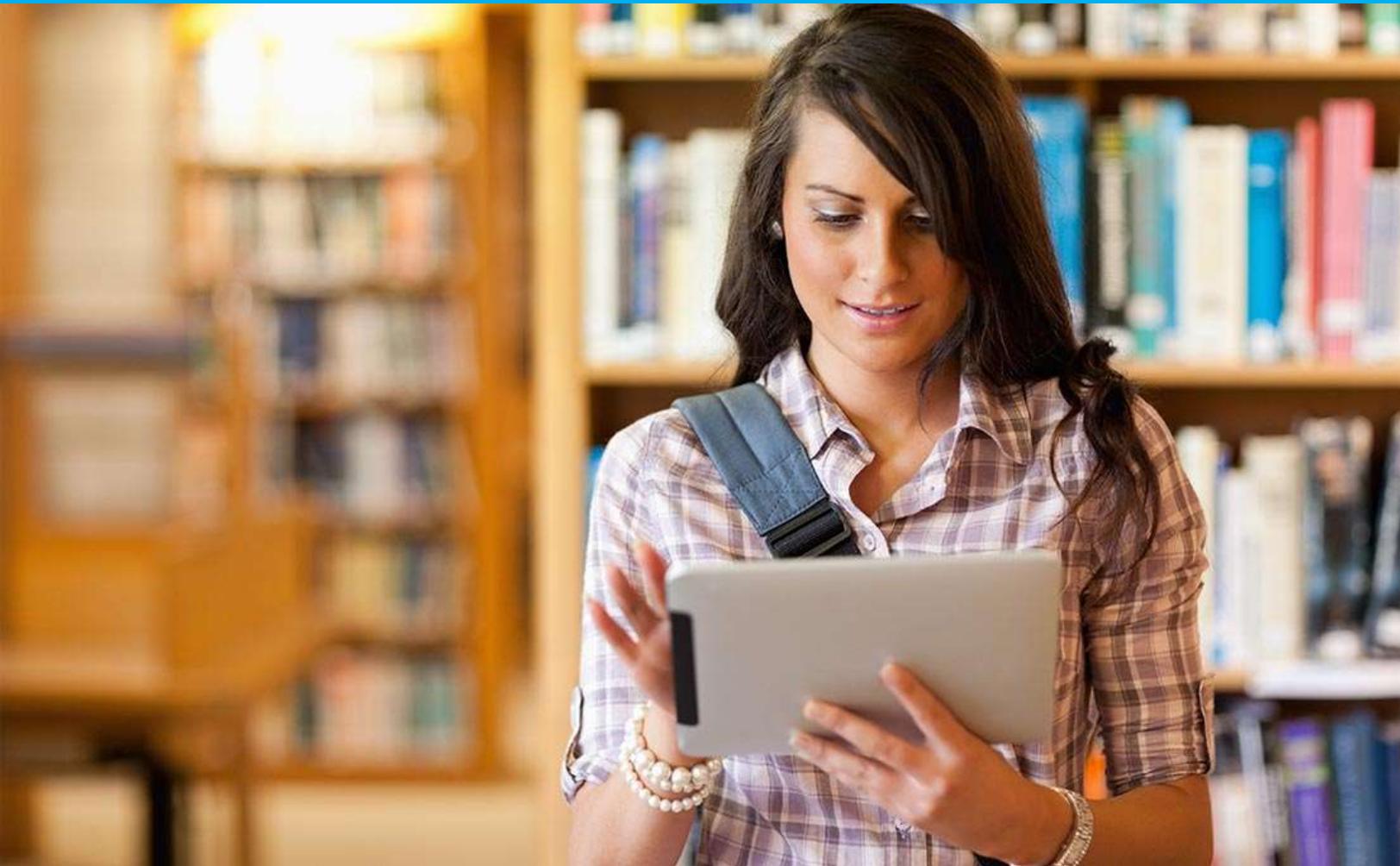


# OneRoster™ Guidebook

Timely and Reliable Delivery of  
Online Education Resources



## ClassLink Leadership Series

ClassLink delivers one-click single sign-on access to web applications and files at school and in the cloud, and secure class rosters using OneRoster™ standard

# Authors and Acknowledgements



This Guidebook resulted from the contributions of many experts. We sincerely thank the following contributors for their time and dedication to helping advance technology in education. Through their insights, this Guidebook is a wonderful OneRoster™ primer for any educator.

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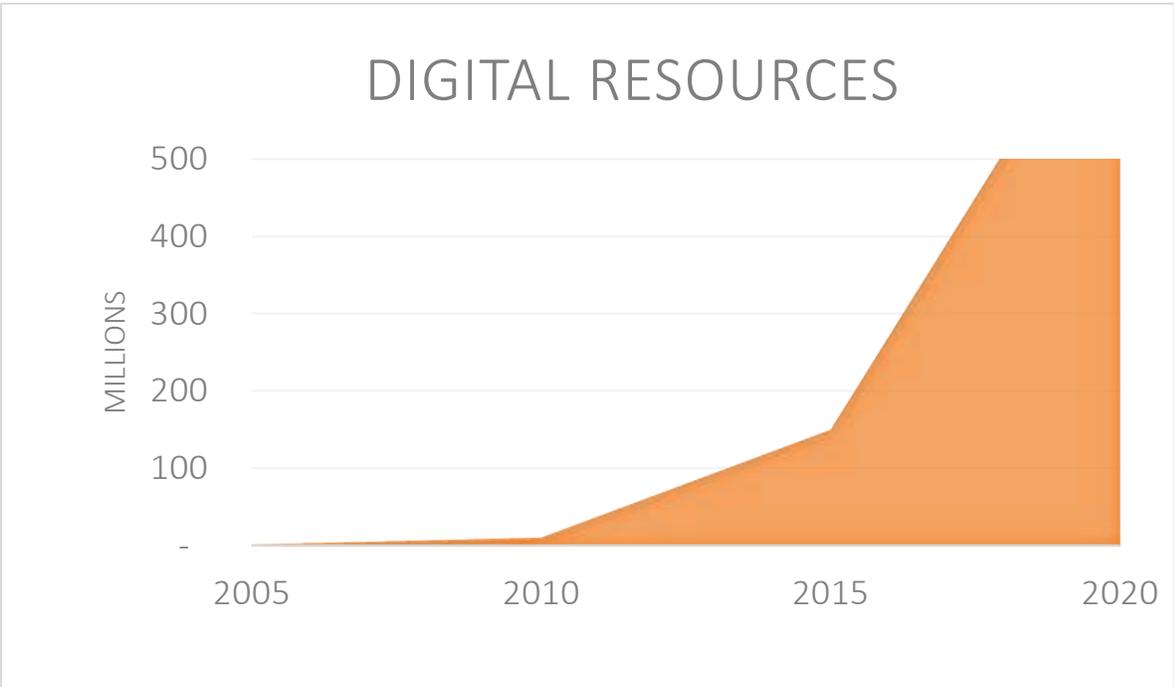


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# The Shift from Print to Online

Now, almost 20 years into the 21st Century, schools are rapidly integrating online and digital education resources into their classrooms. According to a recent survey of K-12 Information Technology leaders conducted by the Consortium for School Networking (CoSN), instructional materials are projected to be at least 50% digital within the next three years.<sup>1</sup> In another report, the Association for Supervision and Curriculum Development (ASCD) stated that about 80% of their members “are currently using digital content in a variety of ways.”<sup>2</sup> By 2020, the universe of available digital content is projected to skyrocket to 500 million units. These numbers indicate a clear shift in K-12 educational resources from print to digital.



The use of digital resources solves the backpack problem, but the key benefits are that it enables a level of personalized learning and student engagement that is just not possible with printed textbooks:

- **More engaging materials** (multisensory, audio/video, interactive)
- **More timely materials** (current/real-time information)
- **Portability** (internet based, across multiple devices at school and home)
- **Wider range of options** (growing universe of easily available materials)
- **Flexibility to assemble** (combined and sequenced in infinite ways)
- **Personalization** (resources can be selected for the individual learner)
- **Free resources** (the growing universe of low- and no-cost content)

*Digital resources enable a level of personalized learning and student engagement that is just not possible with printed textbooks.*

While issues surrounding digital equity and the “digital divide” persist, there is significant interest and investment in using online resources to expand learning opportunities to all students. That interest and investment, combined with rapid content distribution tools like iTunes, GooglePlay, and of course, the Internet generally, have resulted in thousands of new content publishers entering the education market, producing digital educational resources for students around the world<sup>3</sup>. But there’s a hitch to all these new learning resources — the class roster.

## The Class Roster

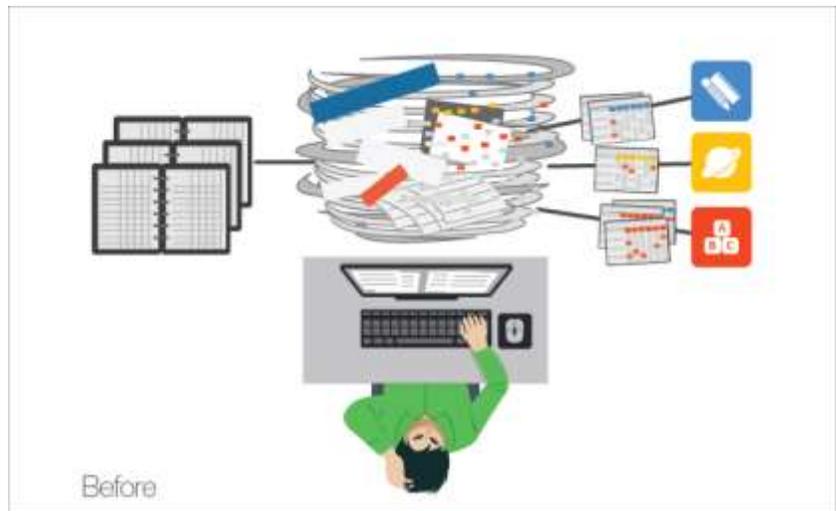
Increasingly, online resource providers and publishers need to create individualized login accounts for students and teachers to access online instructional resources. Further, these login accounts typically need to be grouped by school building, grade level, or class to enable precise delivery of content (e.g. ensuring access to earth science content for students taking an earth science class). The prompt and accurate creation of login accounts for new and returning students, grouped by class, is a major challenge for most school technology departments. When delayed or done poorly, students and teachers who can't login get zero benefit from the intended online learning tools. Unfortunately, it's very common for the delay in creating all the needed login accounts to last weeks and months after the start of a new school year. Delaying student and teacher access to meaningful investments in learning content by weeks and months, given the limited classroom learning time available, results in constrained learning potential. As our reliance on digital materials grows, having valid login accounts grouped by class roster becomes essential for teachers to teach and students to learn.

***The prompt and accurate creation of login accounts for new and returning students, grouped by class, is a major challenge for most school technology departments.***

Although it sounds straightforward enough, getting student roster data into digital resources is trickier than it appears. Each online resource typically requires filling in a series of templates with student names, teacher names, and class lists, and unfortunately no two templates are formatted the same. This means, for example, one template may require the MMDDYY date format while another requires the MMDDYYYY format.

Another typical difference is the naming format for courses and classes, such as “Course Name + Class Name” versus “Course Code + Class Code” or any other combination. What seem like small and manageable differences quickly become large and unmanageable when you are working with thousands or tens of thousands of students, hundreds of templates, and everyday school and class enrollment changes.

Traditionally, filling in each of these templates is a “hand-crafted” exercise. The work requires a data specialist and/or technologist to reorganize very large tables of data for each and every unique template instance. Over



time, publishers of digital education resources, in partnership with school/district technology departments, developed slightly more sophisticated data import methods. These data methods were meant to satisfy demand for easier integration with Student Information System (SIS) via login account provisioning systems from publishers. As each publisher attempted to address the situation they created new data import mechanisms. This resulted in each publisher creating a unique method, and sometimes multiple methods depending on their different products. What began as an improvement to the “hand-crafted” approach became a hyper-complex web. of unique data templates (csv files and data views) and data transport mechanisms (email, ftp, database lookups).

Until recently, there were only three ways to manage this “rostering” process and none of them is good.

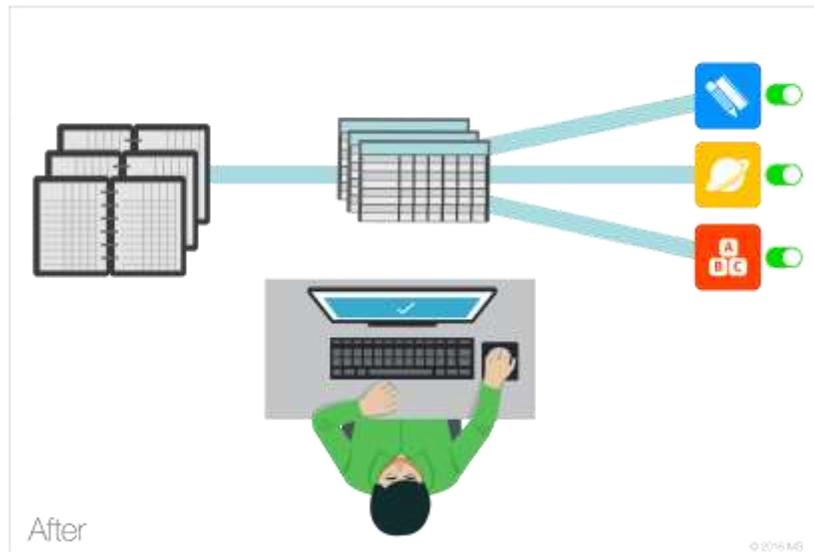
- Burden the teachers. Have teachers manually click/select or upload student lists for each online resource.
- Burden the school IT department. Continue to manually fill in templates or create fragile export/import processes for each digital resource.
- Outsource the data to vendors. Turn over all student and enrollment data to a third party to sort it all out behind the scenes.

With hundreds of digital educational resources used at the district level, these approaches are not sustainable.

- ✘ Teachers. “Teachers should spend less time teaching,” said no one ever. If uploading and updating rosters for digital resources consumed just an hour a week of each of our 3.5 million teachers, our standard 36 school weeks per year represents *126 million hours* of lost teaching time.
- ✘ IT Departments. Constant manipulation of data tables and jumping through technical hoops to meet the complex requirements of unique rostering processes across multiple systems is too great a technical burden for small and big districts alike.
- ✘ Outsourcing. Outsourcing the data creates concerns regarding student data privacy and security. Though responsible vendors take security measures and document their processes, ultimately schools bear the risk when sharing confidential student data. The use of third parties may add costs to the process. Even where the outsourcing vendor does not charge the school directly, any additional data costs paid by publishers are typically passed on to schools in the end.

## A Better Way

There has to be a better way...and there is. It's simple to understand, efficient and cost-effective to implement. The solution is to standardize how class roster information should be formatted. Put plainly—"Everybody, just use the same template!" By using a



standard format, the need for time-consuming data manipulation goes away and ultimately all parties, schools, and online publishers save time and money. Standardizing roster data is not a new concept but getting everyone to agree on the standardized format has been a challenge. Attempts by the industry to widely embrace a single standard have not succeeded in the past and until every one is using one common standard...the time-consuming, money-wasting data manipulation will continue. Today, with the backing of major school districts and major online resource providers and publishers, a new standard is emerging as the de facto standard for rostering—OneRoster™.

***“We are strongly advocating the IMS Global OneRoster™ standard to our providers of curriculum and online tools. It significantly simplifies how we exchange student information with a wide range of digital resources, thus eliminating the time-consuming process of creating custom student-data files.”***

*Maurice Draggon  
Director of Instructional Management Systems,  
Orange County Public Schools*

OneRoster™ is a universal data template that can be used to deliver class roster information to any digital content platform or Learning Management System (LMS). Although relatively new — the standard was released in June of 2015 — it has quickly garnered wide support. It is being adopted by major publishers including Pearson, Houghton Mifflin Harcourt, and McGraw Hill Education, and is being specified in Requests for Proposals (RFPs) by school districts around the U.S. The [Federated Alliance for Curriculum Technology Standards \(FACTS\)](#), a consortia of progressive school districts, has made adoption of OneRoster™ one of its prime objectives.

The technical standards organization, [Ed-Fi Alliance](#), is working to to accelerate district-level adoption of OneRoster™ as well. Among the reasons for the quick uptake is that the OneRoster™ standard was created by the stakeholders themselves. School districts, publishers, Student Information System (SIS) providers and LMS developers were brought together by the technical standards organization, [IMS Global](#). Together, they negotiated and created the technical specifications contained in the OneRoster™ standard. In addition to the universal text file templates, OneRoster™ also provides an Application Program Interface (API) which automates the export/upload data exchange process between systems. Through collaboration the group has achieved its common objective of simplifying the rostering process for schools and the online providers that serve them.



## OneRoster™ is Free

It costs schools and publishers NOTHING to use OneRoster™. Removing costs from current rostering approaches was a key goal for creating the standard. Although the OneRoster™ standard is not itself software, it provides universal data templates so that school districts need only create one list of students, teachers and classes that can be accepted by all publishers. This is a major benefit over outsourcing solutions that may not charge school districts directly but that definitely charge the publishers. Some outsourced rostering providers require as much as 50% or more of the publisher's revenue from the school district. At the end of the day, publishers can't absorb all those costs without passing them along in some form. Which means that schools are ultimately paying for these "free" solutions. For schools with lots of digital products and districts with lots of schools, this free solution can come with significant hidden costs.



# OneRoster™ Certification

Organizations that want to deliver or receive OneRoster™ formatted data can have their products certified by IMS Global, the organization responsible for the data standard. To provide flexibility and acknowledge not all organizations need to be experts in all aspects of OneRoster™, IMS Global offers multiple certifications organized by type of OneRoster™ data, data delivery method, and whether the organization intends to certify as a recipient or a provider of the data.

***“Custom data integrations  
cost time and money that nobody has.”***

*Rob Abel  
CEO, IMS Global*

These multiple certifications allow organizations to exercise choice and to concentrate their resources on relevant areas of OneRoster™ use. Certifications are earned when organizations complete an application and successfully demonstrate, through product testing, that their product conforms to the data specification. There is a small, one-time fee for the certification process.<sup>4</sup> Organizations who offer certified products build confidence in the marketplace that their products have been reviewed and tested by IMS Global.<sup>5</sup>



## The Outlook

Over the years there has been amazing innovation and growth in digital educational resources. However, the spiraling growth for individual login accounts to all these resources has created complexity and burdens all stakeholders. Until we simplify and reduce the cost of activating personalized logins with accurate class rosters, students and teachers will not reach the full learning improvement potential offered by digital education resources. Add to that the growing legal requirements for limiting who has access to confidential student data, it becomes clear a better method, based on a common set of data standards, is required.

***The industry needs to adopt a simple, free, and secure data standard to solve the rostering problem***

To date, the industry has developed various subpar solutions for creating and delivering class rosters. From placing the burden on teachers, to creating and managing a hyper-complex array of data templates, to an outsourced data approach where publishers and platform providers often pay significant fees to receive the data. None of these approaches has fully solved this important and growing industry challenge. The industry needs to adopt a simple, free, and secure data standard to solve the rostering problem. Other industries have been able to agree on standards that enable the sharing of data across their ecosystems. With the rapid adoption of OneRoster™, it appears the education industry is now poised to do the same.

## Feedback from School Districts



As more schools embrace personalized instruction for all students the dependence on digital tools to provide formative assessment data increases. By providing "zero day" rostering of these digital tools OneRoster provides immediate access, on day one of the school year or semester, thus increasing teachers' confidence these tools will be available for their use.

Auto-rostering digital applications by way of OneRoster has reduced, by weeks, the time necessary to make classroom applications available to our teachers. The result is an increase in teacher's reliance on diagnostic results of these digital tools to drive instruction in their classrooms.

The implementation of OneRoster to make digital applications available more rapidly is changing the way that administrators guide their schools. School leaders should begin to see a positive correlation, that is measurable, between technology use and student achievement as their school's staff increase reliance on the diagnostic information provided by these applications to guide instruction.

*Dr. Keith Osburn*

*Director of Technology and Special Programs,*

*Jeff Davis County Schools*



In the School District of Pickens County, we have over 60 digital web applications that require class rosters. Some of these rosters are managed by schools and teachers; most are managed at the district level. Because we have a small IT staff, students are not able to use many of these resources until well into the school year. It simply takes the IT staff a great deal of time to format data files according to dozens of different rules. Even after the initial rosters are created, we don't have the staff to update these data files daily. Teachers still have to manage rosters for students who come and go throughout the year. Teachers also are burdened with managing online textbook app codes. With ClassLink OneRoster, students and teachers easily access their digital textbooks and resources with one click. Teachers no longer manage rosters. Our IT department is not formatting data files according to dozens of different rules. Most importantly, students have year-round access to digital resources. We finally have the solution in place to support personalized learning!

*Barbara J. Nesbitt, PhD*  
*Director of Instructional Technology*  
*School District of Pickens County*



Part of the promise of technology in the classroom is accelerated learning due to access to knowledge beyond what is available in traditional textbooks or resources. The reality however is that accessing this knowledge can often take away valuable classroom time as teachers must spend time assigning resources instead of preparing lessons. In our district we have some schools with over 100% mobility of students during the school year. In these schools, rostering is not an easy beginning of the year event. Rostering is a constant barrier between content and learning. Standards in the rostering process allows teachers to regain valuable class time and to begin to fulfill the promise of technology.

*Maurice Draggon  
Director, Instructional Management System,  
Curriculum, Instruction, and Digital Learning  
Orange County Public Schools*



It is important to populate databases from a central location in the district, rather than teachers or staff delivering class rosters independently. In order to ensure data integrity, accuracy, and the ability to securely onboard and offboard students and staff, only a select few should manage privileged information. In many school districts, there are multiple departments managing their own databases including special education, transportation, athletics, food services, security systems, and plant operations. Our district maintains over 60 databases and perhaps 10 different departments input information in these systems. Without secure, centralized, automation, there is reduced confidence that teacher and student logins will be deleted when they are no longer with the district.

*Shelley Rosito*

*Executive Director of Instructional Technology and Staff Development  
Monticello Central School District*

# ClassLink

Since 1998, ClassLink has been focused on delivering easier access to education resources to students and teachers from any device. Beginning in 2011, ClassLink made available a mobile and web application that delivers OneClick Single Sign-On (SSO) access to web apps and files. Today, students and teachers using ClassLink enjoy instant access to all their resources without having the burden of remembering websites or login information. ClassLink has been validated through numerous education technology awards and, more importantly, by steadily increasing adoptions in school districts across the country and around the world.

*OneClick SSO to Apps*



*OneClick SSO to Files*



*Any Device*



ClassLink resides at the intersection of technology and curriculum, which means that the company feels an obligation to reduce barriers preventing easy and secure access to digital education resources. As a charter member of the consortium that helped design OneRoster™, ClassLink is committed to making secure and open standards an integral part of its platform. In this way, the company offers a solution for both delivering rosters to create login accounts and enabling single sign-on for all students and teachers.



# The ClassLink OneRoster Solution

ClassLink OneRoster is a technology built into the ClassLink system that delivers Certified OneRoster™ CSV and API access of class rosters to any publisher or platform provider. Integral to ClassLink's approach are:

- ClassLink's OneRoster delivery system is IMS Global Certified. ClassLink supports and relies on open technology standards to reduce complexity and cost for schools and online publishers. Being certified is a further demonstration of our commitment.
- ClassLink OneRoster is a technology built into the ClassLink system that delivers Certified OneRoster™ CSV and API access of class rosters to any publisher or platform provider. Integral to ClassLink's approach are:
- ClassLink's OneRoster delivery system is IMS Global Certified. ClassLink supports and relies on open technology standards to reduce complexity and cost for schools and online publishers. Being certified is a further demonstration of our commitment.
- ClassLink's OneRoster delivery is designed so that schools need not send ClassLink their student data. Schools keep their data private and share it directly only with the online providers they choose. This approach is fundamentally different from outsourced data providers that take private student data and keep it on their systems.
- ClassLink does not charge publishers for OneRoster delivery. This approach is also fundamentally different from outsourced data providers that sometimes charge exorbitant fees to publishers, who in turn pass those costs on to schools.

- ClassLink does not charge school districts for OneRoster delivery. This business approach is unique to ClassLink. Our philosophy is that there should not be a “toll booth” or “tax” on the delivery of rosters from school districts to online educational resource providers. Without secure, accurate, and timely delivery of roster data, education technology cannot succeed. Since its founding nearly 20 years ago, ClassLink has been committed to the success of education through our contributions to education technology. By enabling secure, standards-based, and free delivery of roster data, all education technology efforts can help contribute to the success of education.

***“With ClassLink OneRoster, students and teachers easily access their digital textbooks and resources with one click.”***

*Barbara J. Nesbitt, PhD  
Director of Instructional Technology, AITS*



## About IMS Global

Founded in 1995, IMS Global is a non-profit, internationally recognized education data standards organization. Where other standards organizations have come and gone out of favor, IMS Global has stood the test of time as their technical standards are widely adopted across the full spectrum of the education industry. Today, IMS Global continues to grow, supported by over [350 organizations](#). Members include school districts, higher education institutions, business and career training organizations and the many publishers and platform providers that serve them. IMS Global strives to enable the adoption and impact of innovative learning technology. The IMS open architecture and extensive ecosystem of EdTech products enable education institutions to be more innovative, provide a more seamless user experience, and dramatically reduce the cost of integrating products into educational enterprise systems.



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<sup>1</sup> CoSN 2016 IT Leadership Survey Report  
<http://www.cosn.org/itsurvey>

<sup>2</sup> Digital Content Goes to School: Trends in K-12 Classroom e-Learning.  
<http://www.ascd.org/ASCD/pdf/siteASCD/misc/DigitalContentTrendsReport.pdf>

<sup>3</sup> ASU/GSV Conference presentation by Andy Rosen, Chairman, Kaplan, Inc.  
<http://livestream.com/asugsvsummit/events/3914357/videos/83138229>

<sup>4</sup> IMS Global OneRoster™ Conformance Certification  
<https://www.imsglobal.org/oneroster-conformance>

<sup>5</sup> IMS Global 2015 Annual Report  
<https://www.imsglobal.org/sites/default/files/2015annualreport.pdf>

This paper was prepared by Paula Maylahn, the principal at Paula Maylahn Consulting, Paula is an education industry consultant working for companies and organizations across the K-20 spectrum. Paula’s articles on the industry have been published in *The Experts’ Guide to the K-12 School Market* and *The Experts’ Guide to the Postsecondary Market*. Paula authored the “Enterprise Management Systems” chapter of the 2015 publication *State of the K-12 Market* and the EdNET Insight report *Interoperability: Definitions, Expectations, and Implications*.