Recognizing Learner's Knowledge, Skills and Achievements in a Digital World

This is a great time to be in education. We are at the early stages of a transformation that truly will place learners at the center. Technology used in the business world for more than a decade is taking root in education, slowly but steadily. Led by the innovators and poised for mainstream adoption, there is a revolution in student credentials that lies just before us and will change the way students showcase their knowledge and skills to future employers.

IMS Global Learning Consortium has been a non-profit leader in open interoperability standards since 1998. Our members, now numbering 480 organizations, are passionate about advancing teaching and learning through technology. This group of forward-looking institutions and product suppliers have helped lead the discussion on skills-based digital credentials since 2014, when at an IMS-sponsored meeting the American Association of Collegiate Registrars and Admissions Officers (AACRAO) executive director, Michael Reilly, described his vision for an "extended transcript" which could empower learners to leverage all of their knowledge, skills and abilities well beyond the traditional transcript which is effectively a simple report of courses completed. Soon after, IMS Global co-led a Bill and Melinda Gates Foundation research initiative along with members of the Lumina-funded Competency Based Education Network (C-BEN). The Technical Interoperability Pilot (TIP) report, called out five barriers to adoption for competency-based education (CBE) programs. From that research IMS' total commitment to digital credentials developed as well as the means for institutions to manage their learners' academic and co-curricular competencies across software products through IMS open standards-enabled data interoperability.

In 2015 IMS members set out to create a standards-based solution to the data integrations challenge identified in TIP. Three members in particular, Capella University, University of Maryland University College and University of Wisconsin Extension emerged as leaders, with UMUC and UWEX recipients of the AACRAO-NASPA (National Association of Student Affairs Professionals) Comprehensive Learner Record grant funded by the Lumina Foundation. Based on their work and with the input of numerous additional member institutions and product suppliers, IMS Global has published three important technical standards that are together capable of solving the vexing issue of data integration in digital credentials and its corollary function, achievement records management. These standards are Open Badges 2.0 (OBv2), the Comprehensive Learner Record (CLR) and the Competency and Academic Standards Exchange (CASE). Open Badges version 1.x was first published by the Mozilla Foundation. On the strength of IMS' contributions to the body of work, Mozilla formally asked IMS Global to lead the project in late 2016. Subsequently, IMS published OBv2 adding significant capabilities which when combined with CLR, CASE and IMS' Learning Tools Interoperability (LTI) standard; make the AACRAO-NASPA vision for the future, an implementable reality *now*.

Where we are today

Institutions want to empower their learners to achieve personal goals which often are related to employment opportunities. At the same time, society is questioning the cost/benefit balance of a traditional degree path and emphasizing a more focused set of technical competencies and employability skills not typically measured in a traditional academic instructional setting, nor

"counted" as credit within traditional degree programs by institutional systems. Yet, programs requiring accreditation are asked to provide such evidence of learners' co-curricular engagement and achievements in tandem with degree programs. In response, educational programs issuing high-quality stackable micro-credentials which lead to a degree are emerging. Solutions such as digital credentials are now widely viewed as essential to helping learners navigate the competitive challenges they face in the skills-focused employment markets and institutions are acknowledging that it will be necessary to officially recognize the 360 degree view of learners' knowledge, skills and achievements in a verifiable, digital form which students can control.

A transition to a fully digital credentials process is not trivial however. The weight of thirty or forty years of institutional technology and data systems is a difficult thicket to cut through for higher education administrators. Legacy Student Information Systems and databases are simply not agile enough to adapt as needed. Software products and tools are coming forward to address a portion of the need, such as platforms for issuing and sharing Open Badges (OBv2), as well as new and better student portfolio platforms. These solutions require even more webs of data integration and management complexity to adopt into the institutions' infrastructure.

As relevant and necessary as the new digital badging platforms are, they are only part of a solution. Lifelong learning is no longer an aspirational statement used for marketing, but a necessity in our rapidly changing world of work. Knowledge and skills acquired through experiences and coursework in high school and elsewhere should be preserved and accessible to advisors in college. Verified college and university skills should translate and extend to the workplace, and vice-versa. We are seeing more examples of education and workforce collaboration in the development of talent, such as IBM's partnership with Northeastern University, and digital badges are proving to be a tremendously valuable way to publicly recognize learners' achievements.

Opportunity Ecosystem
Enabled through certified IMS Global open standards

It is the role of a Comprehensive Learner Record (CLR) to capture all achievements for the learners (and earners) throughout their tenure in education, workforce, and back, as a verifiable digital portfolio of demonstrated achievements, shareable by the learner with others they choose. The CLR is not limited to academic courses and competencies. By design, it enables co-curricular skills and achievements to be represented as relevant learning experiences which advance coursework and showcase it in practice. Increasingly a record of achievement for the whole student is sought by employers who seek candidates with critical thinking, adaptability,

communications and leadership skills for example. Internships and experiential learning are also invaluable opportunities for a learner's growth and distinction. All of these and other skills and achievements are represented in IMS Global's open CLR standard.

Online registries such as the Credential Engine, analogous to a sophisticated online program catalog, hold the promise of rationalizing a sometimes chaotic market for credentials. To manage program courses and competencies at scale, each institution must have its own internal curricular framework, perhaps captured in a Pathways Database tightly integrated with its institution's web portal, Student Information Systems (SIS), Learning Management Systems (LMS) and transcript systems. For each credentialed program, the Pathways Database captures the courses and competencies required for goal completion, and this database can be linked to assessments and external registries (Credential Engine) and authoritative frameworks endorsed by employers and associations.

The data integration challenges that institutions face are those leading up to publishing of the digital credential, e.g. managing and aligning the digital curriculum components themselves. There needs to be data associations and connections among program pathways, courses in the LMS, assessment criteria and the verified records of achievement, including evidence. The data integrations standard to associate these elements is IMS Global's CASE, Competency and Academic Standards Exchange. Using CASE, each competency statement and sub-statement(s) in the Pathway Database has a unique ID. That ID is used to tag the related curriculum elements, thus achieving alignment. Using the CASE ID, product suppliers can link the relevant competency records from their SIS, catalog systems, LMS, Learning Object Repositories, and transcript systems. CASE is also applicable across and among institutions, and capable of linking to published frameworks, the Credential Engine and other registries, allowing comprehensive web-based sharing and discovery, opening unprecedented opportunity for learners to find and apply for jobs, and for recruiters to find candidates with the verifiable skills and competencies that fit their requirements.

Achievement Records Management
In this wider lens for viewing student's capabilities, the SIS will no longer be the monolithic system of record for learners' achievements. There may be some efforts to "open up" the SIS architecture to support inputs for co-curricular and internship records, but there is no sign on the horizon that the SIS will generate and manage the full range of digital credentials such as a CLR or digital badge. The LMS is a great platform to deliver high quality courses and assessments but is not positioned to assume the role of the academic system of record from the SIS. Instead, it is likely there will emerge a new class of application system, an Achievement Records Management (ARM) platform which will capture, manage and publish institution-wide digital credentials in an open standard, exchangeable form.   There are a number of digital badging platforms and transcript systems, members of IMS Global, who are well positioned to step into this role.

The ARM system will accept inputs from multiple sources across the institutions and affiliates in a standard CLR form. The SIS will continue to provide the academic course achievements into

the CLR, while co-curricular and internship applications will also report verified achievements in CLR form. The ARM will accept and validate these inputs and host the central repository of CLR records. The ARM will be capable of producing digital badges on demand and securely share protected versions of their CLR records when authorized by learners. Student advancement from high school to college and among colleges will privately and securely transfer the CLR.   Employers will issue their own CLRs to learners which will also be exchangeable with institutions, supporting new models for education and workforce partnerships.

The AACRAO vision to extend the transcript and ultimately replace it with a verifiable Comprehensive Learner Record is achievable through the adoption of open interoperability standards published by IMS Global and its members over the past three years. Product companies are adopting the standards and moving toward full Achievement Records Management, but the pace is too slow. It takes customers to lead these changes assertively through their purchasing power. Product suppliers respond to customer demands for features and the expressed requirement for adherence to interoperability standards. Our shared vision will not be realized at scale without the certifiable adoption of the standards by the participants in the institutional ecosystem, which is most often made possible through the commercial products they choose to license and use. To ensure actual standards compliance, IMS Global provides a certification service and directory for these products.

With the adoption of IMS certified open standards, institutions will have options to select the products that best meet their needs and the confidence that the Comprehensive Learner Record and Open Badges they publish will be portable and verifiable in real time, opening the doors to new opportunities for their learners.

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