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## Bardic Systems Webinar

Host	Host, Alex Jackl, CEO Bardic Systems
Event Date	January 21, 2015
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Title	“Comparing Roster Data Models”
Description	Alex Jackl and 5 prominent education panelists discuss current problems with managing rosters and propose next steps toward simplifying roster information exchange.
Companion Documents	<a href="http://www.bardicsystems.com/publications">www.bardicsystems.com/publications</a> Includes links to Roster Workbook, Ebook, Show Notes, and Slide Deck, which also provides information on all of the panelists.
Panelists	Jeff Alderson, Eduventures Dan Ingvarson, NYC RIC One John Lovell, A4L Jill Parkes, Quality Information Partners, CEDS Jason Wrage, OVRTR Cable Dill, Business Development, Bardic Systems, Inc Julie Lapolito, VP Marketing, Bardic Systems, Inc.
Note:	The webinar recording started 5 minutes into the presentation.

Alex:

The Roster is a fundamental building block, and part of what makes a roster ... a roster, we have to look at what other data elements could make up a roster, so the data definition we looked at, we looked at PDF and the SIF entity objects, and the xPress Roster, and IMS Global's OneRoster. We looked at Clever, which is a ... they sort of have a proprietary solution to managing roster data, and we looked at the Ed-Fi elements and some of the districts and states we've been talking to are looking at using Ed-Fi. I am about to pause for a moment so I can promote Jeff to a panelist. You just please let me know that you're not, and I cannot ... Okay. Jeff, we're going to work on promoting you to a panelist, but for now we'll keep going. Just let me know if you want to add anything, just put it in the Q&A and we'll respond to that.

Now, as I said, A4L sponsored us to produce the Roster Comparative Workbook, and from what we found in that work, we've been moving forward with trying to gather up people to actually look at that and look at solutions around that, and as I said earlier, you can find it at BardicSystems.com Publications on this, and we'll make this slide deck available to everyone, obviously, after this. Okay. The answer to the question of "Why focus on roster management now?" There's 3 main reasons which we're going to go into detail in the future slides, so I'm going to whip through these right now, but it's that there's been an explosion of applications and services in the instructional technology space.

Data movement [00:02:00] in education is no longer just about the SIS talking to a yearly report on something. It's about live utilization of applications and services that both students, and teachers, and administrators download, and that requires often very rapid updates and loading of roster and roster-type data. The second thing is that different schools have different needs, and so at some schools ... I'll talk about that in more detail when I get to the slides, and of course the vendor selection, a lot of districts and states are concerned about if they pick a particular vendor that then they'll build an entire system around that, and then they'll be trapped or stuck with that particular vendor choice. That's something that is unacceptable to most schools and districts, and thus require some kind of standardization.

Let's start with the rapid growth of the instructional technology space. One of the key things is that we're dealing with a combination of things. Roster data isn't just used by instructional technology applications. It's also used to support HR, finance, food services, compliance needs, so there's multiple clients, if you will, for roster data, and the instructional technology applications are just the newest users of this roster data. They are the ones that have the most impact on direct classroom teaching, and therefore have the most opportunity to make a difference, but if they are not, if they don't get the roster data they need and the student data they need, then they can't serve those students and those teachers, and therefore that's why it's so timely that we now need to solve the roster problem as quickly and efficiently as possible.

Different [00:04:00] schools have different needs, as we said. There are very large districts and large regional areas that have very large IT staffs that have a lot of people

that can work for them, and then there are the very small, where the math teacher, who is also the bus driver, who is also the principal, has to do all the manual data entry or the secretary does, and that's the only staff that they have. Different solutions need to be designed for different things, and almost everyone now has the same kinds of procurement. There's different procurement policy environments, each place has a different legislative environments, the size of the IT staff, the composition of the IT staff. In some districts everyone is a Microsoft developer. Everyone is a .NET developer, and other districts are all open source.

Those resources, you can't just swap them out for new resources, so therefore that actually constraints the type of solution. However, the scope is the same for everyone. The number of students doesn't matter as much anymore. Now it's much more about the resources, and the IT staff, and the availability of stewardship and data governance to manage the complexity that schools, districts, and states need to deal with in this topic. Education is changing. As we have blended learning and flipped classrooms and as more and more data is being moved amongst often third-party vendors, and people that are state applications and have contracts with the state, but they're being used at the school level as the states open up more service-oriented things, education needs more controls [00:06:00] over how roster data is moved.

You've got the problem of bring-your-own device and one-to-one, and people doing work at home, and accessing all the same applications they do in the school environment has changed a lot, so when people are building solutions that use roster data, they need to build to the future and to scale up into the education environment that's coming for all of us. That demands an open architecture, requires us to transform our vendor-client relationships, and therefore come up with standards to manage things like rosters and such things. Now, I've been talking a lot for the last five slides. In this slide I'm going to talk and then I'm going to stop and have a conversation about these things, because one of the questions you might be asking is, "Okay, fine. You have this paper on rostering. You have this Comparison Workbook. How can you use this work?"

Different people can use this differently. If you're in education, if you're a decision-maker in education, a leader in education, you can use this. One, is to identify the systemic opportunities and problems that you might have around a roster, and sort of see them coming. The second is, you can share this work, the Workbook, for instance, with your technical staff and then you can use that to help you whether you're doing an RFP or you're actually having your own developers build something, choose a solution appropriate to your size and your budget, and plan for growth and plan for the future. Then you can start to prioritize a vendor-independent strategy, so that you're not locked in to that decision you made 15 years ago, and you can have a little bit more flexibility.

If you're a data modeler, you can create cross-walks to enable integration with other models that different applications you have might be using. You can provide this as a basis for semantic [00:08:00] comparison when you're engaged in designing your district or state's data model, and you can use this to provide basic definitions for all the roster elements, which is one of the places where CEDS, the Common Education Data Standards, comes in very useful. Vendors, you can make your offerings easier for

customers to integrate into their environment. You can use standards to avoid having to redo custom one-off client solutions every time you integrate, and you can provide the guidance to your own internal development team in working this out.

I'm going to pause. I'm going to unmute the panelists, or they can unmute themselves actually, but I'll unmute them, and then to see if anyone has any comments or questions, and if you're one of the attendees and if you'd like to put a question into the Q&A, please do that and we'll try and answer your questions, and then we'll keep going forward in the direction we've been going in. Panelists, any comments on this so far? Anything you'd like to add or speak to?

Jeff: Sure. This is Jeff Alderson [00:09:16] here. One of the things I've been seeing in our research here in higher education and being involved with some big data integration projects with application developers is, these are the things that are actually happening in higher education as well as K-12. There are vendors that are propping up to do nothing but the mapping exercise to make sure that if you have an educational app, that you want to plug into an ecosystem of infrastructure that's used in higher education, that all your standardization of your data elements is done back to a common model and definition. Class rostering is all the more important when you start dealing with class sizes that are in the hundreds, if not thousands, in online learning. [00:10:00]

The problems are seen to be amplified in higher education, and so you have companies that are springing up to do nothing but this activity and this mapping exercise using standards like CEDS, or the IMS-LIS Spec and LTI to pass rostering information between applications. What I think was very interesting, and now because you're bring this up here, is I'm still not seeing a strong adoption of CEDS data element definitions by some of the largest vendors in the space. Case in point, in higher ed we have vendors like Ellucian and even Salesforce with their CRM products. Both of those companies, because I'm singling them out for this conversation is, both of them have announced their own higher-education data model initiatives, neither of which actually are based on CEDS, either at the API interface level or within their own internal data models.

They're continuing to build their own proprietary data models, but probably with the best intentions there, they're trying to make it easier for the app community to plug into them, but they're still not leveraging these data models. It's almost like the best kept secret in the industry, which is ironic because these same companies are involved in the standards-setting organization. I'm going to put it to another panelist to say why aren't some of these data standards catching on? It seems like a no-brainer to us technologists, so why isn't this catching on?

Dan: It's because their motivations aren't aligned. There are a number of moving pieces, and I would hazard to guess that there has been, I don't know, probably 5 I can think of data models that have been popped up over the years in K to 12. It's easier to pop up a data model when it suits your internal data structures and [00:12:00] I'd hazard to guess that that may be part of the motivations of these other like Salesforce, etc. It's more difficult to get a scale on adoptions. There isn't a clear incentive for either of the key parties, being education or vendors, to implement a particular standard when you've got to

implement something at a time, and where there is an increased level of complexity to implement something that is reusable, as is supposed to be the point of these APIs, that comes with it particularly in the past with a higher degree of functional requirement necessarily because you're not just doing one.

Now, I will say that modern technologies are making that much simpler, and in some ways we may find ourselves swinging the pendulum back the other way to having many different ones, because you can easily put up an API and you can relatively easily create a specific client for it. I suppose the question is, "Is there a single model? Do you think in higher ed that there is a single model or is it actually the case that really there is different data models?"

Jeff: Yeah, I think the analogy in higher ed is a little clearer in some ways for some-, because higher ed seems to have, and maybe this is the case, [00:14:00] and Alex, I think you might have some perspective on this, as well as from A4L, but in higher ed it's a highly transactional ecosystem. Everything from your first experience, to the application process, and transcripts both in the front door and out the back door, financial-aid processing is very transactional. Everything on the transactional side in higher ed seems to have a corresponding data standard for interoperability to go along with it, and that's a cause for a need for common data elements and definitions.

A lot of what's in CEDS came from the data elements and definitions that came from PESC, because those standards are based more on the transactional nature of things ... and because higher-ed institutions either had homegrown systems or they worked with vendors like Ellucian and Oracle, Jenzabar and others, that had wildly different internal data models, it was very hard to define a standard data model for the data at rest in higher ed. Instead, they focused on the low-hanging fruit, which is the transactional systems for student standardization.

To this day I don't think that when you look under the hood in many higher-ed data systems you'll find anyone using a core data model that's the same between vendors. It just doesn't exist. CEDS, as new as it is, I've seen little to no traction or adoption in higher ed in terms of using that as a standard data model, but at the interface layer at least the APIs, vendors are pretty good on standardization of the transaction sides.

Dan: That seems to be the trend that's going on, isn't it? That we're never going to get everyone to agree on an internal data model, or neither should we, and neither did CEDS. I don't know if Jill will back me up on that, and it really was about how do we have the internal representation just to make it straightforward.

Alex: Now, Daniel ... Dan, I think I agree with that. I do want to ... Jill, I don't know if you have an opinion about this, about ... Jill, it [00:16:00] wasn't until CEDS 3 that we really had a lot of the higher-ed data elements inserted, and roster in particular is as much of a problem I would think in higher ed as it is in K-12. Jill, do you have any thoughts on this, or ...

Jill: You're right. The post-secondary definitely came in later, and I was actually one of the facilitators for the post-secondary group last year, and one of their areas that they wanted to look at in the future within CEDS was more at the class level, the rostering, the grade book, that type of thing. We did move a little bit more towards that with Version 5, but we just didn't have enough time to do as much as we wanted, so that's one area even in CEDS that there may still be some changes that need [to be] made.

Alex: Yeah, I think that makes sense, but I think it's also one of the other things that Dan and Jeff started to bring up, was that what ... We talk about "data models," like in quotation marks, and when we say that often we mean a wide range of things. CEDS is primarily a set of definitions for terms that we can then use to build data models, and then things like Ed-Fi and SIF, and OneRoster, are structures that hold these data elements into particular structures and data structures that can then be used as a model to how those data turn into objects or groupings of data elements. Then, that's a whole other thing, and then the API is a whole other thing. [00:18:00]

As people build out automated interfaces to applications and applications to applications, then you have API models that you'll find in things like the specification, and LTI as a particular kind of ... has a bunch of, a particular kind of APIs built into it. Those things, then, are different things, and I think, Dan, your point was that the internal data model of how people can put roster data or any kind of data, but we're focused on roster data right now. How people internalize roster data will always be varied, will always be different, but the goal is, for CEDS for instance, is to have a set of definitions for those things that we can share, and thus glue together semantically the meaning of data elements, and then the data model from the APIs can be used to actually exchange.

I think, Dan, you're asserting which I think might be true, is that there's a lot more now, a lot of that work of aligning the disparity, the element, data models and structures is being done at the API level. Is that what you're saying, Dan? Is that what the direction you're...?

Dan: Yes. We are particularly moving down, and so I assume we're going to talk about the relationship of the roster data to entity models and you know my case on that. There is a ... Yeah, I agree with you.

Jason: I would just add to Jeff's original point about ... This is Jason ... why isn't that catching on? I think there's also non-technical market forces involved. You see organizations like Salesforce, which, they're big fish, providing de facto standards on their own even though they're not open standards, but they're big enough, obviously, to sway the market and an ecosystem. I would also say that everybody [00:20:00] kind of wants to be in the platform business themselves, so by building proprietary APIs and by having bespoke integrations between their platforms and other applications, you create a situation where you have lock-in for your vendors, and I think those are market forces that also influence why standards aren't catching on.

John: Speaking from a software-developer point of view, it flows all the way down to them as well. Oftentimes they'll be presented with a problem, and they say, "Ah, well, let's use the standard," and the vendor they want to talk to, the other guy, says, "No, no, no, no. We don't want to do that." Eventually they say, "Well, if you just get me the data I'll work with it," and that's where you land and that ... the other vendor gives them freedom to produce whatever they're going to produce to feed the data, and you solve that particular use case. Then you go on to the next one, and your boss is happy, and you get paid, and life is good, but then as soon as you go to the next thing or want to integrate with somebody else, there is no reuseability there. The long-term picture becomes more and more bleak as you continue to meet your short-term goals.

Jeff: One thing I want to point out in terms of bringing it back to rostering, where this was attempted once before, we may not be aware of it because we may have blocked it out for a variety of reasons. In the earliest days of this little thing called inBloom, previously known as the Shared Learning Collaborative, one of the first use cases that they demonstrated in that South by Southwest EDU at their coming-out party was kind of a class rostering component for teachers to take attendance in the classrooms, and a lot of the APIs they built and the data models they were building out [00:22:00] for their internal structure actually did a pretty good job for very small class sizes for rostering.

The class roster was a core part of their application, because ... and I was talking to someone about this earlier today, in fact, their focus, their primary business audience was app developers that would be building an ecosystem of educational apps to talk with an open set of APIs that would pass a minimal viable data set to make most apps work. They focused mostly on those handful of data elements and a class roster that most educational applications they would augment in-classroom instruction would use. Say what you will about the history of that organization and how it crashed and burned, but that intent of having a very solid business case of an educational app store ecosystem built on a very small set of data elements across a very large number of students in a very relatively flat hierarchy between students to classes to schools, it was going to work.

The earliest app showed that it worked, and I'm not seeing that same ecosystem or interest in the exchange of information for the developer community, and maybe, Alex, my question is, who is the primary user of the roster today, and do they have seat at the table in terms of advocating for standards as much as the folks in the panel actually were saying they just don't understand the value.

Alex: I think that's a ... I don't know why I'm not responding ... I think that's one of the things that we're looking to do, is look at what are the ... How can we generate that, because I think the need is still there, the interest is still there. If you talk ... and some of the people on the phone right now, [00:24:00] we have some of the people that are on this meeting right now, and these are people who are dealing, grappling with this problem as we speak right now. I think one of the things we need to look at is, what are the challenges to doing that, because the interest is there. People are asking about this, people are demanding this, but they're not ... There's a lack of integration, so I think there's a couple of things.

When we looked at this problem and when we were collating the information and started to talk to various people in the standards groups and talked to people who are using rosters, one of the problems is proliferation. There are so many vendors now that are trying to access standard data, that it's unbelievable. There used to be a point where you could list off the SIS vendors and the 2 or 3 LMS vendors, and if you could integrate with most them you were okay. Those numbers are now in the hundreds if not thousands of apps, and services, and online tools, and it's become a very much more federated, varied marketplace than it was even 5 years ago or so. One of the primary challenges, we put down a couple of things that we think would need to happen to move the market forward, and I put that before merely as a discussion point for us to address, but...

Collaborate...one of the suggestions, and I'll list off what our recommendations were at the end of the paper, is that, for instance, if the Ed-Fi Community and IMS Global Community get together to unify and collaborate on a minimum viable roster, that's exactly the kind of thing that we're looking at. I know a lot of the thinking that went into the inBloom structures are the same kind of thinking that went into [00:26:00] the xPress Roster and some of the OneRoster work. I know there are people here who are deeply embedded with the xPress Roster work, and I know at least a couple of people in the attendee list are people who are working with OneRoster or who have companies that are working with OneRoster.

We need to cooperate, and the standards bodies is one thing, but then we have vendors who are actually building rostering solutions, like Clever is a very well-known one. I don't know if we have anyone from Clever here in the meeting, but people ... solutions like that, that have to work with the schools' ecosystems, we need to have cooperation between them and the standardization effort, and we need to focus on customers. People have the SIS they have, they have the LMS they have. We need to work with the vendors who are providing LMS kind of solutions and SIS solutions, to have them move towards more open platforms. I think the pivotal thing is, those of us on the call who are school leaders, or district leaders, or state leaders, we need to create a demand. We need to insist on vendor neutrality on open platforms, on unified standards.

The more people ask, because frankly, if people are asking for it, there's no way a for-profit company is going to spend money it wants to save or wants to distribute to its shareholders if the clients that it's serving are not asking for it. These are just directions that different entities that are involved in ecosystems could take to impact this problem, and if all this happens there will be a groundswell and I think we would see a very useful unification, and which would be much cheaper for vendors who are trying to support this rostering and it will be much better for districts, for districts to [00:28:00] to say you have to be ... use X, Y, and Z, and you could count on it working.

That's a big leap from where we are today, but we put that out as a sort of almost a straw man, so I'd like to open the conversation and refocus on, okay, what are the things we can do to move the market forward? What are the ... Some of that has been thought through, and Dan, for instance, and Jason have been working on trying to implement a stripped-down roster that's more customer-focused than the full entity

model that SIF was using, because they wanted to make it less cumbersome and more easier to use. I know that one roster is trying to create a roster structure that will work for LMSs that are trying to integrate in this application space, including in the higher ed. Why don't we just open up the next phase of the conversation to talk about that, if any of the panelists have anything to say about that, so I'll just be quiet and let you guys talk.

Obviously ... Wait. Before you talk, I'll take that back. Those of you who are attending, we have a Q&A screen on your ... You should have it on your ... You'll be able to see it, and then you can type questions in there, and if you have any questions or comments, well, then I'll either read them off or I'll unmute you let you address that. Please, any of the panelists, please go ahead and anyone who's in the attending, please write any questions or comments you have.

John: Okay. I'll take a stab at some of this, and it will probably fall ... It's that vendor spot, probably the focus on the customer is the easiest to talk about, and why haven't they moved towards more open platforms. You say this a lot, Alex, I know, but this is not [00:30:00] an easy problem. Integration as a whole, when you look at putting together more and more and more systems and have them all work seamlessly together is not an easy problem. It takes somebody to coordinate what's going together, and quite frankly, a lot of the technologies that have been available for years and years and years, going through brokers and going through middleware and such can be necessarily complex, but they are complex, and so we really have to strive to make it so that the return on investment is there.

How can we simplify it, make it as common as possible so that the vendors can make an intelligent choice to do the standards and to look at the open platforms rather than make the intelligent choice not to?

Jason: This is Jason again. I think that the focus on the solution will lead to adoption, so from the perspective of the initiative in New York among the 12 regional information centers, which is the project that I'm working on and that Dan is working on that really burst the xPress API standard. We're focused on delivering Interoperability-as-a-Service and Identity-as-a-Service. As a function of that we felt that standards should be at the center point, so we really started with the solving of the problem first, and out of that came the standard, and our technology stack itself can support and will support multiple standards, but we felt like there was a need in the marketplace to create it. At the time OneRoster didn't exist, so we had significant background in SIF and SIF 2, and saw a lot of successful patterns there, and also felt that the SIF 3 infrastructure standard [00:32:00] was a really solid starting point.

[phone ringing] Sorry about that. Not necessarily always a good thing to have all your communication coming through your computer, so that was my phone ringing on my computer. Sorry about that. That was the reason that we went about developing xPress, was to create a rostering standard that was simple, that was clean on the wire, but that leveraged an existing infrastructure and transport, in the SIF infrastructure.

Alex: Yeah. I think that's great and it's also, I think ... Stanley just mentioned on the Q&A, he mentioned that ... Stanley Watts, by the way, is working with ClassLink and they're working with OneRoster, the IMS Global's OneRoster, and he's saying they've been working with companies like Pearson, and HMH, and McGraw. They've been working on OneRoster support, and that they've worked with over 20 vendors in the past 6 months that are working on adopting open standards. That's why you'll see in our recommendations we talked about OneRoster and xPress, SIF xPress, which Jason was just talking about, because those 2 are probably the most ... They're the most adopted. They're the ones that, if we could get unification between OneRoster, which is all the great work that people like Stanley and IMS Global have been doing on that, and the work on xPress that people in Washington, and people in New York, and people like Dan and Jason are working with and the A4L group.

If we can get those coordinated, I think there's a large number of people that are in that universe between the SIF xPress kind of universe, [00:34:00] and the OneRoster universe, that accounts for a tremendous amount of people, that could make a big difference in the way things open up. Stanley, is there anything ... Actually, Stanley is not on the ... He's not on the audio, except as listening, so Stanley, if there's anything else you'd like to add to that, please do it in the Q&A section. Otherwise, anyone else, any other panelists want to speak to any of those other pieces?

Dan: Are we seeing Clever as a standard even though it's not an open standard?

Jeff: This is Jeff. Can I get a stab at that because I've ... Something very interesting happened a couple of months ago. A vendor came to us and they had their investor pitch deck, they were getting ready to launch a new product in the higher-ed space and they said, "We want to be Clever for higher education." I go, "Well, how do you define that?" They said, "Well, there's a lot of standards out there about how to do it interoperability, but Clever sprang up as kind of a company you can outsource your worries about standards to." I thought that was a very interesting way of characterizing it, that they didn't characterize Clever as middleware, which is technically what it is, or even as a data-aggregation service, but they characterized it as an outsource firm that they could let worry about standards initiatives or standards integrations.

This company is trying to make a name for themselves now in higher ed, and compete with folks like Civitas and End-to-End Solutions, and iDataHub, who are middleware vendors and data-aggregating services with analytics built on top of them, but at the end of the day they have built a whole set of tool kits for standards, so that if you're an ed-tech vendor or an institution and you don't want to worry about data inoperability, you can use these middleware packages [00:36:00] and they'll handle it for you. I think the way that higher ed is going to handle this, that maybe there's a similar model in the K-12 side, is recognizing the hundreds if not thousands of ed-tech platforms that are out there.

There's a whole cottage industry of systems-integrating vendors who do nothing but learn the standards and provide the middleware, because from an institutional perspective, whether I'm a K-12 institution or a higher-ed institution, do I want to keep

the folks on staff to learn and keep pace with all of these standards and pay the software developers to build new interfaces for systems, and maintain those interfaces, and keep pace with emerging standards, or do I just want to have one contractual relationship with one vendor? Which is what's very appealing about the Clever relationship, both from the institution side and the ... at one thing and let them worry about keeping pace with the standards movement. I think that that outsourced relationship of the monitoring and industry currency is very powerful.

Alex: Yeah. I agree with that, and I think that's a good way to characterize it. I think of Clever as not a ... I think that Clever is a platform, is a particular technology. It's a vendor offering rather than a standard. They just happen to have gotten a lot of traction, and so in some ways ... they have a particular, they have their own proprietary API, and a particular way of doing things, so that's why we mention Clever as a non-standard solution, but it is a solution that has to be accounted for because so many people are ... because there are people using it. There are other vendors, by the way, that do similar things, just Clever happens to be at the moment one of the more popular ones, one of the more known ... of that type of solution. [00:38:00]

Dan: It seems to be a bit of what Jeff is saying is that there's 2 parts. Either we have something that is agreed and that is standard, and that people use, so that the vendor is not having to work out, "Should I be using OneRoster, should I be using xPress, should I be using LTI, should I be using other data standards, or rolling my own, or Clever?" Even Clever is API. I'm going to have to make those decisions. Or, we have an approach which is that sort of .... there's a set of Interoperability-as-a-Service players that play between those groups. I think ... well, the relevance of standards has to be worked through in that environment.

Alex: Right. Right. One of the tricky things is that, because it's such a large market and there are so many users, if you will, and when I say "users" I don't mean students. I mean districts, schools, intermediary units, states. There are so many users of that scale that there's pockets of utilization. If you go to Houston and you talk about ... they're going to be like, "Oh, my God, it's OneRoster, OneRoster, OneRoster. We have to do OneRoster." That's the open standard that everyone is using.

Then you go to other places, you go to Massachusetts, you go New York, you go to other districts, and the districts will be like, "No, it's xPress Roster. We're using xPress Roster, we're actually using that. We're also using that infrastructure, the infrastructure that moves transcripts around." If you talk to Washington State, "You know, we're using that." Each of [00:40:00] them in their environment, looks to them like they are moving with open standards, because they picked that solution that looks like it's the right open standard.

Jeff: Alex-

Alex: Please go ahead.

Jeff: Standards are regional, or when you look at the catchment area, standards ... If you adopt a standard that covers the vast majority of the systems that you see in your daily business, then you've made a good decision.

Alex: Right.

Jeff: You may not necessarily have adopted the "industry" adopted standard based on the percentages or the number of implementations or what have you. In higher education the things that get adopted, that are standards, typically come with federal requirements or accountability metrics, like data-recording standards, or student aid, ISERs, and FAFSA file formats and things like that. It happens because there's a big stick attached to it, or a carrot if you look at the money numbers, to implementing those standards. In K-12 you don't have similar things. In fact, you have quite the opposite. You don't have standardization of data mobility because there's no centralized national unit record system on the K-12 side.

There are centralized national student record systems on the higher-ed side. That's why the National Student Clearinghouse can move data as much as they can, and it's why media and everything like that have existed for awhile, because there are these accountability forces. Without that, on the K-12 side, you're only going to implement the things that you have to touch.

Alex: That's right.

Jeff: Yeah.

Alex: That's right. I think that's absolutely right, and the tricky part is that it is regional and localized. What standards are being used based on ... and if you're using SISs, I think if you're using SISs, your tendency is probably to go more toward SIF. If you're using LMSs, your tendency is to go more on the standards that IMS Global has. If you're already using Clever, [00:42:00] your tendency is to say, "Okay, everyone just has to integrate with Clever," and so the trick is how do we ... The problem is, though, vendors are not regional. Vendors are not regional. Vendors are national. They sell to anyone. They sell usually. Now, you'll have pockets of vendors growing up in particular regions, but then all the large vendors ... You talked about earlier, Stanley was talking about Pearson, and HMH, and all those guys.

They're selling globally, and so the need to have some kind of ... as unified an approach as possible is, I think, one of the primary challenges we have, because otherwise you have to be able to integrate with 27 different things, and I don't think we'll ever get to one thing, but I think the goal might be to get to a few things. Ariana actually brought up a point in the Q&A about vendors. There are vendors, for instance, she mentioned CPSI, that are following multiple standards and helping districts to get apps to play together well, and that's collaborative, and that there is a ... That there are integration vendors like that that are actually doing the work of utilizing various standards, and utilizing proprietary interfaces as well in combination to get everything to work together.

One of the things we have to deal with is that there are districts that ... and Ariana mentioned that they have a district that uses SIF, and use Clever and use OneRoster in the same district. That may sound crazy, but if your SIS is linked to SIF and your LMS is pointing to OneRoster and you've got Clever talking to 1 or 2 or more of your apps, actually that might be the most logical way to go, [00:44:00] but the more standards you have, the more different ways you have for moving this data, the more complicated it becomes.

Jeff: If I could postulate what will be the attraction, CPSI is a lot like leading the organizations we see in higher ed that are what I call data brokers, and I think Clever started actually to want to do the class rostering thing, but they found the biggest problem in the domain was the SSO. I think that just speaks more towards them listening to their clients and building up that functionality. What I think is ... where the industry is going as a whole is, and I call it the "one neck, to choke" sort of philosophy of working with vendors is, institutions K-12 and higher ed want one thing to work with, whether that thing is a standard or that thing is a company that they push their requirements onto or that delivers a solution to a business problem, then I think that's what they want.

For too long, I think, in our industry is we've looked at a technical standard as being a panacea to solving business problems. I don't think that's actually how it's going to work, because I think you'll solve the one roster problem ... I'm sorry, that's a brand name, but you solve the problem of having a single roster and then you move on to solving the next thing. Whereas, what we're finding, and this is actually one of the things we talk about with ed-tech companies all the time, one of the very popular advisory questions I get is, "Can you help ... explain to me the standards landscape, and all the different standards, and help us figure out which ones that we need to use, and more often than not the answer is, 'Well, you actually need to use all of them.'"

They're like, "Well, we can't commit the R&D efforts to doing that." I'm like, "Okay. That's fine. That's why this whole industry of these companies that do nothing but monitor standards exist. Just work with them. You don't have to worry about the technology, but they'll do one interface to you and they'll handle all the other interfaces, but all you really want [00:46:00] is one interface, one entity, one company to work with. If that means it's 100 standards or 1 standard on the back end, it doesn't really matter. Does it?"

Dan: If you had one roster approach, and you're right, it's a brand name. If we had a single approach to rostering that was compatible across K to 12, and when I say compatible, that's what needs to be determined, then at least you have an alternative in that space where you don't need to put an extra cost on the whole system to perform what is pretty just straightforward activity of finding out who's in what class. That forms the basis, as I like to say, for all kinds of other things. Hopefully ... I don't know if we're going to get time to talk about all the other kinds of things, but most importantly, when you have a roster, you may need to do other things with that, whether it's attendance, whether it's being able to report activity, or grades, or assessments, or all kinds of other things so that that information doesn't sit in a vacuum. It sits as a use case across different domains.

If that core starting thing, where we can semantically understand across the different standards, were the same, then smaller vendors that want to get into the space won't need to either understand all the different options, and therefore won't feel generally that it's cheaper to just go to Clever and drive people away from the standards. By being divergent [00:48:00] in the standards, we are actually making the standards less relevant, and I think the call that's being made is, how do we make standards relevant by creating a single way for people to know ... I'm not saying that there should be a single API, but I'm saying that there should be a compatible enough approach so that we are able to put the 2 ends of the system together, rather than having to always rely on a third-party vendor.

Alex: I think, let me ask ... I would ask if ... Some people may have to leave at 3 o'clock, by the way. I just want to acknowledge that, and we have scheduled this for 90 minutes, but we understand that some people might only have 60, and so I just want to give people a chance. If there's someone who wants to ... I have only one more slide, which is just a summary of the recommendations we made in the paper, and I want to ... Before we go to that, though, I do want to just say that our goal in this was to start a conversation that would lead to actual action being taken. Too oftentimes we have these academic conversations about this and that, and we've got a lot of experts here, and there's a lot of experts in attendance who know these things.

The goal of this is to take action, so we'll talk about next steps, and those of you ... anyone who does have to leave, we'll be publishing the minutes for this and the recording of this will be available, as well as the slide deck, and if you have to leave we appreciate you being in attendance, and thank you for that. If not, I think if we could ... We want to narrow it, because [00:50:00] one of the things we have been rushing against is this whole question of standards versus implementation, and data models versus API, and those are very big topics. We're not going to solve those in this call, but we're starting a conversation to attack some of those problems. Our recommendations are very narrow, they're very focused.

I forget who said it, whether it was Jason or Dan or ... I forget who said it, but somebody said that we're ... I'm waiting for the next thing to do, but the goal of this to start with is what we think is a doable chunk, and that our recommendations for that were that SIF and IMS, because they have the most mature, SIF has the longest running and the more mature solution. IMS Global has really ... The LMS vendors are really closely working with OneRoster and utilizing LTIs, and having those guys actually work together to create a standard data model that then could become the minimum viable roster. That's our first recommendation.

We have people on the call, people like Stanley Watts, who's ... I know has worked with, and I've been talking to people like Wendy Reedy from Sungard and there's people on the OneRoster work, and [inaudible 00:51:22] from HMH, from Houghton Mifflin, who are working on the OneRoster. Then we have people here as well, like Dan, and Jason, and John, who are working on the xPress Roster, and if we can get those people working together to actually create a minimum viable roster that we share, that allows an opening for proprietary solutions like Clever to actually use that, and for Ed-Fi, which is

... Ed-Fi is another ... The Ed-Fi Association also is working ... Their people are also saying, "Look, we need a roster." [00:52:00]

Instead of them building a new roster that's another standard, another roster that's ... they could adopt the minimum viable roster, and then build on that, and then we'd have a unified roster that could be used by both proprietary solutions and open solutions. That's our first recommendation, and that schools actually call for that. They actually demand that there be one, and then until there is one, because that would take a while, schools either would use ... We recommend schools either use the SIF xPress Roster, or they use OneRoster, and then if they're working with Clever or other companies, that they actually work with them to utilize a standardized approach to integrate.

That is our recommendations and those may seem obvious recommendations, but our goal was to actually start to set that into motion and to action utilizing the standard style of collaborating, cooperation with vendors, having the LMS and SIS vendors weighing in on what they need, and then having school leaders creating a demand for that as the drivers to have that happen. I just wanted to say that and cap that off so that any further conversation we have can include that, and see if anyone in the attendees or any of the panelists want to address that, or anything else. Please, I'll open it once again to conversation.

Jeff: I just answered in the chat log Gary's question about the data broker companies for the audio track, companies like Civitas, Lingk, spelled L-I-N-G-K, End to End Solutions, and iDataHub, as well as some of the usual suspects for the big data projects, the big [00:54:00] consultancies like IBM, Deloitte, Accenture, SAP, and a few others. It's funny, in the higher-ed space it's a big-ticket item, integrating data among systems standards or not is enough to create hundreds of thousands of dollars, or millions of dollars in business per year for some of these individual installations, so it's worth ... it's a pretty big business.

Alex: Yeah. Absolutely, and I think in K-12 you have similar companies, like you have Kimono, and CPSI, and ClassLink, and Visual SI, all of whom provide similar integration capabilities in the K-12 space. I think that there's a clear business need for that. CedarLabs is another one that does that kind of work, and there's a clear need for those kinds of companies, and one of our goals would be to actually work with those companies and assist them in actually working in a unified approach, rather than just one-offs based on whatever their client needs. That's going to be one of the tricks of, I think, actually doing something about this. Any other questions, or comments? Any thoughts? Now, should we talk about next steps? Does that [00:56:00] make sense as a ... and start to close off the conversation and then talk about what we could do next?

Dan: Alex, I have to jump, but I want to just say thank you for the conversation.

Alex: Absolutely. Thank you very much for joining us. I appreciate you taking the time to be with us, Dan. I appreciate it. All right. Let's talk about next steps a little bit. I see one of the ... We'll be updating ... I'll tell you what we're going to do and then ... We'll be updating the Workbook based on the feedback we've gotten from CEDS, and Access 4

Learning, and Houghton Mifflin. Some of the people working on OneRoster gave us some feedback, so we're going to update the Workbook, and we're going to ... If anyone on this call, if you look over the resource, if you look over the Workbook, or if you have any feedback we will absolutely incorporate that feedback to ... We'll take any feedback you have and we'll incorporate that to make this as good an artifact as possible.

We want to make this a public resource that people can use to do this kind of work. We'll publish the meeting notes and any materials anyone sends us. We'll send that out in the next week or 2. We'll take some time to gather it together, make the changes to the Workbook based on the feedback we've got, and then we'll post meeting minutes on this once we're done. We will also ... We're planning on doing a technical webinar. You'll notice we didn't dive into the technical, the Workbook correlations or any of that stuff. This is designed more as an introductory and an over ... a strategic conversation about that.

We'll be doing a technical webinar probably in 3 or 4 weeks after we do the updates [00:58:00] to the workbook, and then walk through the Workbook for anyone who's interested in that. We'll send announcements about that, and if anyone else who has questions or needs, please, please call us. I think one of the things we could do, and Mike Reynolds from CedarLabs just did a great statement in a Q&A that it would be great to have some kind of proposal to bind into the schools, LEAs, and SEAs together and have one powerful voice. I think we have ... Let's figure out how we can participate together, draw in our peers, work with the standards bodies, create some kind of way for us to create a unified voice.

That will, by the way, not only massively benefit the schools and the LEAs and SEAs, but will massively benefit the vendor community, who are desperately trying to provide great services and products, and interfacing with all these different ways of interacting with the systems is very expensive and very challenging. That's another thing we can do. Is there any other next steps that people see, or would request, or want to suggest? We'll include all that in the write-up of the meeting in due course. Anything? Okay. Wait. Was that someone ... Do you want to say something?

Jason: This is Jason. I was going to offer that we somehow need to determine a way to overcome the perception of competition and maybe political concerns between A4L and IMS specifically. I think that [01:00:00] there's a big voice in the market that wants to see those solutions and better alignment, and as the paper that Bardic offered recommends, get together and come up with a minimum viable standard. There are definite barriers there, so I think that bringing that voice together is a key way to motivate those groups to come together.

Alex: Absolutely. I think that's been one of the great villains, if you will. One of the great villains in this, having the situation we find ourselves in, is that sense of competition and that sense of people not wanting to sit down together for a variety of financial, and political, and perceived advantage in the marketplace reasons that people have. We need to figure out clever ways to get over that, so to speak, and I'm hoping with people with Wendy Reedy, and Stanley, and Porag, and other people that are working under

OneRoster work, and the people that we have here on the panel working on the xPress Roster work, I think that there's a level of interest in this.

I think we can, as previously we just said, perhaps we can do that through the association boards of the various standards, but I think there is a way to do it, and I think there's enough smart people that are committed and interested in doing it, and we can do it. We just have to get over those political and perceived competitive barriers, as you said. That's great. Thank you. Anything else? All right, if there's nothing else, we're on ... Please contact me if there's anything about the strategy or to support this, and if you have specific technical [01:02:00] questions about the Workbook, Cable is acting as our front man for that. He's been doing a lot of work around it, and so contact Cable Dill.

Obviously you can go to IMS Global, or A4L.org to see the standards, go to any of the standards web pages. We'll have links to all of that ... are in our paper, and you can reach out to us directly if you need to. If you have any comments or guidance for us, we welcome the wisdom of the crowds, and as I look over the people on the attendance list, we have some very, very smart people on this webinar. I'm hoping these people will provide us with guidance, and we'll try and then synthesize that and provide that guidance back out to people. Thank you very much for taking the time to be with us. I appreciate it.

I really think we can make a difference in how easily and scalable we can support these 21st Century pedagogies like blended learning and supporting the exploding apps and services that are available. I think we can cause something to happen or make it better. This is a tiny step but it's a first step, and I appreciate everyone's attention and willingness to engage. Have a great time, and we'll contact you when we are doing another webinar and when we're diving deeper into this, and we're also starting to look up how we can engage in these kind of questions and some of the other serious matters impacting them. All right. Have a good one.

Jason: Thank you.

Alex: Thank you very much, everyone. [01:04:00]