



# PESCinterop2018

COORDINATING PESC TECHNOLOGY & SERVICES

JANUARY 16–17, 2018 HILTON SAN FRANCISCO UNION SQUARE



COMMUNITY SOURCED. OPEN DATA STANDARDS.

[WWW.PESC.ORG](http://WWW.PESC.ORG)

# PESCinterop2018

## COORDINATING PESC TECHNOLOGY & SERVICES

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**PESCinterop2018** is a no-frills, interim convening of PESC Member organizations to openly discuss, plan, coordinate, learn, synchronize & strategize their work efforts as they relate to:

- Strategic and emerging IT topics and initiatives (like open source, JSON-LD, blockchain, etc.);
- The impact and development of PESC Approved Standards, Services and Data Summits.

Originally started in January 2015 at an impromptu meeting in Sacramento, CA called solely to ramp up EdExchange, the goals of **PESCinterop2018**, now expanding, are to:

- 1) *educate one another* on major PESC initiatives to ensure level understanding and efficient coordination and use of project and volunteer resources
- 2) *maximize in-person convening time* (Crowd Power!) to advance projects and meet timelines
- 3) *identify inter-project opportunities* for synchronization, convergence and alignment
- 4) *share and coordinate timelines*, action items & deliverables
- 5) *present and showcase new projects*, pilots or ideas
- 6) *propose new PESC workgroups*, events or partnerships for development
- 7) *introduce new topics or speakers* for PESC activities, events and Data Summits
- 8) *help formulate and shape PESC's 3-Year strategy* for IT and services

### Location:

- Hilton San Francisco Union Square, 333 O'Farrell Street, San Francisco CA 94102  
(415) 771-1400

### Date & Time

- Tues Jan 16, 2018 – Wed Jan 17, 2018 – ALL DAY
- Attendees: PESC Members & Invited Guests
- Expenses: Hotel on Your Own, All Food & Beverage on Your Own, Breaks on Your Own
- Dress code: Casual
- Hotel Meeting Room Setup: PESC meeting room w/ speakerphone/projector/wifi
- Registration: \$125 registration/person (for \$1000/day x 2 for meeting room & AV)
- Webinar/Dial-In for PESC Members: Free & Open to All PESC Members
- General Public & Partners: JSON Task Force
- Preparation: Review of Supporting Documentation & Examples

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## Program

P S T	Tuesday January 16, 2018	Wednesday January 17, 2018
9.00am – 9.30am	Meet & Greet – Bring Your Coffee	4) PESC GEO CODE 1.0 – Ramp Up -Enhancements & Development Cycles -Defining 1.0
9.30am - Noon	1) JSON TASK FORCE -Partnership Approach & Outreach -Proposed Mission & Vision -Review of PESC-JSON-2018 PDF -Impact on PESC by XML & JSON-LD -JSON/XML or JSON Standalone -Deliverables & Timelines	-Steering Committee Terms & Elections -Deliverables & Timelines -Outreach & Events -PESC Spring 2018 Data Summit
Noon – 1.00pm Lunch On Your Own	Working Lunch Topic (Optional) 2) REQUEST/RESPONSE FOR ALL PESC APPROVED STANDARDS	Working Lunch Topic (Optional) 5) DEMOs & PILOTs -15 minute slots 'OPEN MIC' Present Your Pilot or Recommendation to PESC Members
1.00pm – 6pm	3) EDEXCHANGE 1.0 – Ramp Up -Infiniti & Apereo & Open Source -Legal & Marketing -Steering Committee Terms & Elections -Defining 1.0 & Pricing -Stimulating Pilots -Deliverables & Timelines -Outreach & Events -PESC Spring 2018 Data Summit	6) Academic Credentialing & Credential Mapping, Credential Engine, US Chamber -Value Proposition of Credential Mapping -PESC's Role -Potential Role of Blockchain -Update on Credential Engine -Update on US Chamber of Commerce -Outreach & Events -Deliverables & Timelines -PESC Spring 2018 Data Summit
7pm	Group Dinner on Your Own	Adjourn

# PESCinterop2018

## COORDINATING PESC TECHNOLOGY & SERVICES

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PESCinterop2018 is a working meeting - an opportunity to advance PESC initiatives with a concentrated focus over two days – and in adhering to openness and transparency, also a welcome to all PESC Members to join and actively participate.

## SESSION DESCRIPTIONS

**1) JSON (JavaScript Object Notation)** – The JSON Task Force is lead by PESC’s Technical Advisory Board Chair Michael Morris, Director, Quality Management, EIS-Quality Assurance, ACT, Inc. An additional Co-Chair from the PESC Membership is needed. The JSON Task Force itself meets weekly by conference call (Mondays 10am PST/1pm EST) while the PESC TAB meets weekly by conference call (Fridays 8am PST/11 EST); and PESC & Access For Learning (A4L) have joined forces to coordinate and harmonize their approaches to JSON.

### RESOURCES

- 1) JSON Task Force <http://www.pesc.org/standards-development-1.html>
  - a) Launch of JSON Task Force
  - b) PESC JSON Documentation, which includes:
    - *Use of JSON to Supplement XML*, May 21, 2015 [Original Recommendation], Michael Morris, PESC TAB Chair
    - Examples of JSON & XML/JSON
    - Overview Powerpoint Presentation
  - c) General Reading & Audio Recordings of weekly meetings

### STRATEGIC CONSIDERATIONS

- 1) Both PESC & A4L are strong in XML, yet both have unique design legacy issues that need to be addressed.
- 2) What is the impact of JSON-LD (Linked Data)?
- 3) Is the demand for ‘standalone’ JSON, JSON Transformations from XML, both?
- 4) Will the demand for JSON (in part due to a benefit of being less verbose) ultimately impact that benefit and require expansion?
- 5) What are the needs of all stakeholders over a student or learner lifecycle (ecosystem)?

**2) REQUEST/RESPONSE FOR ALL PESC APPROVED STANDARDS** – The demand for Request and Response development for all PESC APPROVED STANDARDS has been raised in a number of PESC groups and committees (EdExchange). As the Transcript is one of the most highly used PESC APPROVED STANDARDS, Request and Response was originally designed only for that business (use) case.

### RESOURCES

- 1) <http://www.pesc.org/pesc-approved-standards.html>
  - a. College Transcript (All Versions + Acknowledgement, Batch)
  - b. EDI (EDI/XML – XML/EDI Crosswalk Mappings)
  - c. Request/Response

### STRATEGIC CONSIDERATIONS

- 1) In reusing the existing Request and Response and considering the smaller file size, development might be timelier.
- 2) What is the impact of JSON?
- 3) What are the needs of all stakeholders over a student or learner lifecycle (ecosystem)?
- 4) Coordinated efforts from the PESC Membership to launch and direct this development are needed.
- 5) PESC must coordinate with all stakeholders and PESC Partners to prioritize, package, process them through PESC, and release them to the public as PESC APPROVED STANDARDS.

**3) EDEXCHANGE** – EdExchange is governed and managed by a PESC User Group and Steering Committee. Exchange is best defined as a neutral data exchange platform and digital look-up service (Application Platform as a Service – aPaaS or PaaS), designed as a peer-to-peer network providing a secure, reliable and direct connection between users avoiding file-based technologies.

Individual User organizations and Super User organizations (those acting on behalf of others) must establish and configure their own network servers. Network servers look-up other network servers through the EdExchange directory server for delivery and profile information, then connect directly for data exchange. The EdExchange User Group meets weekly by conference call (Thursdays 9am PST/Noon EST).

### RESOURCES

- 1) <http://www.pesc.org/edexchange-user-group.html>
  - a. Github
  - b. Onboarding
  - c. Current PESC/EMREX/ELMO Mapping
- 2) <http://www.pesc.org/fall-2017-data-summit.html>
  - a. Current Presentation

### STRATEGIC CONSIDERATIONS

- 1) Managing the transition over the directory server to PESC service provider Infiniti.
- 2) Coordinating support with Apereo on ramp up and management of open source community.

- 3) Aligning Steering Committee terms to Fall 2018 Data Summit, appointment of final open seats.
- 4) With two pilot organizations successfully complete, the EdExchange User Group must define what launching EdExchange Version 1.0 is defined as and when launch with occur.
- 5) Annual subscription pricing needs to be set.
- 6) Vetting process for adding users and super users.
- 7) Presentations at industry conferences and events.
- 8) Can PESC and EMREX enter into a joint pilot?
- 9) Plans for PESC Spring 2018 Data Summit May 2-4, 2018 in Washington DC.

**4) GEO CODE** – The PESC GEO Code is governed and managed by a PESC User Group and Steering Committee. The GEO Code is best described as a free, open and standardized online directory of codes and identifiers of education organizations for use by institutions & stakeholders worldwide. The PESC GEO Code User Group meets every other Friday by conference call (10am PST/1pm EST).

## RESOURCES

- 1) <http://www.pesc.org/geo-code-workgroup.html>
  - a. Current directory list
  - b. FAQ
  - c. Webinar & Powerpoint

## STRATEGIC CONSIDERATIONS

- 1) Managing the transition to an online directory server.
- 2) Coordinating support with AACRAO and the Groningen Declaration Network on ramp up and management of Version 1.0.
- 3) Aligning Steering Committee terms to Fall 2018 Data Summit, appointment of final open seat.
- 4) With one pilot in operation, can other pilots be stimulated?
- 5) The PESC GEO Code User Group must define what launching GEO Code Version 1.0 is defined as and when launch with occur.
- 6) List maintenance.
- 7) Presentations at industry conferences and events.
- 8) Plans for PESC Spring 2018 Data Summit May 2-4, 2018 in Washington DC.

**5) DEMOS AND PILOTS** – A number of community-based initiatives and pilots are launching. PESC provides an opportunity and the environment in which these initiatives and pilots can be communicated. New PESC groups, events, partnerships, development efforts, and topics and speakers for PESC's Spring & Fall Data Summits can be proposed. Powerpoint is not required for this session, structured in an 'Open Microphone' format, but prior reservation of presentations is required.

**6) ACADEMIC CREDENTIALING & EXPERIENTIAL LEARNING TASK FORCE, CREDENTIAL MAPPING, CREDENTIAL ENGINE & BLOCKCHAIN** – The Academic Credentialing & Experiential Learning Task Force is Co-Chaired by PESC Members Joellen Shendy, Associate Vice Provost and Registrar at the University of Maryland University College, and Alex Jackl,



President & CEO of Bardic Systems. This Task Force is an open, permanent group within PESC focused on monitoring and tracking current credentialing initiatives, providing speakers and presenters at several industry-leading conferences and events, serving as a clearinghouse for information, and ensuring PESC is prepared for standards development work and issuance of PESC Approved Standards as the community is reaching the point in which standards are needed.

Initiatives governed by this Task Force include the development and ratification of the *Common XML Credential for Certificates, Degrees & Diplomas* as a PESC APPROVED Standard; Blockchain; and Ecosystem Credential Mapping. The Task Force meets in-person at PESC's Spring & Fall Data Summits and as needed.

## **RESOURCES**

- 1) <http://www.pesc.org/academic-credentialing-1.html>
  - a. *Common XML Credential for Certificates, Degrees & Diplomas*
  - b. Articles & Reports
  - c. PESC/EMREX/ELMO Mapping
  - d. Ecosystem Credential Mapping
- 2) <http://www.pesc.org/pesc-approved-standards.html>
  - a. College Transcript (All Versions + Acknowledgement, Batch)
  - b. EDI (EDI/XML – XML/EDI Crosswalk Mappings)

## **STRATEGIC CONSIDERATIONS**

- 1) What support can PESC provide or offer to Credential Engine and the US Chamber of Commerce as these initiatives launch?
- 2) What is the reality of Blockchain adoption and when, how and what does PESC need to do to be prepared?
- 3) Formalization & Sustainability of Ecosystem Credential Mapping Initiative.

## **CONNECTING REMOTELY:**

**PESC LINE**

**888.205.5513**

**952016#**

**Please note all times listed are PST.**



# EDEXCHANGE USER GROUP

**EdExchange** is a data exchange platform enabling the electronic exchange of standards-based data and digital documents between academic institutions and their service providers. Achieved through an open web services architecture and associated standards, **EdExchange** is designed as a peer-to-peer network providing a secure, reliable and direct connection between institutions (whether direct or through their service providers) avoiding file-based technologies.

**EdExchange** began as the principal project of PESC's Common Data Services (CDS) Task Force and participation in **EdExchange User Group** meetings is welcome, encouraged and open to representatives of PESC Members.

**EdExchange User Group** meetings occur via conference call every Thursday at 12noon EDT (9am PST, 5pm GREENWICH) and communications are supported by a PESC list.

## **EdExchange User Group & Steering Committee Co-Chairs**

- **Mark Cohen**, Product Manager, Technology Center, California Community Colleges
- **Tuan Ahn Do**, Director of Enrollment Management Technology, San Francisco State University; Liaison, PESC Board of Directors

## **EdExchange Steering Committee**

While **EdExchange** is ultimately governed by the PESC Board of Directors, an **EdExchange** Steering Committee administers more direct management, oversight and strategic planning. The Steering Committee meetings occur via conference call every 1<sup>st</sup> Thursday at 12.30pm (9.30am PST).

- **Rajeev Arora**, Senior Vice President, Products, Parchment  
6263 North Scottsdale Road, Suite 330, Scottsdale AZ 85250  
[rarora@parchment.com](mailto:rarora@parchment.com)
- **Mark Cohen**, Product Manager, Technology Center, California Community Colleges  
[mcohen@ccctechcenter.org](mailto:mcohen@ccctechcenter.org)
- **Tuan Anh Do**, Director of Enrollment Management Technology, San Francisco State University; Liaison, PESC Board of Directors  
[doey@sfsu.edu](mailto:doey@sfsu.edu)
- **Doug Falk**, Vice President & CIO, National Student Clearinghouse  
2300 Dulles Station Blvd, Herndon VA 20171  
[falk@studentclearinghouse.org](mailto:falk@studentclearinghouse.org)
- **Jim Kelly**, Senior Director of Technology, Educational Credential Evaluators  
PO Box 514070, Milwaukee WI 53203-3470  
[jkelly@ece.org](mailto:jkelly@ece.org)
- **Michael Sessa**, President & CEO, PESC  
41250 Connecticut Ave NW Suite 200 Washington DC 20036  
[michael.sessa@pesc.org](mailto:michael.sessa@pesc.org)
- **Monterey Sims**, Director of Admissions and Evaluation, University of Phoenix  
4025 S. Riverpoint Parkway, Phoenix AZ 85040  
[monterey.sims@phoenix.edu](mailto:monterey.sims@phoenix.edu)
- **Jack Weber**, Executive Vice President, Credentials Solutions  
One Northfield Plaza, Suite 501, Northfield IL 60093  
[weber2@credentialssolutions.net](mailto:weber2@credentialssolutions.net)



**HISTORY:** As you may know, since the Common Data Services (CDS) Task Force launched under PESC at the Fall 2011 Data Summit, CDS representatives have been busy at work. Over the years they have analyzed the technical landscape, monitored the political climate and adopted a specific mission:

*"to improve security, reliability, efficiency and speed in the transfer of all educational data types by developing an open web services network and associated standards to benefit the education of students, streamline processes for institutions, and facilitate the advancement of services offered for education..."*

Leaders within the California Community College System requested this community development through PESC and have remained consistent leaders to this day. After over five years, we are pleased to be advancing a major initiative developed under CDS - **EdExchange**. **EdExchange** is simply an open, data exchange network for the education community.

The concept is that the **EdExchange** specification become a PESC Approved Standard, and then stakeholders implement and offer this standard specification, alongside their other digital services and applications, to exchange data among themselves.

With a consistent, reliable cross-sector standardized exchange, those that use, collect or exchange data can now have this option available to them. Whether connecting directly or through use of a third party service provider, **EdExchange** could provide data exchange services for all educational needs.

**GOVERNANCE:** The Steering Committee is made up of nine (9) PESC member representatives that have been active in the development of **EdExchange**. The Steering Committee will be diverse, representing the various sectors across education; semi-autonomous, and will continue to report directly to the PESC Board of Directors, and; responsible for the overall governance and operation of **EdExchange**.

Each seat will have one (1) equal vote, simple majority will rule, terms are one (1) year becoming effective March 1, 2016 and terminating April 30, 2017, and the Steering Committee will establish its own roles, responsibilities, schedule and leadership. At the discretion of PESC, current terms have been extended through April 30, 2018 and through October 2018 to align with forthcoming elections for Steering Committee seats from the full PESC Membership in October 2018.

## **ORGANIZATIONS IN PESC EdEXCHANGE PILOT**

APRIL 1, 2016

*California Community Colleges*

*Credentials Solutions*

*Educational Credential Evaluators*

*National Student Clearinghouse*

*Parchment*

*University of Phoenix*

## Annual Member Dues & Services

Valid through June 30, 2019 (payable in U.S. Dollars)

LOCAL EDUCATION AGENCY, DISTRICT, SCHOOL (ELEMENTARY & SECONDARY)	MEMBER DUES	EDEXCHANGE  <
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# GEO CODE USER GROUP

**GEO Code** is a free, open and standardized online directory of codes and identifiers of education organizations for use by institutions & stakeholders worldwide. **GEO Code** is a 'look-up' service offered and operated by PESC and directly managed by PESC Members. The foundation of the service is a directory 'look up' server that lists active and inactive institutions, including historical data plus additional demographic and identifier data.

**GEO Code** began as the principal project of PESC's Global Data Mobility User Group (GDM launched at Spring 2016 Data Summit). At its first meeting, the need for a global institution code set surfaced as one of the highest priorities. **GEO Code User Group** meetings, in partnership with AACRAO and Signatories of the Groningen Declaration Network, are open and participation is encouraged and open.

**GEO Code User Group** meetings occur on two levels: A Workgroup (including many members of the Steering Committee) meets every other Friday at 1pm EDT (10am PDT); while a more formal, community-based meeting is held quarterly to provide updates and communications. All meetings are held via conference call and communications are supported by a PESC list.

## **GEO Code User Group & Steering Committee Chair**

- **Rick Skeel**, Director of Product Management, Ellucian  
[rick.skeel@ellucian.com](mailto:rick.skeel@ellucian.com)

## **GEO Code Steering Committee**

While **GEO Code** is ultimately governed by the PESC Board of Directors, a **GEO Code** Steering Committee administers more direct management, oversight and strategic planning. The Steering Committee meetings are part of the Workgroup meeting every other Friday at 1pm EDT (10.00am PST).

- **Rajeev Arora**, Senior Vice President, Products, Parchment  
6263 North Scottsdale Road, Suite 330, Scottsdale AZ 85250  
[rarora@parchment.com](mailto:rarora@parchment.com)
- **Matt Bemis**, Associate Registrar, University of Southern California  
[wbemis@usc.edu](mailto:wbemis@usc.edu)
- **Melanie Gottlieb**, Deputy Executive Director, AACRAO  
One Dupont Circle NW Suite 500 Washington DC 20036  
[gottlieb@aacrao.org](mailto:gottlieb@aacrao.org)
- **Jim Kelly**, Senior Director of Technology, Educational Credential Evaluators  
PO Box 514070, Milwaukee WI 53203-3470  
[jkelly@ece.org](mailto:jkelly@ece.org)
- **Dave Landry**, Director of Data Exchange Services, National Student Clearinghouse  
[landry@studentclearinghouse.org](mailto:landry@studentclearinghouse.org)
- **Herman de Leeuw**, Executive Director, Groningen Declaration Network  
[herman.deleeuw@duo.nl](mailto:herman.deleeuw@duo.nl)
- **Dave Moldoff**, CEO & Founder, AcademyOne  
[dmoldoff@academyone.com](mailto:dmoldoff@academyone.com)
- **Michael Sessa**, President & CEO, PESC  
1250 Connecticut Ave NW Suite 200 Washington DC 20036  
[michael.sessa@pesc.org](mailto:michael.sessa@pesc.org)
- **Rick Skeel**, Director of Product Management, Ellucian  
[rick.skeel@ellucian.com](mailto:rick.skeel@ellucian.com)

**HISTORY:** GEO CODE is a project of PESC's Global Data Mobility User Group (GDM launched at Spring 2016 Data Summit). At its first meeting, the need for a global institution code set surfaced as one of the highest priorities. Today's technological innovation with open, transparent collaboration (the cornerstone of PESC's foundation and guiding principle) and having finally reached the tipping point whereby most experts agree that such a code set is not only needed, but now impacts data quality, cost and fraud, all contribute to the conclusion that such a list is now a necessity.

**GOVERNANCE:** The Steering Committee is made up of nine (9) PESC member representatives that have been active in the development of ***GEO Code***. The Steering Committee will be diverse, representing the various sectors across education; semi-autonomous, and will continue to report directly to the PESC Board of Directors, and; responsible for the overall governance and operation of ***GEO Code***.

Each seat will have one (1) equal vote, simple majority will rule, terms are one (1) year becoming effective May 3, 2017 and terminating May 3, 2018, and the Steering Committee will establish its own roles, responsibilities, schedule and leadership. At the discretion of PESC, current terms may be extended through October 2018 to align with forthcoming elections for Steering Committee seats from the full PESC Membership in October 2018.

## ORGANIZATIONS IN GEO CODE PILOT

OCTOBER 27, 2017

*University of Southern California & IERF*



**Embassy Suites Riverfront**  
**100 Capitol Mall - Sacramento, CA 95814**  
**January 19, 2015**

By Zoom: from PC, Mac, Linux, iOS or Android: <https://zoom.us/j/383779957>  
By phone: +1 415 762 9988 (US Toll) or +1 646 568 7788 (US Toll)  
Meeting ID: 383 779 957  
International numbers available:  
<https://zoom.us/join?j=383779957>

**COMPLETED**

- Dinner Information (Optional):

- Monday, January 18, 2016 at 6:45 pm – Meet @ Restaurant
- Il Fornaio Italian Restaurant, 400 Capitol Mall, Sacramento, CA 95814 (@4th St.) (916) 446-4100 <http://ilfornaio.com/sacramento> GLUTEN FREE - FRIENDLY
- Sponsored by PESC – Call Michael w/ questions 617.694.2716

**8:30AM CONNECT REMOTE PARTICIPANTS (ONLINE AND CONFERENCE CALL)**

**8:45AM REMOTE PARTICIPANT WELCOME & INTRODUCTIONS**

**COMPLETED**

1. **Welcome, Introductions and EdExchange Overview (9-10AM)**
  - a. Introductions
  - b. Outline of meeting objectives
    - i. Agree on the mission, vision, and scope of EdExchange.
    - ii. Agree on Phase 1 functionality.
    - iii. Agree on what a User is (for Phase 1)
    - iv. Identify what is needed to roll out Phase 1 (finance, governance, IT support, legal, etc.)
    - v. Develop timeline for enhancements to EdExchange functionality
  - c. Review of EdExchange vision, objectives and functionality
  - d. Review process of becoming a PESC standard (List of ?)
  - e. Overview of Apereo license
  - f. Time for Remote Participants
2. **EdExchange Users (10-11AM)**
  - a. Review proposed structure of Users and Super-Users
    - i. Resolve who may be a user (limit to academic institutions and service providers, or open to individuals and businesses that receive/request education data)
    - ii. Roles (send, receive, request)
    - iii. Authentication of users and a review of how service providers handle verification within their networks)
3. **Costs and Fees (11-12PM)**
  - a. Review of estimated costs
    - i. Authentication process
    - ii. Hosting & bandwidth
    - iii. Administrative costs
  - b. Proposed fee structure
    - i. One-time fees (authentication/set-up) for Users and Super-Users
    - ii. Annual fees for Users and Super-Users
4. **LUNCH (12-1PM)** – Lunch will be provided by the CCC Technology Center
- Governance (1-2:30PM)**
  - a. Model for oversight and governance of EdExchange
    - i. What will governance look like
    - ii. How will individuals or institutions be selected
5. **Functionality (2:30-4PM)**
  - a. Technical Overview
    - i. Architecture
    - ii. Functionality of servers
  - b. Pilot status and timing
  - c. Phase 1 functionality
    - i. Supported User roles
    - ii. Supported document types
    - iii. Planned enhancements
  - d. Status of development and backlog review (if time allows)
6. **Adjourn 4:30PM**



First Name	Last Name	Organization	Email Address	In Person	Dial In		Dinner	Date
Rajeev	Arora	Parchment	<a href="mailto:rarora@parchment.com">rarora@parchment.com</a>	√			√	12/30/15
Tim	Calhoon	CCC Technology Center	<a href="mailto:timcalhoon@ccctechcenter.org">timcalhoon@ccctechcenter.org</a>	√				12/18/15
Mark	Cohen	CCC Technology Center	<a href="mailto:mcohen@ccctechcenter.org">mcohen@ccctechcenter.org</a>	√			√	12/28/15
Louis	Delzompo	CCC Technology Center	<a href="mailto:ldelzompo@ccctechcenter.org">ldelzompo@ccctechcenter.org</a>	√				12/18/15
Andy	Dowling	Digitary	<a href="mailto:andy.dowling@digitary.net">andy.dowling@digitary.net</a>		√			01/05/16
Doug	Falk	National Student Clearinghouse	<a href="mailto:falk@studentclearinghouse.org">falk@studentclearinghouse.org</a>	√			√	12/22/15
Robbie	Gehbauer	CCC Technology Center	<a href="mailto:rgehbauer@ccctechcenter.org">rgehbauer@ccctechcenter.org</a>	√			√	12/21/15
Doug	Holmes	OUAC	<a href="mailto:doug@ouac.on.ca">doug@ouac.on.ca</a>		√			12/18/15
Meichen	Hung	Stanford University	<a href="mailto:meihung@stanford.edu">meihung@stanford.edu</a>	√				01/05/16
Alexander	Jackl	Bardic Systems	<a href="mailto:alex@bardicsystems.com">alex@bardicsystems.com</a>		√			01/06/16
Jim	Kelly	ECE	<a href="mailto:jkelly@ece.org">jkelly@ece.org</a>	√			√	12/28/15
Thomas	McKechney	Credentials Solutions	<a href="mailto:mckechney1@credentialssolutions.net">mckechney1@credentialssolutions.net</a>	√			√	12/21/15
Brian	Patton	OUAC	<a href="mailto:patton@ouac.on.ca">patton@ouac.on.ca</a>		√			12/18/15
Lenny	Robison	CCC Technology Center	<a href="mailto:lenny.robison@sbcglobal.net">lenny.robison@sbcglobal.net</a>	√			√	12/18/15
Michael	Sessa	PESC	<a href="mailto:michael.sessa@pesc.org">michael.sessa@pesc.org</a>	√			√	12/23/15
Monterey	Sims	University of Phoenix	<a href="mailto:Monterey.Sims@phoenix.edu">Monterey.Sims@phoenix.edu</a>		√			12/21/15
Robert	Tritt	XAP	<a href="mailto:rtritt@xap.com">rtritt@xap.com</a>		√			01/15/16
Jack	Weber	Credentials Solutions	<a href="mailto:weber2@credentialssolutions.net">weber2@credentialssolutions.net</a>				√	12/29/15
Leisa	Wellsman	OUAC	<a href="mailto:leisa@ouac.on.ca">leisa@ouac.on.ca</a>		√			12/18/15

**COMPLETED**



# TRUST: THE VALUE OF PESC

## COMMUNITY SOURCED OPEN DATA STANDARDS

ENABLING COST-EFFECTIVE CONNECTIVITY BETWEEN DATA SYSTEMS IN ORDER TO ACCELERATE PERFORMANCE AND SERVICE, TO SIMPLIFY DATA ACCESS AND RESEARCH, AND TO IMPROVE DATA QUALITY ALONG THE LEARNER LIFECYCLE

# TRUST: THE VALUE OF PESC

## COMMUNITY SOURCED OPEN DATA STANDARDS

### COLLABORATION FOR THE GREATER COMMON GOOD OF LEARNER ACHIEVEMENT

In fulfilling its 501 (c)(3) non-profit mission, all PESC APPROVED STANDARDS and technical information are made available to the education community online free of charge.

### PESC APPROVED STANDARDS & TECHNOLOGY

PESC TECHNOLOGY and PESC APPROVED STANDARDS are community-sourced and driven by PESC serving as an incubator to pilot and launch data standards using an open, transparent and collaborative process; and serving as an open data standards-development and open data standards-setting body governing resource mapping and maintenance of education eco-system taxonomies, schemas and shared code sets in various technologies (EDI, XML, PDFxml, JSON) produced as PESC APPROVED STANDARDS.

PESC APPROVED STANDARDS are platform and application neutral; adopted and integrated in systems, networks, applications, products and services; support a transaction or business process, and; can be implemented or used one independently from another.

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## WHO WE ARE

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Established in 1997 at the National Center for Higher Education, PESC is an international 501(c)(3) non-profit, community-based, umbrella association with headquarters in Washington, D.C. of:

*Application Centers*

*Assessment & Testing Agencies*

*Colleges & Universities*

*College, University & State/  
Provincial Systems*

*Credential Service Providers*

*Data, Software & Technology  
Service Providers*

*Local, State/Provincial & Federal  
Government Offices*

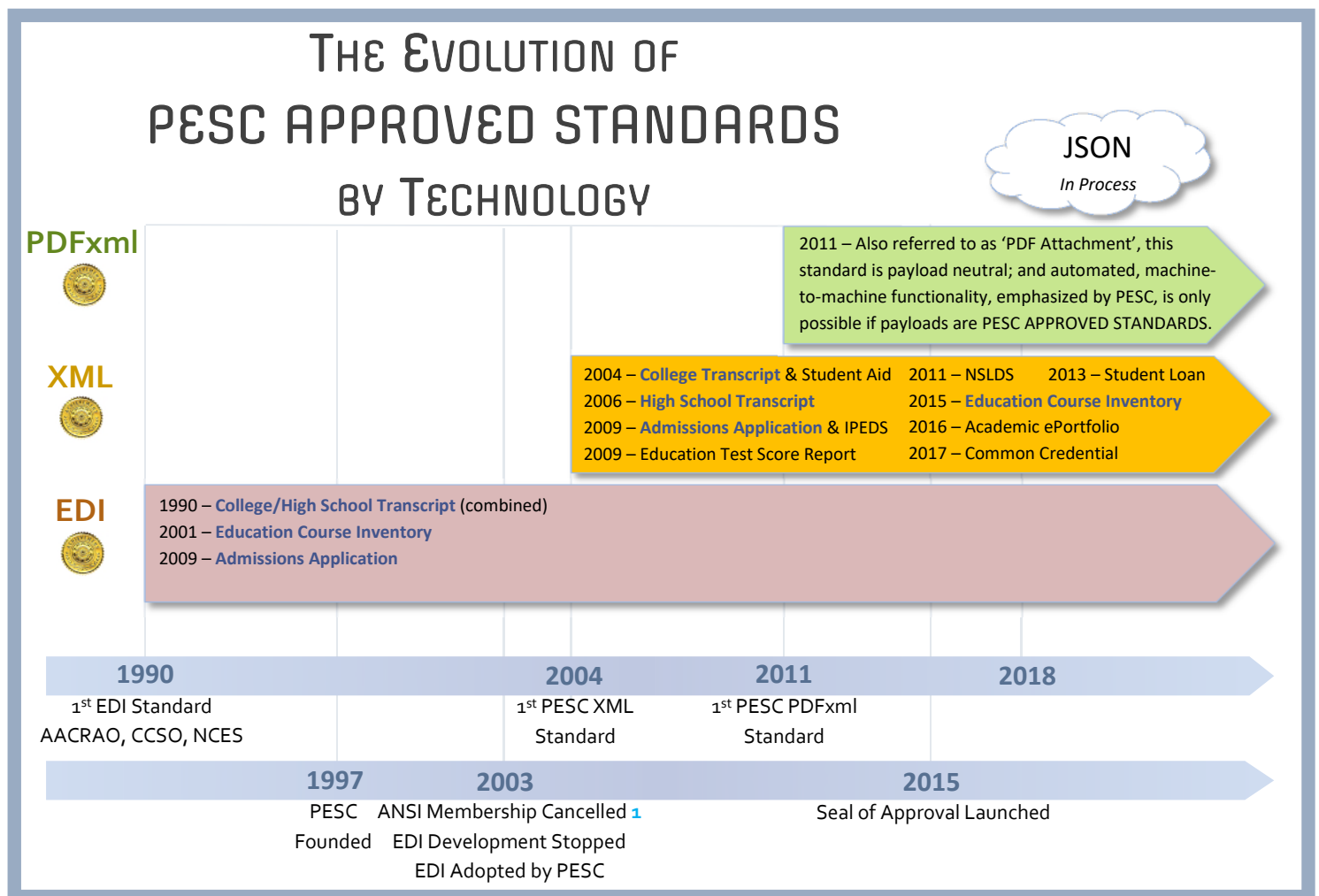
*Non-Profit Associations,  
Foundations & Organizations*

*Professional & Commercial  
Organizations*

*Student Information System  
(SIS) Vendors*

## ORGANIZATIONS TRUST PESC APPROVED STANDARDS TO EXCHANGE, EQUATE, LINK/ AND COMPARE DATA

As a new technology emerges, the PESC Community develops and produces a corresponding PESC APPROVED STANDARD to support 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. Table 1 below illustrates how preferences in technology have driven the evolutionary development of PESC APPROVED STANDARDS.



**Table 1. 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 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

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

## TRUST IN THE PESC STANDARDS DEVELOPMENT, APPROVAL AND MAINTENANCE POLICIES AND PROCEDURES

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, 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:

- 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 an industry-based data standard.
  - Includes use or business case(s), appropriate justifications and articulations on why development and usage of an industry-based data standard are needed and/or required.
  - Issued publicly to allow all stakeholders the opportunity to participate before development starts.
- 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.
- Once development is complete, the proposed candidate for standardization is released to the general public for a formal thirty-day **Public Comment Period** after which all comments are reviewed, considered and assessed for inclusion in the proposed candidate.
- 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:
  - XML schema that outline data file design and structure
  - Implementation Guides that help explain and describe adoption and use
  - Instance Documents that display examples based on sample data
- **Maintenance and Release Management** of PESC APPROVED STANDARDS are conducted through PESC User Groups and the Standards Development Forum for Education.

PESC APPROVED STANDARDS by Technology	EDI	XML	PDFxml
<b>Academic College Transcript</b>	x	x	x
<b>Academic ePortfolio</b>		x	x
<b>Academic High School Transcript</b>	x	x	x
<b>Admissions Application</b>	x	x	x
<b>Common Credential for Certificates, Degrees &amp; Diplomas</b>		x	x
<b>Education Course Inventory (Catalog)</b>	x	x	x
<b>Education Test Score Reporting</b>		x	x
<b>IPEDS &amp; NSLDS</b>		x	x
<b>Student Financial Aid</b>		x	x

**Table 2. PESC APPROVED STANDARDS by Technology.** Development is driven by PESC Members.

## LEADING THE ESTABLISHMENT AND ADOPTION OF OPEN DATA STANDARDS ACROSS THE EDUCATION DOMAIN

PESC Partnerships, Affiliations and a User Community are developed and maintained by PESC to ensure coordination and interoperability across education and industry sectors.

### PESC Partnership and Affiliations

- Access 4 Learning (PK12)
- American Association of Collegiate Registrars and Admissions Officers
- APEREO (Open Source)
- Association of Registrars of the Universities and Colleges of Canada
- EMREX (Europe)
- Erasmus Without Paper (Europe)
- Groningen Declaration Network
- HR Open Standards
- Internet2
- State Higher Education Executive Officers
- U.S. Department of Education's Common Education Data Standards Initiative



### The PESC User Community

comprised of leaders and experts spanning policy, practice and technology at all levels from among the PESC Membership – ensure a holistic, pragmatic approach in believing that fostering open, transparent collaboration across educational communities to solve common and industry-shared problems brings much needed clarity, education and coherence to the education eco-system.





## CURRENT AND FUTURE CONSIDERATIONS

Factors that are currently under consideration by PESC due to their potential future impact on PESC's Partners, Members, Affiliates and/or Users:

### JSON and JSON-LD

Several PESC Members have begun transforming PESC APPROVED XML STANDARDS to JSON, a 'lightweight data-interchange format often offered as an alternative to XML' (*Google*), due to its compatibility with web services. In response to the emergence of JSON, PESC formed a JSON Task Force to develop and recommend the guidelines in using JSON as a PESC APPROVED STANDARD. Factors that are currently being considered by the JSON Task Force:

- 1) With a number of tools available (e.g. JAXB – Java Architecture for XML Binding), should the output of the PESC APPROVED STANDARD be ***Guidelines and Rules for Transforming XML to JSON*** (which would include additional supporting documentation, such as an XSLT stylesheet)?
- 2) In researching the utility and application of ***JSON-LD*** (JSON for Linked Data), the Task Force has received mixed messages. What impact is JSON-LD having in the industry and what role should it play in PESC development?
- 3) PESC Partner Access 4 Learning (A4L), primarily in the PK12 education space, is also considering the identical factors in addressing its approach to JSON. PESC and A4L have agreed to partner on their approach to JSON to ensure continued collaboration and interoperability. What other organizations would be appropriate for partnership?

### Diploma Supplement

The final guidelines for the ***Diploma Supplement*** were recently released by the European Commission and are required to be followed. The Diploma Supplement compliments the *Transcript of Record* (used in Europe as well – similar to the PESC APPROVED College Transcript) but adds new specific data elements. Europe's adoption of the Diploma Supplement will impact many other regions of the world, including Canada, Australia, New Zealand, the USA and others. Factors that are currently being considered by PESC as a result of the new guidelines for the Diploma Supplement:

- 1) Will Europe develop their own standard? If so, is there demand from the PESC Community and should PESC develop a corresponding PESC APPROVED STANDARD to bridge the European Diploma Supplement Standard? If not, should PESC organize a development workgroup, through Members and partnerships with AACRAO, the Groningen Declaration Network, Credential Engine, among others, to develop a PESC APPROVED STANDARD for adoption and implementation in Europe, Canada, Australia and New Zealand?
- 2) What impact might ***Blockchain*** have on the development of the Diploma Supplement and how is that to be tracked or monitored?
- 3) Can funding be obtained to support this development? If yes, which organizations are the stakeholders? If not, can PESC support development without funding?

## PESC EdExchange

PESC EdExchange is a neutral data exchange platform and digital look-up service, (Application Platform as a Service – aPaaS or PaaS), designed as a peer-to-peer network providing a secure, reliable and direct connection between users avoiding file-based technologies. EdExchange is operated by PESC and directly managed by PESC Members. The foundation of the service is a directory 'look up' server that lists institutions, service providers and others that are able to exchange data electronically. The server itemizes the technical capacity of each, which document types are supported electronically and additional identifier data. To exchange data, users then connect directly with the respective recipient.

Several pilots for EdExchange (California Community Colleges and Parchment) have been successfully completed and EdExchange is ready to progress to the next level. Organizations in Europe and Canada have expressed high interest in EdExchange and PESC is investigating establishing corresponding pilots due to this interest. Factors that are currently being considered by PESC as a result of the interest in EdExchange:

- 1) How can PESC establish pilots with EMREX and/or Erasmus Without Paper? Both European initiatives are focused on data sharing and exchange and are at the same stage in the product development lifecycle.
- 2) Can funding be obtained to support these pilots? If yes, which organizations are the stakeholder? If not, can PESC support establishment of these pilots without funding?

**1 Background on PESC and ANSI:** At the time of founding in 1997, PESC's identity as a data 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 X12 Committee, a cross-industry committee developing and producing ANSI Approved EDI Standards, and establish *Subcommittee A on Education*, of which PESC served as Chair. 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, lead 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, a PESC member-driven committee to develop and present candidates for standardization to PESC Members for approval and ratification.