district, to another entity at the same or higher level. By introducing a regional [ZIS](#), information can move from a district implementing [SIF](#) to the state.

What This Means: Vertical interoperability is the sharing of data or information among applications at different organizations at different administrative levels. The direction of data flow is not restricted, though most frequently it is to a more central organization (school to district, district to state, state to federal government). Often the vertical sharing occurs outside or across normal zone boundaries. (Contrast with [Horizontal Interoperability](#).)

## VoIP (Voice Over IP)

Definition: VoIP is a telephone service that uses the Internet as a global telephone network.

What This Means: With a broadband Internet connection, all of an organization's telecommunications can be sent using the Internet.

## VSAM (Virtual Storage Access Method)

Definition: VSAM is an IBM access method for storing data, widely used in IBM [mainframes](#).

What This Means: VSAM files were common in the [mainframe](#) supremacy era. They are still used today for [mainframe applications](#).

## WAN (Wide Area Network)

Definition: A WAN is a communications network that covers a wide geographic area.

What This Means: Unlike a [LAN](#), which is within a school or other location, a WAN can connect multiple locations as large as a school system, state, or national organizations.

## Web Analytics

Definition: The analysis and reporting of web site traffic.

What This Means: Web analytics software measures such concrete details as how many people visit a site, how many of those visitors were unique visitors, how they came to the site (i.e., if they followed a link to get to the site or came there directly), what keywords they searched to get to the site, how long they stayed on a given page or on the entire site, what links they clicked on and when they left the site, etc. The data is used for decision making.

## Web Services

Definition: As defined by Wikipedia, web services are a software system designed to support interoperable machine-to-machine interaction over a network. Web services are frequently just Internet [application programming interfaces \(API\)](#) that can be accessed over a network, such as the Internet, and executed on a remote system hosting the requested services.

What This Means: Web services are becoming more and more popular and ubiquitous; however, as a user, you may not even know that is what they are. The benefit to you is that your computer will function and share data with other systems faster and more transparently (and securely) than ever before.

## Web Services

Definition: A window is a time frame, an opportunity, during which an activity may occur.

What This Means: Windows are contrasted with deadlines or target dates as allowing a range of dates for performing a task. A window is defined with a start

and an end date rather than merely a single due date. For example, instead of a statewide assessment being administered on May 1 everywhere, there may be a window from April 15 to May 15 allowed for administration.

## X12

Definition: Also referred to as "ANSI X12" and "ASC X12," X12 is a protocol from the American National Standards Institute (ANSI) for [electronic data interchange \(EDI\)](#). X12 was the primary North American standard for defining [EDI](#) transactions. It merged with EDIFACT in 1997.

What This Means: [Applications](#) can exchange data electronically using X12 [standards](#) to ensure identical formatting. [SPEEDE/ExPRESS](#), the first electronic [student record standard](#), was based upon X12 [standards](#).

## XML (Extensible Markup Language)

Definition: XML is an open [standard](#) for describing and formatting data and documents.

What This Means: In the education IT world, XML has caught on as a preferred way to exchange data. [SIF](#) is XML based. [PESC](#)'s electronic [student transcript standard](#) is XML based. [EDEN](#) accepts XML files. Because XML is "self-defining," knowing what is being exchanged is clear. XML is only a format like [HTML](#). XML is more precise and rigid than [HTML](#).

## ZIS (Zone Integration Server)

Definition: A Zone Integration Server (ZIS) is software that controls communication between [agents](#). Its primary responsibility is to route messages, control access, and enforce security in the zone.

What This Means: The Zone Integration Server (ZIS) manages the communication and security with a [SIF](#) zone. It is the ZIS that keeps track of which application [agents](#) are participating within the zone. The ZIS knows which [SIF](#) events get published by the various [agents](#), and which [agents](#) subscribe (receive) those event objects. The ZIS is not a [database](#)—it is the messaging system through which data pass. If an [agent](#) is temporarily unreachable, the ZIS will hold the message and keep trying to pass it along until the agent comes back on line. It is the ZIS that implements that "guaranteed delivery" functionality of [SIF](#).

## Zone

Definition: A [SIF](#) Zone is a grouping of software [applications](#) in which software [application agents](#) communicate with each other through the [Zone Integration Server \(ZIS\)](#). A zone consists of a [Zone Integration Server \(ZIS\)](#) and two or more PK-12 [applications](#) sharing data.



What This Means: A zone is a logical (not physical) way of grouping [applications](#) that work together in a [SIF](#) environment. [Applications](#) within the same zone can subscribe to events from other [applications](#) within the zone. Security is managed within the zone level.

## Data Dictionary Terms

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For organizations maintaining a data dictionary, and every one should, there is a set of terms that coincide with the management of that data dictionary. ESP's data dictionary tool, which we have developed over a decade and a half, is called DataSpecs™. To assist educators designing or maintaining a data dictionary, the following terms are defined as they are used in DataSpecs. Anyone is welcome to use these definitions along with the appropriate attribution as follows. "Definition provided by ESP Solutions Group, Inc. as used in DataSpecs™, copyright 2009."

### Abstract

Definition: Abstract is a short, free-form description of the Collection or [Output/Report](#).

### Active Only

Definition: A check indicates that the data presented on the screen is filtered to show only current entries. Expired entries (entries where the "Expiration Date" has passed) remain in the [database](#), but are not displayed within the drop-down list or the Data Grid view).

### Administration Manual

Definition: Administration Manual refers to a check box that denotes documentation is available in an Administration Manual.

### Administrator Security Role

Definition: This security role provides access to manage users and their roles, to manage the system option tables, and to perform all of the functions allowed for "[Authenticated](#)" users.

### Associated Link

Definition: Associated Link is the user-defined name of the Associated Link related to the Link URL.

### Authenticated Security Role

Definition: This security role allows access to create, read, update, and delete [DataSpecs](#) content but does not provide access to System Administration functions.

## Business Rule Logic

Definition: Business Rule Logic is a narrative statement of the rule. This may be “pseudo-code” statement(s). This text is intended for the rule implementers or developers.

## Change Implications

Definition: Change Implications refers to a check box that denotes documentation is available in a change document.

## Change Type

Definition: The type of change, when a code set has changed to a newer version. The selections include: extension, restriction, summary, consolidation, or copy. The choices in this list can be modified by the [DataSpecs](#) system administrator.

## Code

Definition: The code that is stored to represent an Option.

## Collection Burden

Definition: Collection Burden is the estimated total “people hours” (staff time) required to complete this collection. The total is calculated by multiplying “[Expected Number of Respondents](#)” by the “[Time Per Respondent](#).”

## Collection Name

Definition: Collection Name is a unique name or title that represents a defined collection.

## Collection Number

Definition: Collection Number is a unique number assigned to represent a specific collection. The unique number is associated with the unique name for a collection.

## Collection Set

Definition: Collection Set is a user-defined grouping of collections.

## Collection Type

Definition: Collection Type is the purpose or function satisfied or supported by the collection. The options are:

- Competitive Grant Application
- Entitlement Grant Application

- Program Report
- Program Monitoring
- General Statistics

The choices for this list can be edited in the “System Options” table.

### **Collection Window Closing Date**

Definition: Collection Window Closing Date is the date on which data collection ends.

### **Collection Window Opening Date**

Definition: Collection Window Opening Date is the date on which data collection begins.

### **Coverage Period End Date**

Definition: Coverage Period End Date is the final date of a time period reflected in the data reported for a particular collection due date.

### **Coverage Period Start Date**

Definition: Coverage Period Start Date is the beginning date of a time period reflected in the data reported for a particular collection due date.

### **Cross-Collection Clean-Up Window Closing Date**

Definition: Cross-Collection Clean-Up Window Closing Date is the ending date of the period of time allowed for resolution of data issues/edits across collections.

### **Cross-Collection Clean-Up Window Opening Date**

Definition: Cross-Collection Clean-Up Window Opening Date is the beginning date of the period of time allowed for resolving data issues/edits across collections.

### **Data Length**

Definition: Data Length is the length of the data if it is defined.

### **Database/Instance Name**

Definition: Database/Instance Name is the name of the [database](#) instance (the complete [database](#) environment and processes) for the repository. (Examples might include: Production, Test, or Staging.)

## Database Software Title

Definition: Database Software Title is the name of the [database management system](#) software within which the repository data are housed. (Examples: Oracle, SQL Server, Microsoft Access, etc.)

## Database Software Version

Definition: Database Software Version is the version of the [database](#) software used for managing the repository.

## Default Value

Definition: The default value of the data, if there is one.

## Detail Level

Definition: Detail Level is the lowest level of detail at which the data are collected. Examples include: County, Course, District, Individual, Other, Program, Region, School, or State. The choices for this list can be edited in the System Options table.

## Dictionary Element

Definition: Dictionary Element is a display area to display list of Element Names for selection.

## Display Name

Definition: Display Name is the text entry displayed with the [Collection Item](#) or [Output Item](#) as column header or field name.

## Due Date

Definition: Due Date is the date when the collection is due to be completed.

## Effective Date

Definition: Effective Date is the beginning date that the data or group of data with the specific attributes on this form was (or will be) effective.

## Element Categorization

Definition: Element Categorization is the category or categories within which this [element](#) has been classified.

## Element Name

Definition: Element Name is the unique name by which the [element](#) is commonly known. Encourage use of full titles for data [elements](#), avoiding acronyms and abbreviations so that the entries serve as a [data dictionary](#).

## Element Type

Definition: Element Type is the element type assigned to the NCES Element. Handbooks [element](#) types include:

- ID – defined by a code set
- AN – alpha/numeric (may include one or more letters or numbers)
- N – numeric (not including decimal numbers)
- R – floating decimal
- DT – date

## Email

Definition: The email address associated with the [data steward](#) or contact for the office.

## ESP Administrator Security Role

Definition: This security role allows access to all [DataSpecs](#) areas.

## ESP Staff Application Role

Definition: This application role enables ESP staff to set up initial roles and complete the initial [DataSpecs](#) set up for the installation.

## Expected Number of Respondents

Definition: Expected Number of Respondents is the number of organizations, submitters, or entities completing this collection.

## Expiration Date

Definition: Expiration Date is the date that the data or group of data with the specific attributes on the form was (or will be) expired.

## Extension

Definition: The extension (if any) with the Phone field.

## External Source

Definition: External Source is the name of an external source that defines the contents of this option set. For example, School ID numbers are often maintained in a [database](#) table which is continually maintained and would not necessarily be loaded (duplicated) in the [DataSpecs](#) Options list for the School ID Option Set.

## Field Name

Definition: Field Name is the name of the field as it should appear in the table. The Table Field Name format should follow the conventions for field names in use at your site. (These naming conventions are sometimes associated with specific [database](#) software.)

## Field Name(s) to Associate with Rule

Definition: Field Name(s) to associate with Rule is (are) the Collection Item name(s) associated with the rule. The selected fields are highlighted in the error reporting when the rule is violated.

## File Server Name

Definition: File Server Name is the name of the file server which houses the repository.

## Format

Definition: Format is the format in which the item should be entered or displayed.

## Formula

Definition: The formula used to derive the data, if it is a calculated field.

## IP Address

Definition: An Internet Protocol (IP) address is a numerical identification and logical address that is assigned to devices participating in a computer network utilizing the Internet Protocol for communication between its nodes.

## Item Dictionary

Definition: Item Dictionary refers to a check box that denotes documentation is available in a [data dictionary](#).

## **Item List**

Definition: Item List refers to a check box that denotes documentation is available in an item list.

## **Item Number**

Definition: Item Number is the sequence number of the item within a section of a collection or output.

## **LEA Content Area Specialist Application Role**

Definition: This application role identifies the user as a Content Area specialist at the local education agency level.

## **LEA Data Staff Application Role**

Definition: This application role identifies the user as a Data Manager at the local education agency (LEA or school district) level.

## **Link Description**

Definition: Link Description is a narrative description of the contents of the associated links. It is the free-form text description of the Associated Link.

## **Link Notes**

Definition: Link Notes are the free-form text notes about the Associated Link.

## **Link URL**

Definition: Link URL is the hyperlink URL (uniform resource locator) specifying where the Associated Link is available.

## **List of Field Names**

Definition: List of Field Names is a pick-list of Collection Item names which may be selected for use in the rule.

## **Master**

Definition: Master is the name of the top level option set in the hierarchy for an option set that is a subset within an option set hierarchy. For example, the option set "Primary grade codes" (grades K-3) are a subset of the option set for "Elementary Grade Codes," which are a subset of the "Master" option set of "All Grade Codes."



## Max Value

Definition: Max Value is the maximum value allowed for the data.

## Min Value

Definition: Min Value is the minimum value allowed for the data.

## Month Collected

Definition: Month Collected is the month or months when the collection is expected to be completed.

## Month Reported

Definition: Month Reported is the month or months when the [Output/Report](#) is expected to be completed or available. The entry includes a check box for each month.

## NCES Category Name

Definition: NCES Category Name is the name of the third level of hierarchy for a group of data [elements](#) that are related within a given section. Examples of categories include:

- Activity Information
- Honors Information
- Post-School Education/Training

## NCES Domain Name

Definition: NCES Domain Name is the name of the highest level of hierarchy for grouping or organizing NCES Handbook entries. NCES Handbook domains include:

- State Education Agency
- Intermediate Educational Unit
- Local Education Agency
- School
- Class
- Student
- Staff

## NCES Element ID

Definition: NCES Element ID is the NCES Element Number assigned to the selected NCES Handbook Element.

## **NCES Element Number**

Definition: NCES Element Number is the NCES Handbook Element Number of the Handbook entry to which the [element](#) relates.

## **NCES Option Set**

Definition: NCES Option Set is the NCES Option Set which contains the list of valid values for the element.

## **NCES Related Categories**

Definition: NCES Related Categories is the Option Set which contains the list of valid values for the field.

## **NCES Section Name**

Definition: NCES Section Name is the name of the second level of the hierarchy for organizing NCES Handbook entries. Domains include sections. Examples of sections for organizations include: Institution Identification, Governance, Program, and Accountability. Examples of sections for the Student domain include: Personal Identification, Enrollment, and School participation and Activities.

## **Nest Level**

Definition: Nest Level or Loop Number is the number identifying the level of the loop entry.

## **Office**

Definition: Responsible Office is the office responsible for the particular grouping of data (i.e., Collection, Repository, etc).

## **Order**

Definition: Order is the sequence entry to control the order in which the fields are displayed in the table. "Order" field is displayed under heading "Num" with "Field Name."

## **Other Documentation**

Definition: Other Documentation refers to a check box that denotes documentation is available in some other format or location.

## Output or Report Name

Definition: Output or Report Name is a unique name or title that represents a defined [Output/Report](#).

## Parent

Definition: Parent is the name of the immediate parent option set in the hierarchy for an option set that is a subset within an option set hierarchy. For example, the option set "Primary grade codes" (grades K-3) are a subset of the option set for "Elementary Grade Codes," which are a subset of the "[Master](#)" option set of "All Grade Codes."

## Phone

Definition: The phone number associated with the contact or [data steward](#) for the office.

## Precision

Definition: Precision is the number of decimal places for numeric data.

## Primary Key Order

Definition: Primary Key Order is if the field is part of the primary key for the table, then the position it appears in is a composite key. If the field is the sole component of the primary key then this field should be 1.

## Prompt

Definition: Prompt is a description or "prompt" that appears for the data item on the collection. Example: If the Item was 'Entry Date' an example of the Prompt text could be: The date the child entered school this year.

## Quality Criteria

Definition: Quality Criteria refers to a check box that denotes documentation is available in quality criteria, e.g. validation rules set.

## Rank

Definition: Rank is an alternative sorting order for the Option within the Option Set.

## Repeatable

Definition: Repeatable refers to a checkbox (True/False) entry to denote that the collection item is repeatable within the collection.

## Report Manifest ID

Definition: Report Manifest ID is an identification code or number associated with the collection. A Report Manifest ID might be used to associate recurring file submissions with the specific collection due date.

## Report Number

Definition: Report Number is a unique number assigned to represent a specific output/report. The unique number is associated with the unique name for an [output/report](#).

## Report Set

Definition: Report Set is a user-defined grouping of [outputs/reports](#).

## Repository Description

Definition: Repository Description is a narrative description of the contents of the repository: its tables, table fields, etc.

## Repository Name

Definition: Repository Name is a user-defined unique name or title that represents a repository.

## Required

Definition: Required is used by [Collection Items](#) or [Output Items](#) and is the requirement for participation in the collection. Options include: Required, Optional, and Conditional. (Example: A grant program collection may be required only from the schools or districts that have been awarded a particular grant.) As used by [Table Fields](#), it is a checkbox to indicate whether the field may be NULL or must have some value or setting.

## Rule Description

Definition: Rule Description is the description of the issue or error the rule is designed to address. (Example: "Verify that the Student Name includes First Name and Last Name, at a minimum.")

## Rule Detail Message/Description

Definition: Rule Detail Message/Description is a text description of the detailed message which may be displayed or reported when a rule violation is encountered. This text would be displayed with the specific record where the error is identified.

The text may reference the specific field and its contents in the record that failed the rule.

## **Rule ID**

Definition: Rule ID is a unique identification number for the rule within this collection. (The Rule ID must be numeric.)

## **Rule Name**

Definition: Rule Name is the user-defined name for a Rule.

## **Rule Official Message/Summary Description**

Definition: Rule Official Message/Summary Description is a summary message to be displayed or reported when execution of the rule fails. This official message would be shown on a summary page of an error report. There may be multiple records that violate this rule.

## **Schema Name**

Definition: Schema Name is the name of the schema or user space where the table resides. (Note: Not all [database management systems](#) support schemas.)

## **School Content Area Specialist Application Role**

Definition: This application role identifies the user as a Content Area specialist at the school level.

## **School Data Staff Application Role**

Definition: This application role identifies the user as a Data Manager at the school level.

## **Search Dictionary**

Definition: Search Dictionary is a box to enter search term to search dictionary [element](#) names.

## **Section Number**

Definition: Section Number is an identifier for the repeating data group section in a collection or [output](#). (The identifier may be numeric or text.)

## Short Name

Definition: A short name for the Option.

## SIF Element Description

Definition: SIF Element Description is the description of the [SIF element](#) from the selected [SIF](#) specification. When the [SIF](#) Element Name is selected and the specification includes a description, that entry is displayed.

## SIF Element Name

Definition: SIF Element Name is the name of the [element](#) within the selected [SIF](#) specification and object.

## SIF Object Name

Definition: SIF Object Name is the name of the object within the selected [SIF](#) specification.

## SIF Version

Definition: SIF Version is the version and release of the [SIF](#) specification.

## Source

Definition: Source is a reference to an external source that controls the Option.

## State Alias

Definition: State Alias is an alternative name for the [element](#). This alias could be the default [database](#) field name for the [element](#). There may be restrictions on the format of names which can be used as an alias.

## State Content Area Specialist Application Role

Definition: This application role identifies the user as a Content Area specialist at the state level.

## State Data Staff Administrator Application Role

Definition: This application role is the administrator(s) of [DataSpecs](#) at the state level.

## State Number

Definition: State Number is the state identifier (ID) if the state has an existing element numbering scheme for data [elements](#).

## Status

Definition: The default option set of status includes: Active, Inactive, Consolidated, Retired, Review, and Revise. The Status option set can be updated through System Administration/System Tables. The same Status option set is shared with Collection Info, Repository Info, Repository Table Info, and Output Info.

## Storage Location

Definition: Storage Location refers to a check box that denotes documentation is available in a storage location, e.g., at a web site URL or in a directory.

## Table Description

Definition: Table Description is a free-form text description of the repository table contents and purpose.

## Table Name

Definition: Table Name is the free-form text name of the table within the [database management system](#).

## Table Type

Definition: Table Type is a characterization of the table: Operational, Archive, Development, Longitudinal, Look-up, etc. The choices for this list can be edited in System Administration/System Tables.

## Time Per Respondent

Definition: Time Per Respondent is an estimate of the time required (on average) by a respondent to complete this collection.

## Unauthenticated Security Role

Definition: This security role allows users to view [DataSpecs](#) content but not access the System Administration functions

## Update Schedule

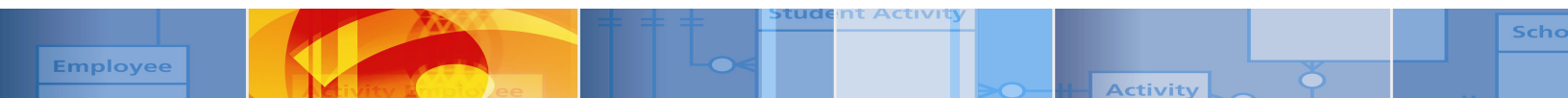
Definition: Update Schedule is a free-form text description of when the data in this table are updated. This is a measure of the volatility of the data.

## Version

Definition: Version is an identifier of a grouping of data (i.e. "Collection," "Repository," "[Outputs](#) and [Reports](#)") for a set of characteristics used to indicate that a change in the information has occurred from one instance to another. This user-defined text field can be helpful with control of various copies.







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- The Data Quality Imperative, Data Quality Series—Part I
- The Data Quality Manual, Data Quality Series—Part II
- The Process for Ensuring Data Quality

### Data Management

- Data Management Strategy for States and Districts
- Management of a Education Information System
- National Education Data Standardization Efforts
- Racial/Ethnic Data Reporting in Education
- Requirements for an RFP for Student Identifiers
- Statewide Student Identifier Systems
- Our Vision for D3M
- Articulating the Case for Course Numbers
- Graduation Rates: Failing Schools or Failing Formulas?
- Recommended Data Elements for EDEN Reporting
- FERPA: Catch 1 through 22
- Revisions to FERPA Guidance
- Disaster Prevention and Recovery for School System Technology

### Reporting

- Actions Speak Louder than Data
- From Information to Insight—The Point of Indicators
- Aligning Indicators and Actions
- Confidentiality and Reliability Rules for Reporting Education Data

### Electronic Transcripts

- Electronic Student Records and Transcripts: The SEA Imperative
- Why Your State Needs a PK-20 Electronic Record/Transcript System

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- The Dash between PK and 20: A Roadmap for PK-20 Longitudinal Data Systems
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- What's Behind Your Data Warehouse, Data Warehouse Series—Part II
- Accessing Student Records in a State Longitudinal Database, Data Warehouse Series—Part III

### Assessment & Growth Models

- Growth Model Growing Pains, Growth Model Series—Part I
- Comparison of Growth and Value-Add Models, Growth Model Series—Part II
- Making a Year's Growth and Performing on Grade Level: Muddled Definitions and Expectations, Growth Model Series—Part III
- Growth Models—Finding Real Gains
- Using Assessment Results to Get Performance Results
- Why Eva Baker Doesn't Seem to Understand Accountability—The Politimetrics of Accountability

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- Why 70% of Government IT Projects Fail, Project Management Series—Part I
- From Risk to Reward: A Guide to Risk Management, Project Management Series—Part II
- Marketing Your Field of Dreams, Project Management Series—Part III
- Project Management Success Factors

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- Data-Driven Decision Making 2016
- How Education Information Fared in the Last Decade
- IT Defined...for the Educator
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