>> P E S C   A N A L Y S I S <<

FEDERAL & STATE GOVERNMENT RELATIONSHIP WITH VOLUNTARY CONSENSUS STANDARDS & STANDARDS-SETTING BODIES

AUGUST 20, 2019 v 1.1

⊡PESC®

MULTIPLE STAKEHOLDRS. ONE VISION.

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INTRODUCTION

This document provides an overview of Federal and State Government involvement in data standards, interaction with PESC, and provides observations, analysis and recommendations on future efforts and initiatives. In particular, this document:

- Details PESC's work with Federal & State Government agencies and offices in developing and using *voluntary consensus standards* (non-government standards) and government-unique standards

- Potential challenges and issues in working with Government

- Observations and analysis

- Possible solutions, pathways and best-practice examples of successful initiatives and public/private partnerships

As a Member of The T3 Innovation Network and in partnership with the U.S. Chamber of Commerce Foundation, PESC is pleased to provide this analysis and continues to fully support and contribute to the efforts of The T3 Innovation Network Pilot Projects.

OVERVIEW OF PESC

*E*stablished in 1997 at The National Center for Higher Education, the Postsecondary Electronic Standards Council (PESC) operates as an international 501(c)(3) non-profit, community-based, umbrella association headquartered in Washington, D.C. of:

- Data, Software, Technology Service Providers and Vendors
- Schools, Districts, Colleges and Universities
- College, University and State/Provincial Systems
- Local, State/Provincial and Federal Government Offices
- Professional, Commercial and Non-Profit Organizations
- Non-Profit Associations and Foundations

Governed by a voluntary, consensus-based model, PESC's mission is to serve as an open standards-development and open standards-setting body, independently funded by Member dues, meeting registration fees and sponsorships, enabling PESC to produce and maintain **PESC Approved Standards** free and without charge.

PESC Approved Standards are developed, approved, ratified and maintained through an open, transparent, rigorous, community-based, collaborative process, including public notifications when development initiates and a 30-day public comment period before approval governed by PESC Members.

PESC Approved Standards are neutral; used, implemented, adopted and integrated in systems, networks, platforms, applications, products and services; are interoperable and *hub-and-spoke* and *web services* friendly; enable business processes and transactions; and, can be implemented and used one independently from another.

''**SYSTEMS MUST BE DESIGNED TO MEET the STANDARDS AND GUIDELINES OF U.S. NCES... INCLUDING THE SCHEMAS OF PESC.**''

- AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) OF 2009
  STATEWIDE LONGITUDINAL DATA SYSTEMS GRANT RFA

''**IN CALIFORNIA'S COMMUNITY COLLEGE SYSTEM, WE'RE IMPLEMENTING PESC'S XML POSTSECONDARY TRANSCRIPT. IT WILL SAVE US TIME AND MOST IMPORTANTLY RESOURCES AND MONEY. WE ARE LOOKING FOR ONE WAY TO PROCESS TRANSCRIPTS AND THIS WILL BE IT.**''

- OFFICE OF THE CHANCELLOR, 2010
  CALIFORNIA COMMUNITY COLLEGES

''**THE CHAMBER FOUNDATION IS EXCITED TO JOIN PESC AND TO CONTRIBUTE TOWARD THE ONGOING DEVELOPMENT OF DATA STANDARDS FOR EDUCATION.**''

- JASON A. TYSZKO, 2019
  VICE PRESIDENT, U.S. CHAMBER OF COMMERCE FOUNDATION, CENTER FOR EDUCATION AND WORKFORCE

''**THIS COLLABORATIVE EFFORT [WITH PESC] ENABLES THE COMMON RECORD TO BRING CONSISTENCY AND STANDARDIZATION TO THE TRANSMISSION OF STUDENT FINANCIAL AID DATA.**''

- COMMON ORIGINATION & DISBURSEMENT TECHNICAL REFERENCE, 2002
  U.S. DEPARTMENT OF EDUCATION, OFFICE OF FEDERAL STUDENT AID

"**GOVERNMENT STANDARDS [AND CORRESPONDING] VOLUNTARY STANDARDS CREATE DUPLICATION FOR INDUSTRY, WHICH MAY HAVE TO PROVIDE TWO LINES OF PRODUCTION TO MEET BOTH GOVERNMENT AND PRIVATE NEEDS AND CAN PUT US COMPANIES AT A DISADVANTAGE IN INTERNATIONAL TRADE.**"

- U.S. GAO, 2000

BUILDING FOR THE FUTURE

ONE STANDARD AT A TIME

A THRIVING, DIGITAL ECOSYSTEM REQUIRES

SUSTAINABLE STANDARDS AND COMMON INFRASTRUCTURE

𝒲HAT IS A VOLUNTARY CONSENSUS STANDARD?

For some, *voluntary consensus standard* (also called Non-Government Standard) is a statutory or regulatory obligation. For others, the term '*voluntary'* creates a perception of a wide-open, unstandardized market in which closed, proprietary applications and services reign; and access and control of data, serve as the value propositions to attract customers and clients.

The most important concepts to understand about *voluntary consensus standards*:

1) *Voluntary consensus standards* **refer to data to be exchanged, shared, reported, sold and/or licensed between at least two separate and independent parties.**

2) **While the value of *voluntary consensus standards* lies in the open, transparent, neutral and balanced process in place in the user community to participate (equally), develop, produce and maintain a standard, the value proposition is based in costs-savings, return on investment, improved data quality and efficiencies gained in overall data management and service delivery.**

3) **Federal rules and regulations clearly articulate the roles and responsibilities for all Federal agencies with regard to *voluntary consensus standards* and Government-Unique Standards, including annual reporting to the Department of Commerce.**

4) *Voluntary consensus standards* **are usually governed by standards-setting bodies, though the exact definition of a standards-setting body remains unclear.**

5) **A *voluntary consensus standard* can be mandated or required by an authoritative entity and emerges as a *best practice* model.**

6) **A Government-Unique and/or proprietary standard can become a *voluntary consensus standard*.**

The U.S. General Accounting Office describes *voluntary consensus standard* in a summary of the National Technology Transfer and Advancement Act (NTTAA) https://www.gao.gov/new.items/rc00122t.pdf:

> "Government standards are developed by individual federal agencies for their own use. Although unique government standards sometimes are appropriate, such as standards for certain specialized military equipment, in other cases, a voluntary standard would suffice. This creates duplication for industry, which may have to provide two lines of production to meet both government and private needs and can put U.S. companies at a disadvantage in international trade."

The major challenge for standards-development bodies and standards-setting bodes, like PESC, is maintaining a trusted, open, transparent, neutral, balanced and free *voluntary consensus standard* that in essence "levels the playing field," while simultaneously promoting innovation in a market that may perceive the voluntary consensus standard as merely anti-competitive or optional compared to other technical standards. From a Federal Agency perspective, there may be a lack of confidence in the utility, timeliness and sustainability of a *voluntary* standard and inconsistence guidance in existing statute, rules and regulations.

The attached report from Delphi, *The Value of Standards*, presents responses from a broad survey of leading technology companies and providers. While the report was produced in 2003, the results, concepts, analysis, challenges and insight remain the same even through 2019.

SUMMARY OF PESC & U.S. DEPARTMENT OF EDUCATION RELATIONSHIP

Being Education-based, PESC's primary relationship in Federal Government centers around the U.S. Department of Education (ED) and has been the most successful in the history of PESC, providing the most benefit to students, taxpayers and all stakeholders while ensuring significant cost-savings and a sustainable path for future development.

Through a partnership established in 1997 at PESC's founding, in which ED is a Co-Founder, this relationship represents the greatest impact of PESC and exemplifies how PESC is fulfilling its mission.

➢ Participation in the development of the *EDI High School and College Transcript* in the 1990's, still in use today by hundreds of colleges and universities, by the U.S. National Center for Education Statistics (NCES), continues as both PESC and NCES continue to collaborate on new technologies and standards, such as *Common Education Data Standards* (CEDS), in which PESC was an original partner in the leadership team.

➢ *Common Record* and *Common Origination and Disbursement* (collectively, *COD*), the XML standard and system used by the Office of Federal Student Aid (FSA) to originate and disburse all U.S. student aid (~$130B/annually, grants and loans), both also PESC Approved Standards, places PESC, PESC's methodology, and interoperable standards in every college and university in the U.S.

➢ Though COD was mandated for implementation by FSA, the process in which it was developed became the most important factor in adoption and acceptance by the user community. Combined with FSA's overall management, strategic planning and migration from several separate, disparate, and redundant student aid systems to one, COD serves as a best practice on change management, incorporating a robust, well-thought out, and open process that spanned five years. (See I: COD Implementation and Migration.)

➢ With FSA and PESC building off the same XML data modeling and architecture principles, which provide a synchronized, solid and sustainable infrastructure, FSA, on its own, is enabled to build and innovate for the future now having developed and produced over ten versions of COD in XML.

I: COD Implementation and Migration. PESC 2004. Illustrates how a *common record* provides continuity of service while enabling consolidation and retirement of stove-pipe and independent systems.
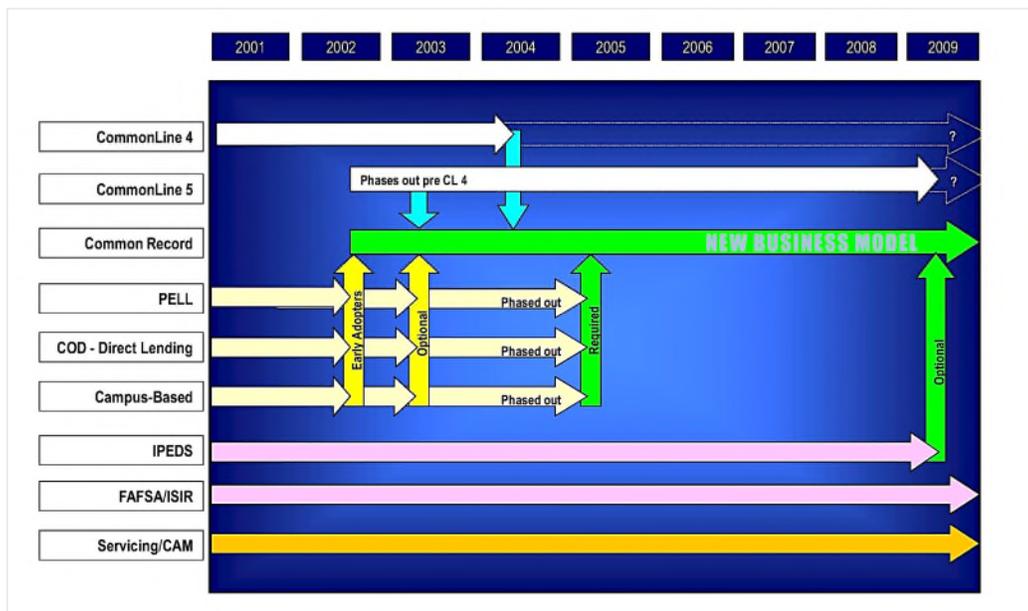
LAWS AND REGULATIONS FOR FEDERAL AND STATE GOVERNMENT

>> OVERVIEW <<

NATIONAL TECHNOLOGY TRANSFER ADVANCEMENT ACT (NTTAA)
March 7, 1996

The NTTAA established the Federal Government's expectations and duties in seeking out and establishing data standards. The NTTAA serves as a critical and founding statute from which all other statutes, laws and regulations flow. At the time the NTTAA was enacted, the American National Standards Institute (ANSI) was the only recognized standards-setting body in the U.S.

OFFICE OF MANAGEMENT AND BUDGET (OMB) CIRCULAR A-119
February 10, 1998, revised 2018

OMB further described the responsibilities of the Federal Government with relation to NTTAA and *voluntary consensus standards*, adding in Circular A-119, *voluntary consensus standards* must be made available "royalty-free…to all interested parties." OMB also required that each Federal Agency report annually (by December 31 of each year) to the Department of Commerce its use of government-unique standards, voluntary consensus standards, along with a variety of performance and cost metrics.

REAUTHORIZATION OF THE HIGHER EDUCATION ACT (HEA) OF 1965, AS AMENDED
Section 143: Simplification
1998

Addition of Section 143: Simplification to the Higher Education Act of 1965, as Amended, provided still further guidance requiring FSA, its leadership and the Secretary, to participate in standards-setting bodies.

INDIANA eTRANSCRIPT
Legislation
July 1, 2015

Indiana state law now requires all providers and stakeholders to use and implement electronic processes based on *voluntary consensus standards*.

Additional laws, regulations and guidance may apply and can be added to this document.

>> SPECIFIC CITATIONS <<

NATIONAL TECHNOLOGY TRANSFER & ADVANCEMENT ACT OF 1995

"...all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments."

"...Federal agencies and departments shall consult with voluntary, private sector, consensus standards bodies and shall...participate with such bodies in the development of technical standards."

Section 12 (d) (1-2)

OFFICE OF MANAGEMENT AND BUDGET (OMB) CIRCULAR NO. A-119 – REVISED FEBRUARY 10, 1998; 2018

"What are the goals of the government in using voluntary consensus standards?

➢ Eliminate the cost to the Government of developing its own standards and decrease the costs of goods procured and the burden of complying with agency regulation.
➢ Provide incentives and opportunities to establish standards that serve national needs.
➢ Encourage long-term growth for U.S. enterprises and promote efficiency and economic competition through harmonization of standards.
➢ Further the policy of reliance upon the private sector to supply Government needs for goods and services."

REAUTHORIZATION OF THE HIGHER EDUCATION ACT (HEA) OF 1965, AS AMENDED

Title 1, Part D, Section 143 of the Higher Education Act of 1965, As Amended

'SEC. 143. ADMINISTRATIVE SIMPLIFICATION OF STUDENT AID DELIVERY.

IN GENERAL- In order to improve the efficiency and effectiveness of the student aid delivery system, the Secretary and the Chief Operating Officer shall encourage and participate in the establishment of voluntary consensus standards and requirements for the electronic transmission of information necessary for the administration of programs under title IV.

PARTICIPATION IN STANDARD SETTING ORGANIZATIONS-
-The Chief Operating Officer shall participate in the activities of standard setting organizations in carrying out the provisions of this section.
-The Chief Operating Officer shall encourage higher education groups seeking to develop common forms, standards, and procedures in support of the delivery of Federal student financial assistance to conduct these activities within a standard setting organization.
-The Chief Operating Officer may pay necessary dues and fees associated with participating in standard setting organizations pursuant to this subsection.

ADOPTION OF VOLUNTARY CONSENSUS STANDARDS- Except with respect to the common financial reporting form under section 483(a), the Secretary shall consider adopting voluntary consensus standards agreed to by the organiztion described in subsection (b) for transactions required under title IV, and common data

elements for such transactions, to enable information to be exchanged electronically between systems administered by the Department and among participants in the Federal student aid delivery system.

USE OF CLEARINGHOUSES- Nothing in this section shall restrict the ability of participating institutions and lenders from using a clearinghouse or servicer to comply with the standards for the exchange of information established under this section.

DATA SECURITY- Any entity that maintains or transmits information under a transaction covered by this section shall maintain reasonable and appropriate administrative, technical, and physical safeguards-
-to ensure the integrity and confidentiality of the information; and
-to protect against any reasonably anticipated security threats, or unauthorized uses or disclosures of the information.

DEFINITIONS-
CLEARINGHOUSE- The term `clearinghouse' means a public or private entity that processes or facilitates the processing of nonstandard data elements into data elements conforming to standards adopted under this section.
STANDARD SETTING ORGANIZATION- The term `standard setting organization' means an organization that--
-is accredited by the American National Standards Institute;
develops standards for information transactions, data elements, or any other standard that is necessary to, or will facilitate, the implementation of this section; and
-is open to the participation of the various entities engaged in the delivery of Federal student financial assistance.
VOLUNTARY CONSENSUS STANDARD- The term `voluntary consensus standard' means a standard developed or used by a standard setting organization described in paragraph (2).'

INDIANA STATE LEGISLATION

IC 21-18-12. Chapter 12. Indiana E-Transcript Program. 21-18-12-1. Establishment of program. 21-18-12-2. Rules.

IC 21-18-12-1 Establishment of program
Sec. 1.   (a) The Indiana e-transcript program is created to allow students at all accredited high schools located in Indiana to request that the student's school transcripts be transmitted electronically to state educational institutions, participating Indiana not-for-profit or privately endowed institutions, and participating Indiana institutions authorized by the board for proprietary education established by IC 21-18.5-5-1.

(b) The commission shall administer the program.

(c) Beginning July 1, 2013, the department of education established by IC 20-19-3-1, in collaboration with the state educational institutions and the commission, shall develop a common electronic transcript, using common data fields and formats that are required by state educational institutions.

(d) Not later than July 1, 2015, all public secondary schools shall use the common electronic transcript developed by the department of education.

(e) The governing body of an accredited nonpublic secondary school may elect to use the common electronic transcript developed by the department of education.

As added by P.L.111-2013, SEC.1.

PESC HISTORY WITH U.S. FEDERAL AND STATE GOVT IN DATA STANDARDS

In an environment of confusing terminology (see Observations & Analysis), intermittent participation in PESC by ED, and an industry driven by proprietary solutions and standards, PESC has championed the value and role of *voluntary consensus standards* since its founding in 1997. To ensure Federal and State Agencies understand the value of PESC and *voluntary consensus standards*, and to present a sustainable and trusted investment, PESC promotes a long-term vision, a migration strategy, informational pieces and significant outreach.

Important to all development is an understanding of the path and strategy so everyone understands the overall mission and can identify how their contribution, their organizations, their jobs and themselves fit in.
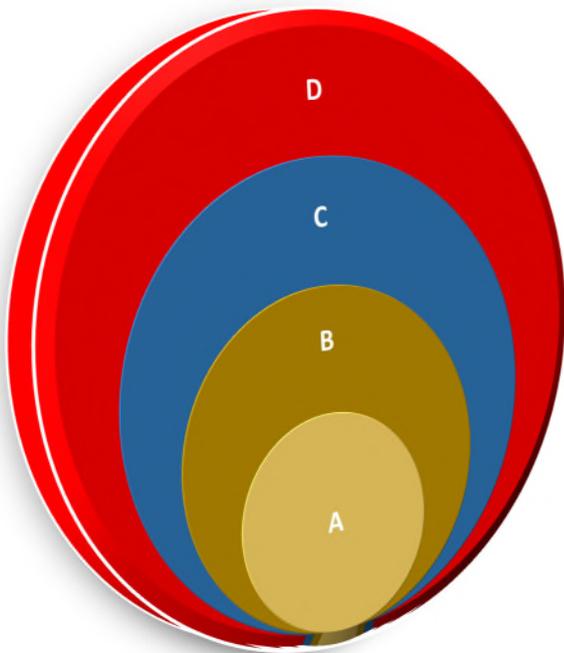
II. PESC Strategy for Migration: Technical, Political and Social
The main principle of *The Big Bang Theory* – Everything All At Once – does not apply to technology and standards. In Education as in other industries, we tend to stack our business problems on top of certain emerging ideas and technologies. Driven by hope, expectation and inspired to finally solve 'this' problem for once-and-for-all, the mindset of solving everything, all at once is sometimes unavoidable.

We know we cannot solve everything, all at once. We teach this lesson to our children every day and over time, they learn how to talk, read, crawl, walk and run with life. Now it's not always a smooth ride – there will be bumps in the road for sure. With technology, we struggle in both our personal and business lives with this emotional and sometimes financial expectation. The iPhone v1 was state-of-the-art when released in 2007. Yes, there were certain limitations or restrictions with its usage; yet, we wanted more, now. Our emotional demand has been successfully managed over time with refinement, improvements and a laser-like focus on enhancing consumer usage made in the form of additional releases (v2, v3, etc.) or upgrades, making the iPhone the most used, and most profitable in history.

Whether technical, political or social change, PESC's approach is holistic and begins with **A**: Mission, Vision, Governance, Business/Use Case, Goals, Intended Outputs and Accountability; **B**: Building, Testing and Piloting; **C**: Expanding Awareness; **D**: Implementation and Maintenance.

PESC's vision revolves around digital, standardized connectivity. PESC's value is in bridging disparate technologies, systems and sectors to ensure data quality, integrity, cost-savings and improved service delivery. Federal and State Agencies along with industry trust PESC Approved Standards to exchange, equate, link and compare data.

Change Management

Leaders and stakeholders must understand that **technology change is social change**. Standards are a very simple concept, but what becomes apparent for anyone working on a data initiative is how data and standards affect every aspect of an ecosystem. The best examples or best practices in overall change management can be combined and blended into a model that can be repeated and used in other instances, sectors and agencies.

The message being conveyed by PESC:
- Voluntary consensus standards are sustainable, valuable and enable innovation and business.
- All stakeholders must have a seat at the table.
- Implementation will vary depending on the technical capacity of each organization.
- Whether technical, political or social, start with a fundamental strategy for migration and build upon it.

As a new technology emerges, the PESC Community develops and produces a corresponding PESC Approved Standards in that technology. This approach provides more tools and options for users and implementers with

various needs or limited technical capacity, bridges sectors that may prefer one technology over another, and provides a trusted solution in which the value, integrity, meaning and identification protocols of the data content are identical regardless of which technology is preferred.

III. Ensuring Data Quality and Integrity: Data is constantly morphed, mapped and moved. The quality, value, meaning and definition of data must remain constant. PESC's focus is on 'inputs' and 'outputs.'

DISPARATE TECHNOLOGIES
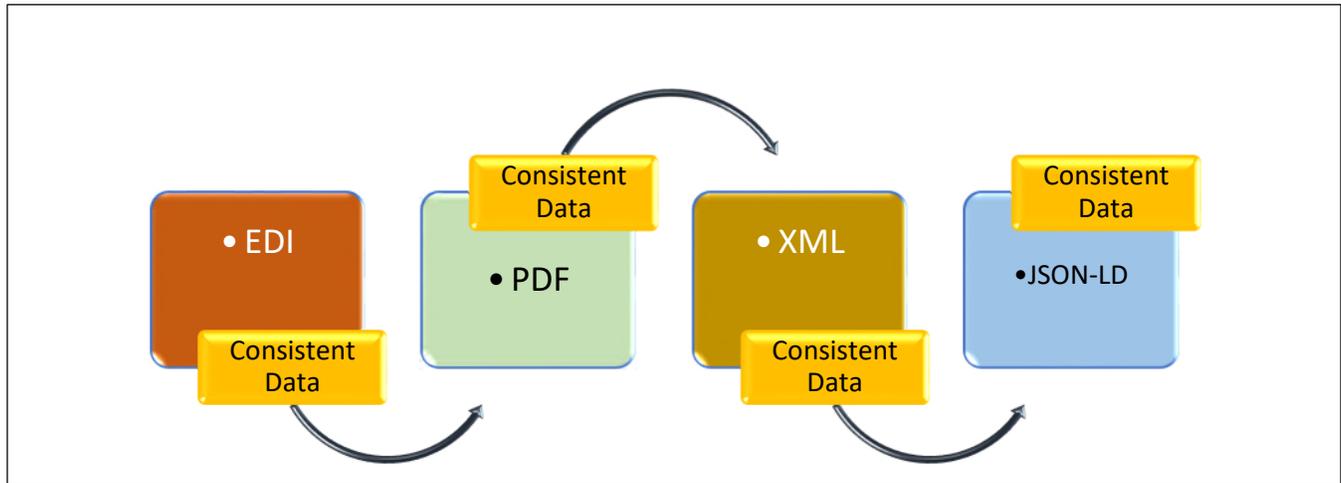
DISPARATE SYSTEMS
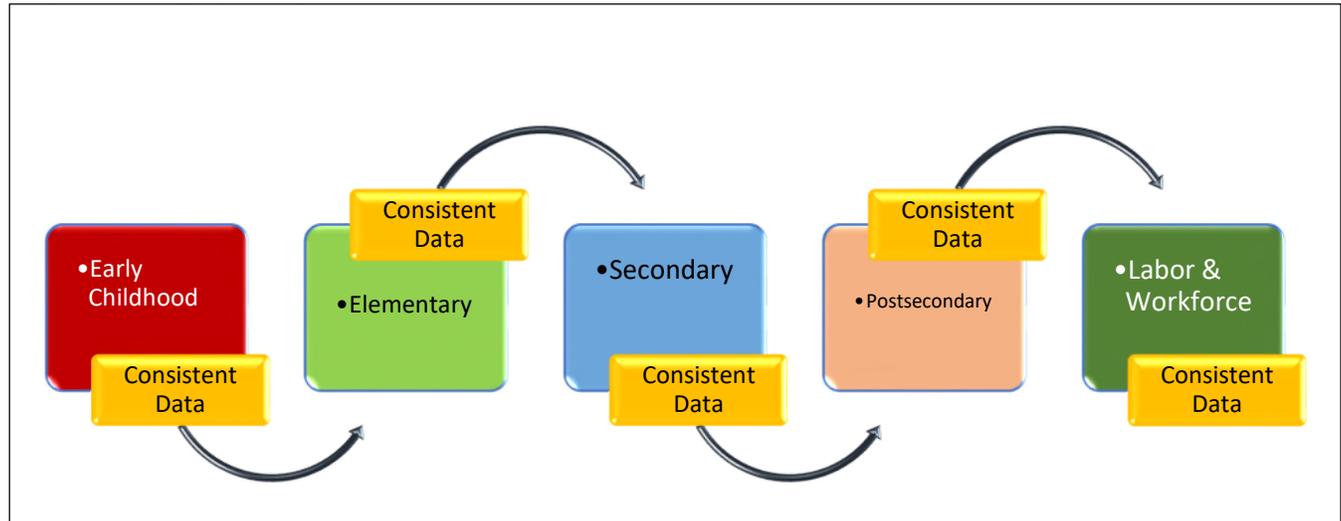
PESC is governed by an open, rigorous, disciplined and consistent process governed by PESC Members through the Standards Development Forum for Education, which is comprised of the Change Control Board, Technical Advisory Board, Education Record User Group, Standards Development Workgroups and a Steering Committee. These groups work in coordination with all PESC development, have inter-organizational representation, and together determine and propose all candidates for approval by PESC Members as official standards. Important milestones to note along the development, approval and maintenance process:

1) To ensure openness, transparency and 'co-opetition' (equal cooperation among competitors), all PESC development must initiate with a formal *Letter of Intent*. The *Letter of Intent*:

➢ Submitted by at least two PESC Members interested in developing and using PESC for production of a *voluntary consensus standard*.
➢ Includes use or business case(s), appropriate justifications and articulations on why development and usage of a community-based standard are needed and/or required.
➢ Issued publicly to allow all stakeholders the opportunity to participate before development starts.

2) The Launch of a PESC workgroup to develop the proposed candidate for standardization is announced publicly again to allow other stakeholders the opportunity to participate in development.

3) Once development is complete, the proposed candidate for standardization is released to the general public for a formal 30-day Public Comment Period after which all comments are reviewed, considered and assessed for inclusion in the proposed candidate.

4) With development and a thorough series of opportunities for public inclusion completed, PESC processes the candidate for Approval, Ratification and Release as a PESC Approved Standard. All PESC Approved Standards include (these requirements are added to PESC's ANSI inspired processes):
➢ XML schema that outline data file design and structure
➢ Implementation Guides that explain and describe implementation and use
➢ XML Instance Documents that display examples based on sample data

5) Maintenance and Release Management of PESC Approved Standards are conducted through PESC User Groups and the Standards Development Forum for Education.
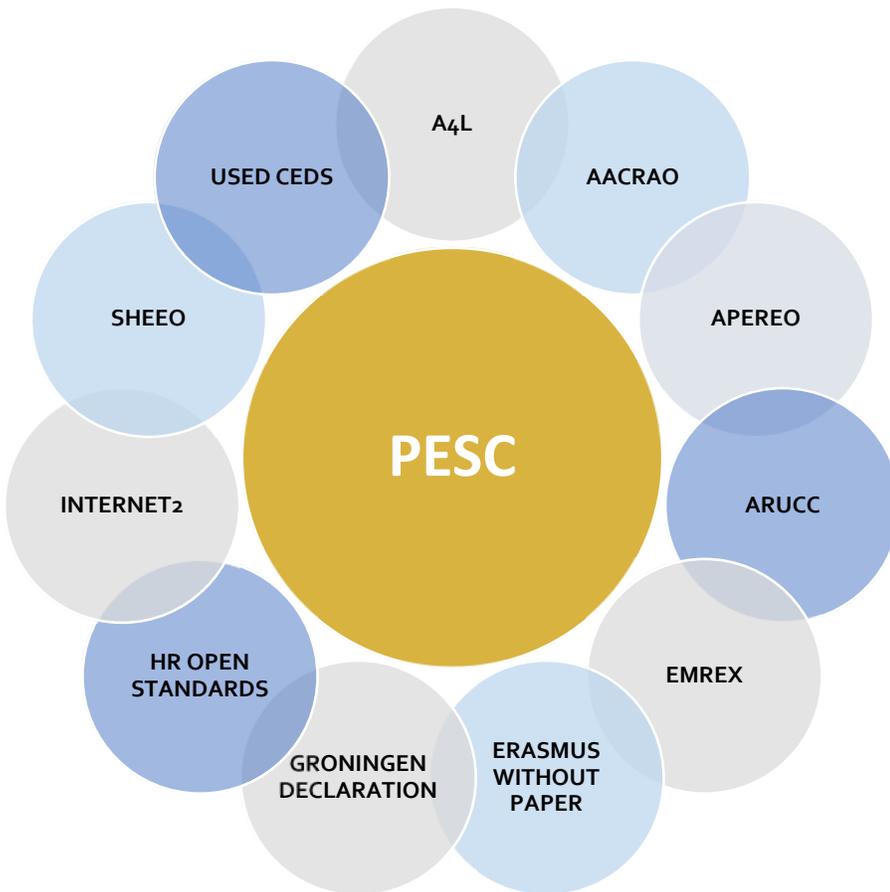
IV. PESC Partnership & Affiliations

Partnerships & Affiliations ensure awareness, alignment & cross-sector collaboration.

1) Access 4 Learning (PK12)
2) American Association of Collegiate Registrars and Admissions Officers
3) APEREO (Open Source)
4) Association of Registrars of the Universities and Colleges of Canada
5) EMREX (Europe)
6) Erasmus Without Paper (Europe)
7) Groningen Declaration Network (Global)
8) HR Open Standards
9) Internet2
10) State Higher Education Executive Officers
11) U.S. Department of Education's Common Education Data Standards (CEDS) Initiative

PESC ensures alignment, awareness, transparency and cross-sector collaboration through establishment of Partnership and Affiliations (see IV. Partnerships & Affiliations). The culmination of all of PESC efforts results in an overall strategy and pathway that enables new technologies and new initiatives.

THE EVOLUTION OF PESC APPROVED STANDARDS BY TECHNOLOGY

JSON

2019 – PESC Compliant JSON

PDF

2011 – Also referred to as 'PDF Attachment', this standard is payload neutral; and automated, machine-to-machine functionality, emphasized by PESC, is only possible if payloads are PESC APPROVED STANDARDS.

XML

2004 – **College Transcript** & Student Aid
2006 – **High School Transcript**
2009 – **Admissions Application** & IPEDS
2009 – Education Test Score Report

2011 – NSLDS   2013 – Student Loan
2015 – **Education Course Inventory**
2016 – Academic ePortfolio
2017 – Common Credential

EDI

1990 – **College/High School Transcript** (combined)
2001 – **Education Course Inventory**
2009 – **Admissions Application**

1990	2004	2011	2019
1st EDI Standard AACRAO, CCSSO, NCES	1st PESC XML Standard	1st PESC PDF Standard	

1997	2003	2015
PESC Founded	ANSI Membership Cancelled EDI Development Stopped EDI Adopted by PESC	Seal of Approval Launched

V. The Evolution of PESC Approved Standards by Technology
As the community adopts a new technology, PESC develops and produces a corresponding PESC APPROVED STANDARD in that technology. Data contained in a PESC APPROVED STANDARD in one technology is equal to in value and integrity to the same PESC APPROVED STANDARD in a different technology. For example, one organization using the PESC APPROVED College Transcript in EDI can trust another organization using the PESC APPROVED College Transcript in XML as development and production (through mapping) use the same definitions, taxonomies and code sets.

GLOSSARY OF TERMS

AACRAO	American Association of Collegiate Registrars & Admissions Officers	*JSON*	JavaScript Object Notation	JSON - LD (Linked Data)
ANSI	American National Standards Institute, US Chamber of Commerce	*NCES*	National Center for Education Statistics, US Dept. of Education
CCSSO	Council of Chief State School Officers	*NSLDS*	National Student Loan Data System
EDI	Electronic Data Interchange	*PDF*	Portable Data Format (XML data embedded)
IPEDS	Integrated Postsecondary Education Data System	*XML*	eXtensible Markup Language

U.S. Department of Commerce

At PESC's founding in 1997, the American National Standards Institute (ANSI) was the only standards-setting body. Founders of PESC had joined ANSI as ANSI Members and when PESC joined as an ANSI Member, PESC became Chair of the ANSI Accredited Standards Committee (ASC) X12 – Subcommittee A – Education, working across multiple industries. Under ANSI all EDI standards for Education were approved.

PESC's identity as a standards-setting body had not been established; yet, the community acknowledged the need for a formal standards body to review and approve any development work conducted under PESC. The solution implemented was for PESC and all the founding PESC Member organizations (AACRAO, Citibank, NASFAA, NCHELP, U.S. Department of Education, etc.) to join ANSI's ASC X12 Committee, a cross-industry committee developing and producing ANSI Approved EDI Standards, and establish Subcommittee A on Education. Two EDI standards were developed and produced with ANSI approval: the combined EDI High School/College Transcript and the EDI Education Course Inventory.

ANSI's approach to the emergence of XML, however, was not viewed favorably by many in the Education Subcommittee, and coupled with a new ANSI approval process, which in a best-case scenario was projected to be a minimum of 3 years, led all organizations within the Education Subcommittee to terminate membership in ANSI (which also dissolved the Education Subcommittee), and nurture PESC so that it could establish itself as a data standards-development and data standards-setting body.

With knowledge garnered from the ANSI standards approval process combined with experience in standards development in student financial aid, PESC developed open, transparent ANSI-inspired Policies and Procedures for its newly established Standards Development Forum for Education (and improved upon them), a PESC member-driven committee to develop and present candidates for standardization to PESC Members for approval and ratification.

ANSI Membership by all in Subcommittee A was terminated in 2004 due to unacceptance of ANSI's approach to XML data modeling and architecture and ANSI's model of 'standards-for-sale,' instead of free, open and royalty-free. Adding to the need to withdraw from ANSI, was the conflict in ED between OPE which insisted on ANSI for inclusion in Reauthorization of the Higher Education Act of 1965, As Amended, and FSA which rejected the ANSI process in its entirety.

In lieu of ANSI Accreditation only applicable to FSA (see HEA) for 'common forms, standards and procedures' in administration of Title IV grants and loans, a work-around between PESC and ED was accomplished through MOUs, partnership and comprehensive collaboration indicating that PESC is the standards-setting body to be used for ED's *voluntary consensus standards*.

Important to note is that all Federal Agencies must report annually to the Department of Commerce their use of voluntary consensus standards (Non-Government standards) and government-unique standards (OMB Circular A-119). An excellent example of reporting under this requirement comes from the 2004 Report of the Department of Energy.

U.S. Department of Education

Office of Federal Student Aid (FSA) – Since 1997 PESC has worked in cooperation and collaboration with FSA:

➢ Through FSA, PESC was a Member of the cross-agency XML Steering Committee (DXSC), now terminated.

➢ With PESC, FSA had planned to build an education community with the National Information Exchange Model (NIEM), originated by Departments of Justice and Homeland Security, but efforts were terminated, though PESC continues to use NIEM's free tools.

➢ PESC has been a speaker and presenter and numerous FSA activities, events and conference over the years (Electronic Access Conferences, Software Developers Conference, Financial Aid Conference).

National Center for Education Statistics (NCES) – Since 1997 PESC has worked in cooperation and collaboration with NCES:

➢ Common Education Data Standards (CEDS) – Along with NCES, PESC was a partner in development and launching CEDS with the Council of Chief State School Officers (CCSSO), State Higher Education Executive Officers (SHEEO), the Data Quality Campaign, Access 4 Learning, the Bill and Melinda Gates Foundation and the Michael and Susan Dell Foundation.

➢ PESC has been a speaker and presenter and numerous NCES activities, events and conference over the years.

➢ The Privacy Assistance Technical Center (PTAC) provided PESC with a small grant $35,000 at one Data Summit to host an extended session on privacy, presented by Kathleen Styles, Chief Privacy Officer.

Successful, cooperative relationships with NCES and FSA lead to additional and continuing relationships with the National Forum for Education Statistics (the 'Forum') in which PESC is a long-time Affiliate Partner, the Office of Educational Technology (OET), the Office of Postsecondary Education (OPE), the Privacy Technical Assistance Center (PTAC). Other important items to note:

➢ In cooperation with NCES (though not a PESC Member), PESC developed and produced five XML reporting components (*Fall Enrollment, 12 Month Enrollment, Completions, Graduation Rates and Student Financial Aid*) for the Integrated Postsecondary Education Data System (IPEDS).

➢ In cooperation with FSA, PESC developed and produced the XML *Enrollment Reporting* standard used for reporting into the National Student Loan Data System (NSLDS); and was prepared for development of Gainful Employment standards until terminated.

➢ PESC was identified by ED as the standards-setting body for development of the *Student Unit Record*, now banned by the U.S. Congress.

➢ FSA developed and donated to PESC and the user community, a free and open *XML Registry & Repository*, in use for years until it was terminated along with Membership and participation by FSA in PESC.

➢ PESC has served as an official witness at Hearings held by the U.S. Department of Education on topics of technology and standards. (See Attachment C.)

➢ Leaders and Officers from FSA, NCES, OET and OPE have all attended PESC events and activities in the past and have served as Keynote Speakers. (Terry Shaw, FSA COO, FSA; Steve Hawald, FSA CIO; Jerry Schubert, FSA CIO, Kay Jacks, Director of School Channel, FSA; Karen Cator, Director, OET; Ross Santy, Associate Commissioner, NCES; Pam Eliadis, Director, NSLDS)

➢ Successful relations spread to Howard Philip "Buck" McKeon, U.S. Representative (CA-R), who also served as Keynote Speaker at past PESC events.

➢ In 2011, PESC coordinated a 'Principals' Meeting of all data standards stakeholders including ED Chief of Staff.

With ED FSA opposed to ANSI and ED OPE supporting ANSI, FSA rejected ANSI and recognized PESC as the standards-development and standards-setting body for voluntary consensus standards, achieved through collaboration, partnership and Memoranda of Understanding (MOUs) (See Attachment C).

PESC Perspective on Alignment with Common Data Standards (later changed to Common Education Data Standards)
by Michael Sessa, July 2010 STANDARD

Within PESC's Board of Directors, Change Control Board (CCB) and Technical Advisory Board (TAB), Standards Forum, and entire membership, PESC has had many extensive conversations about the community's needs, the role of CDS, alignment of initiatives that might not synchronize perfectly, the impact of portability and mobility on data and standards, and how it all fits together. I'll share some of those thoughts here in the hope it sheds some light on PESC's overall strategy and reasoning.

First off, we have come to the conclusion that CDS is not going away any time in the near future; that avoiding CDS or hoping it dies or goes away was not a realistic option for PESC. So at its Annual Retreat in June 2010, the PESC Board of Directors agreed to formally recognize the initiative and proactively identify how to work with it. There is a lot of community interest in the Technical Workgroup (TWG), being administered by NCES, and that interest will just grow as the next phase begins.

Since it's standards-based, we always believed that PESC should be playing a central role in some way, shape or form even if just advisory. We've also believed that the US Department of Education should have been playing a more central role in the development and implementation of voluntary, consensus-based standards in education, and I am personally thrilled to see the interest and the leadership in the Department that had been lacking for so long. PESC will continue to support and encourage the Department as it is the key player in education and the number one factor that makes everyone participate and/or respond. FSA, as the first PBO in the federal government, worked equally with primary stakeholders to form PESC in 1997 and has helped lead standards development in higher education.

At one of the first meetings on CDS, I discussed in-depth the challenge we face with the facet of our work in that it is voluntary. We will continue to be challenged by this word and only through open and honest dialogue will we overcome these challenges. Due to PESC's expertise and experience in leading the implementation of voluntary, consensus-based standards, PESC is subcontracted under SHEEO – the State Higher Education Executive Officers, which is being funded directly by the Bill and Melinda Gates Foundation, to help implement CDS. We could not reconcile acceptance of that funding if we weren't fully on board with CDS. Now that PESC will adopt CDS, any conflict of interest has been addressed and we are free and clear to move forward.

Now why is CDS needed in the first place? Whatever the reason, the fact remains that no single organization whether standards-based or policy-based was looking at the entire education lifecycle from PK through higher education and into the workforce. Was there enough analysis done to determine if PESC and SIFA – the SIF Association could fill that gap? Maybe, maybe not. From PESC's perspective, there was always interest in exploring that option, but as I stated at an NCES Forum meeting a few years back, no foundation stepped forward to fund that analysis, PESC did not have the band-width to perform it on our own, and many states, while interested, could not justify PESC membership dues which would have helped fund that analysis. Yes at times PESC has felt pushed out of the way as the first thought folks have about standards is 'standards are great just as long as you adopt mine'. There is a long learning curve to fully understanding the interconnectivity to standards and one of PESC's goals is to serve as data experts and advisors to enable communities to come to common solutions. In the end when standards are voluntary, it almost comes down to which has the most momentum. It took a while for the community to line itself up hierarchically on state needs, but I believe we have the right organizations in the right places now and the momentum is increasing.

Since PESC announced its adoption of CDS, many have asked me if all the work they've done and investment they've made to implement PESC's standards are now wasted. The answer is no...and no organization should stop its current development. The differences in PESC's development methodology and CDS's are very minor, specifically code sets and tag names and the XML don't always line up perfectly. I have tasked our TAB with finding a solution that:

➢ protects the investment many states, provinces, institutions, and organizations have already made in PESC's standards (California, North Carolina, Ohio, Indiana, Georgia, Ontario, Alberta, etc.)

> ➢ identifies a solution whereby CDS standards and PESC standards can co-exist or be transformed and be used in a clear and easily discernable way.

The ultimate goal is total synchronicity and that will happen as future development occurs. By adopting CDS we are forcing a solution and rightfully so. The solution is not going to fall out of the sky. It requires intensive thinking, planning and significant data expertise. Our TAB includes many highly skilled data experts, developers and architects and given the parameters of this problem, I am fully confident that together and collaboratively a solid solution will be forthcoming. If anyone is interested in joining PESC's TAB while they address this problem, please feel free to contact me directly. While the TAB is membership based, I can open it up so that the community can participate openly and transparently.

Lastly and probably most importantly, technical specifications are only one part of interoperability. I've talked at length and for many years about the importance of business interoperability and technical interoperability.

The fact that the DQC, SHEEO, CCSSO, PESC, BMGF, MSDF, NCES, and SIFA and every organization in the TWG have come together and agreed on a common mission, purpose, goals and objectives is historic. The awareness of the importance of data, standards, and systems has never been greater. We have been waiting for this moment for a very long time and ***we must seize the opportunity to maximize every effort we can*** as the window might not be open for very long. Also with elections on the horizon and the possibility that new policy-makers will be in charge, some with no prior knowledge of data, systems, or standards, there is no time to lose. In the overall scheme of things, if we all agree on the policy and strategy, then we cannot let the technology get in the way. Technology should be serving our needs and not be a barrier. PESC is not stuck on one technology or one standard. For example, to keep PESC open and flexible I renamed the XML Forum to Standards Forum as I knew that if the 'XML' name was retained, it would be difficult to introduce new ideas or new technologies. PESC's mission is about cost-effective connectivity...to ensure the community can communicate amongst itself regardless of what the technology or standard is. If that requires changes and revisions, then so be it as the needs of the community trump the protection of a technology or standard.

What I see as a larger problem is all the various agencies within the U.S. Department of Education issuing their own data standards. ***No single organization or agency seems to be the sole authority on data standards***...and without that authority I can't blame each agency for issuing its own. Without a single authority, standards have become territorial. The community knows this and sees it, why doesn't the Department? In higher education because of the role of financial aid, FSA plays a significant role and has a significant impact. Yet FSA is not involved in CDS at all. How will CDS be adopted in higher education if FSA is not involved? Why aren't FSA, CDS, IPEDS, EDEN, EdFacts, or even Grants.gov, NIH, NSF which impact higher education, all working together on common standards? If they did, this entire issue of data standards would be clearly resolved. Sure certain laws exist too, like Section 143 of the Higher Education Act of 1965 and OMB Circular A-119, both require Federal agencies to participate in community-based standards setting bodies; ***yet there's no enforcement and no oversight.*** Maybe this hope is too pie in the sky, but it is what's needed. This type of collaboration and coordination will take much more effort, but it is possible, and we can achieve it. Other industries have achieved it (think of the ATM network, the credit card network, the airline network, etc.) We must continue to work together and focus on what we have in common...and be willing to give a little to get a little...step by step.

Office of Educational Technology (OET)

PESC's relationship with OET has been minor as OET's history has revolved around K12. With PESC's goal of bridging disparate sectors and systems, PESC has maintained relations with OET and OET's 1st Director Karen Cator served as Keynote Speaker at PESC's Spring Summit in Boston 2011. At this Summit, PESC also coordinated a 'Principals' Meeting of major stakeholders in standards, but no further progress was ever achieved. PESC has also participated in OET's Datapalooza held in downtown Washington, D.C. (Ronald Reagan Building).

Office of Postsecondary Education (OPE)

OPE has played a significant role in FSA and in financial aid. Most importantly, OPE supported migration by issuing *Dear Colleague Letters* to all institutions notifying them of minimum technical specifications needed to use designated electronic processes in the administration of the Federal Student Aid programs. These letters and similar correspondence assisted financial aid offices in updating their systems and technology.

U.S. General Services Administration (GSA)

PESC's Electronic Authorization/Authentication (EA2) Task Force was launched in 2004 to focus on 'single-sign on' for students across disparate applications. As a PESC Member, GSA was instrumental in assisting with government perspective and challenges.

From PESC's EA2, GSA, now under pressure to implement Homeland Security Presidential Directive 12 (HSPD12) for physical authentication as the hundreds of thousands of Federal employees and contractors were still 'flashing their badges" at security to gain access to sensitive offices and areas, worked with PESC to form the Electronic Authentication Partnership (EAP), of which PESC served as Chair and GSA's David Temoshok served as Vice Chair.

PESC worked with GSA to establish as a separate 501(C)(3) non-profit entity and together, GSA and PESC attracted other major stakeholders (Liberty Alliance, Wells Fargo, etc.) to work toward a common goal of public/private rules and processes to achieve HSPD12. Once GSA accomplished its goals, the EAP was terminated and eventually GSA terminated its Membership in PESC.

U.S. House of Representatives and U.S. Senate

To ensure congressional awareness of PESC and voluntary consensus standards, PESC has made visits to many U.S. Congressman, Senators and Committee representatives in consultation with Fritz Edelstein, former ED Employee and U.S. Conference of Mayors.

U.S. Immigration and Naturalization Service (INS)

With momentum and involvement in PESC from ED, INS became a Member of PESC. In 2002, INS planned the implementation of the Student and Exchange Visitor Information System (SEVIS) due to security concerns raised after September 11, 2001. In meetings with INS regarding SEVIS, INS rejected PESC for development of voluntary consensus standards and developed a Government-Unique Standard. As there was no input from anyone outside of INS, no institution met the implementation deadline set by INS and INS back-tracked to collaborate and ensure implementation.

Indiana ICHE

Collaboration with the Indiana Commission for Higher Education (ICHE) began in 2004 when PESC released the PESC Approved XML College Transcript Standard. As states have no guidance or rules related to voluntary consensus standards, PESC and ICHE worked together to create a new paradigm of digital connectivity for states.

ICHE continues on its journey of digitalization and has implemented PESC Approved XML High School Transcript Standard, collaborates in all public/private environments, implemented legislation and most importantly, attached a budget line item to ensure standards work is funded by the State.

OBSERVATIONS & ANALYSIS

Based on PESC's two decades of interaction, partnership and involvement with Federal and State Agencies, and the industry use and response to *voluntary consensus standards*, this section groups similar concepts and ideas into several categorizations:

On standards-setting bodies | The relationship and alignment of many disparate technical, proprietary, government-unique and voluntary consensus standards can be confusing. Adding to the confusion is the fact that there is no clear definition of 'standards-setting body'. Many use ANSI's process as a guide or threshold to determine a status of standards-setting body, while others are self-proclaimed and/or market-recognized as such.

On Federal Agencies | With unclear definition of a standards-setting body, some Federal Agencies make every effort to comply with applicable statute, rules and regulations while other Agencies, in the interest of time and funding, move forward with Government-Unique Standards. Many Federal Agencies adhere to all Federal rules and regulations regarding *voluntary consensus standards* and maintain a high level of awareness of their obligations and responsibilities. Many Agencies, however, resist joining PESC and paying annual Member dues.

On terminology | An ecosystem must determine clear, understandable definitions for free (freely accessible?), open (does this refer to process?), Government-Unique Standards and understand existing statutes, rules and regulations relating to *voluntary consensus standards*. While all *voluntary consensus standards* must be made available royalty-free (free), not all free standards are *voluntary consensus standards*. A proprietary format can become a voluntary consensus standard. Additionally, 'adoption' can be interpreted differently and should be accompanied by another description (e.g. adoption and implementation).

On social expectations | An ecosystem must understand the social and human barriers to change. 'Level-setting', that is ensuring all stakeholders understand the incremental improvement process and overall migration strategy, is vitally important to maintaining neutrality and trust.

On states and state agencies | Most states remain unclear of their options and rely heavily on guidance provided by NCES. All states use PESC Approved Standards, though few join PESC due to budgetary restrictions. PESC reinforces the importance of state standardization by recognizing the best implementations through its Annual Best Practices Competition.

On ANSI accreditation | The requirement only exists for ED's FSA (see HEA), and does not apply elsewhere. Both ED FSA and PESC implemented MOUs and processes to provide a level of assurance in lieu or desire of PESC becoming ANSI Accredited.

On who owns a voluntary consensus standard | Different than proprietary and technical standards which may be owned by an organization or data collector, *voluntary consensus standards* are owned by the users and stakeholders in the ecosystem.

Inconsistent interpretation by Federal Agencies in justification of government-unique standards | In some instances, standards may not be readily available (in scenarios where new business models are emerging), and places Federal Agencies in a position to either justify joining a standards body that processes *voluntary consensus standards* or justify development of Government-Unique Standards.

On prior attempts to bring the new ecosystem together | ED FSA could have played a major role in 2004 with the launch of COD, but once a new business model was implemented and accepted for financial aid, FSA terminated all activity in PESC. Withdrawal from PESC sent mixed signals to NCES and to the broader community as expectations were that FSA would continue in a leadership role. In 2009 with the launch of CEDS, NCES preferred

a Government-Unique Standards model and while PESC fully participates in CEDS, NCES does not participate in PESC efforts. At the same time the Data Quality Campaign, foundation funded, attempted to bring states together and their work on longitudinal data was valuable and still used.

To help bring clarity to the ecosystem, this analysis attempts to describe and classify various efforts and standards.

Organization	Standard(s)	Free Standard(s)?	Open Standard(s)?	Voluntary Consensus Standard(s)?	Status
ADL (Military)	See ADLnet	Yes	Yes	No	Free, Open Technical Standard
ANSI	EDI Transcript	No	Yes	No	Fee-based, Open Technical Standard
Credential Engine	CTDL – Credential Transparency Descriptive Language	Yes	Yes	No	Free, Open Technical Standard
HR Open Standards (Human Resources)	See HROS	Yes	Yes	Yes	Free, Open, Voluntary Consensus Standards *MOU with PESC*
IMS Global (Learning)	See IMS	Yes	Yes	No	Free, Open Technical Standards
Medbiquitous (Healthcare)	See Medbiq	Yes	Open	No	Free, Open Technical Standards
Michael & Susan Dell Foundation (MSDF) (PK12 Education)	EdFi	Yes	Yes	No	Free, Open Technical Standard
PESC (PK20W Education)	See PESC	Yes	Yes	Yes	Free, Open, Voluntary Consensus Standards
U.S. FSA (Higher Education)	Common Record*	Yes	Yes	Yes	Mandated, Free, Open, Voluntary Consensus Standard *MOU with PESC*
U.S. FSA, NSLDS (Higher Education)	Enrollment Reporting*	Yes	Yes	Yes	Mandated, Free, Open, Voluntary Consensus Standard *MOU with PESC*
U.S. NCES (PK20W Education)	CEDS – Common Education Data Standards	Yes	Yes	No	Mandated, Government-Unique Standard
U.S. NCES, IPEDS (Higher Education)	5 Reporting Components*	Yes	Yes	Yes	XML Optional, Free, Open Voluntary Consensus Standard *MOU with PESC*
U.S. News & World Report (Higher Education)	CDS – Common Data Set	Yes	No	No	Free Technical Standard

Many questions remain though and further clarification is needed.

1) Can an entity that mandates or sets requirements for the specific collection and reporting of data also claim the standard required to collect and report that data meets the balance definition of *voluntary consensus standard*.

2) When is a *voluntary consensus standard* appropriate and how is that decided? Clearer guidance would help all stakeholders understand their role and set realistic expectations.

3) How do stakeholders determine the definition of 'standards-setting body'?

4) Can Federal Agencies justify all standards to be developed as Government-Unique Standards? The DoD has a very specific and useful policy Department of Defense Policy on Voluntary Consensus Standards (Non-Government Standards), which states DoD is committed to the adoption and use of voluntary consensus standards (defined in DoDM 4120.24 as "non-Government standards (NGS)"), where practical, instead of developing new or updating existing government specifications and standards.

5) What is the role of OMB and the Office of Chief Information Officer (OCIO)? More structure and guidance could play a more vital role in Federal Agency awareness and importance of *voluntary consensus standards*.

6) How do stakeholders encourage States and State agencies to play a more active role in standardization? Several States have implemented specific guidance or legislation and more state regulations regarding electronic data exchange would be valuable.

7) How do stakeholders ensure that Education and Labor do not continually lag behind other Agencies and sectors? Other industries have clear and understandable roles and responsibilities regarding *voluntary consensus standards* and Government-Unique Standards.

8) In higher education, how do stakeholders bridge the digital divide between financial aid (100% electronic and standards-based) and admissions/registrar (still predominantly paper-based)?

9) How do users of older technologies looking to continue maximizing their investment migrate to new technologies and standards? Data mapping and crosswalks between technologies is valuable but at some point data mapping and crosswalking becomes impossible and to difficulat to manage.

RECOMMENDATIONS & SOLUTIONS

I.   Clarify Terminology
- Define 'free', as free to access with no user name and/or password. Free does not mean open.
- Define 'open', as open and transparent process. Open does not mean free.
- Define 'standards-setting body', as entities approving both technical standards and *voluntary consensus standards*.
- Discourage use of 'adoption' alone (e.g. adoption and implementation).
- Equate Non-Government Standards and *voluntary consensus standards*

II.   Establish Common Agreements and Expectations
- All stakeholders are not at the same level of technical capacity or will implement the entire model at the same time in the same way.
- Business cases, business processes and transactions may require multiple standards to fully complete and satisfy the business case, process and/or transaction.
- Common infrastructure and common data are necessary commodities, and stakeholders should agree not to compete on data, but on price and service.
- All stakeholders are needed in the new ecosystem and they must see themselves in the larger ecosystem, feel welcome and be welcomed.

III. Establish Short-Term and Long-Term Strategies
- Technology and standards require comprehensive financial support, technical support, policy support and outreach.
- Use past and/or current implementations or initiatives as examples of best practices.
- Ensure long-term support for *voluntary consensus standards* and standards-setting bodies.

IV.   Promote State Legislation on Voluntary Consensus Standards
- States should follow the Federal example of legislating *voluntary consensus standards*: enact brief yet broad legislation first which sets the vision and the migration strategy; followed by legislative guidance that helps further understand specific obligations and requirements; and then, continue support and improvements of laws and regulations, while building budgets accordingly.

V.   Make Free and Open Voluntary Consensus Standards 'the Standard'

- Sustainability and intermittent political support for *voluntary consensus standards* emerge as the two greatest challenges to acceptance of a *voluntary consensus standard* as 'the standard' and the standards-setting body as the trusted, credible entity governing the standard and the process. Standards-setting bodies may have differing financial and revenue-generation models to support a free and open *voluntary consensus standards* model.

VI.   Ensure Awareness of Voluntary Consensus Standards

- A sustainable mechanism must be introduced to ensure Federal and State Government awareness of all laws, regulations and reporting requirements regarding *voluntary consensus standards*.

VII. Ensure general awareness that government-unique standards, as defined, are also necessary.
- Government-unique standards are necessary and serve a vital role.
- Establish policies and procedures for when a *voluntary consensus standard* is needed and when it is not.

"*W*e are at a critical juncture in the administration of higher education in this country. As we have worked together on various industry task forces, one common point of agreement among ourselves during this process is that we must develop a way for the community to organize, negotiate, recommend, train and administer the numerous tasks needed to provide **an open, common, integrated higher education administrative infrastructure for the benefit of students in this country.**"

1997 Letter Announcing the formation of The Postsecondary Electronic Standards Council

A. Dallas Martin	James E. Morley, Jr.	Wayne E. Becraft
NASFAA President	NACUBO President	AACRAO Executive Director