



IMS GLOBAL[®]
Learning Consortium
Better Learning From Better Learning Technology

xCaliper?

Rob Abel Ed.D.

IMS Global Learning Consortium

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@LearningImpact

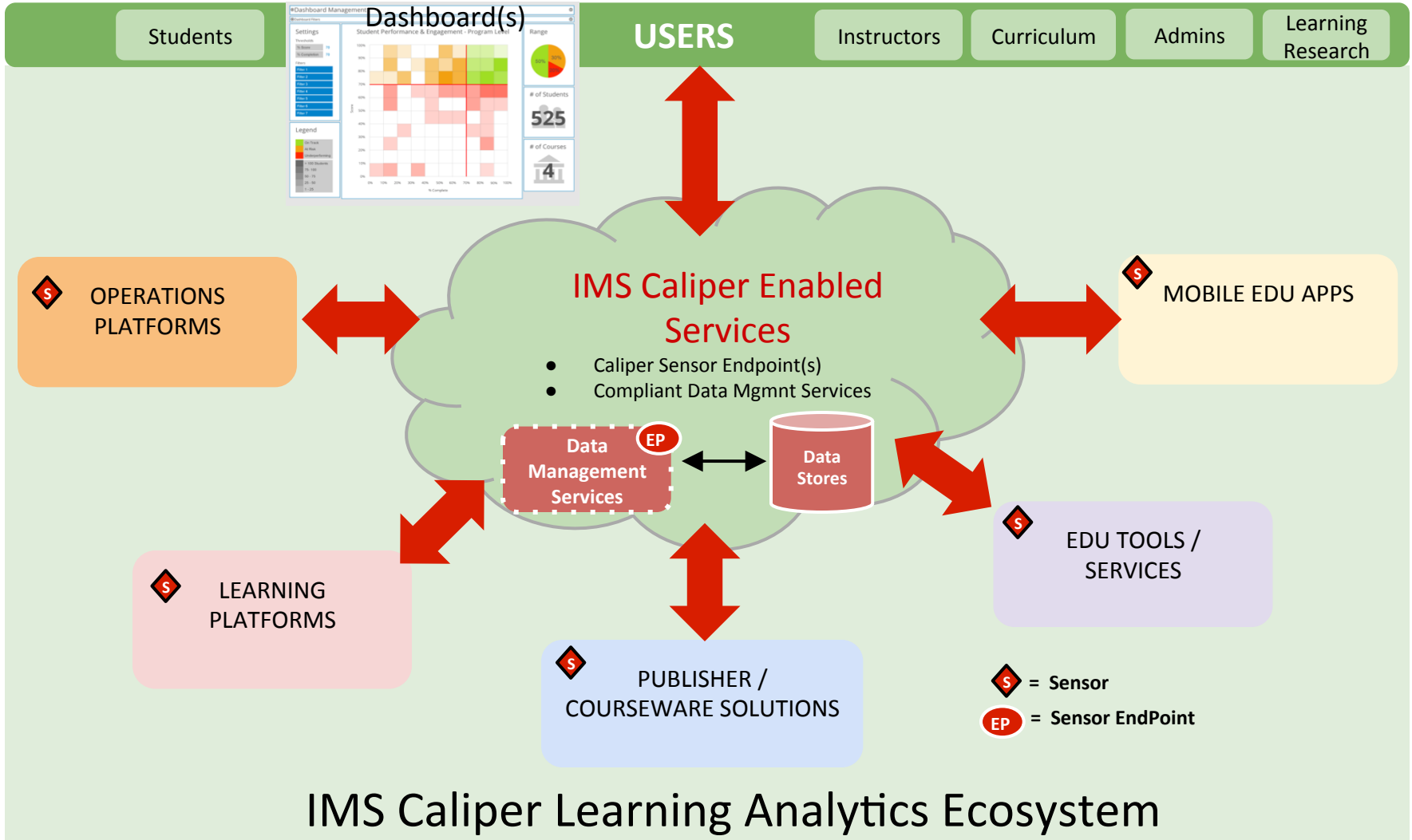


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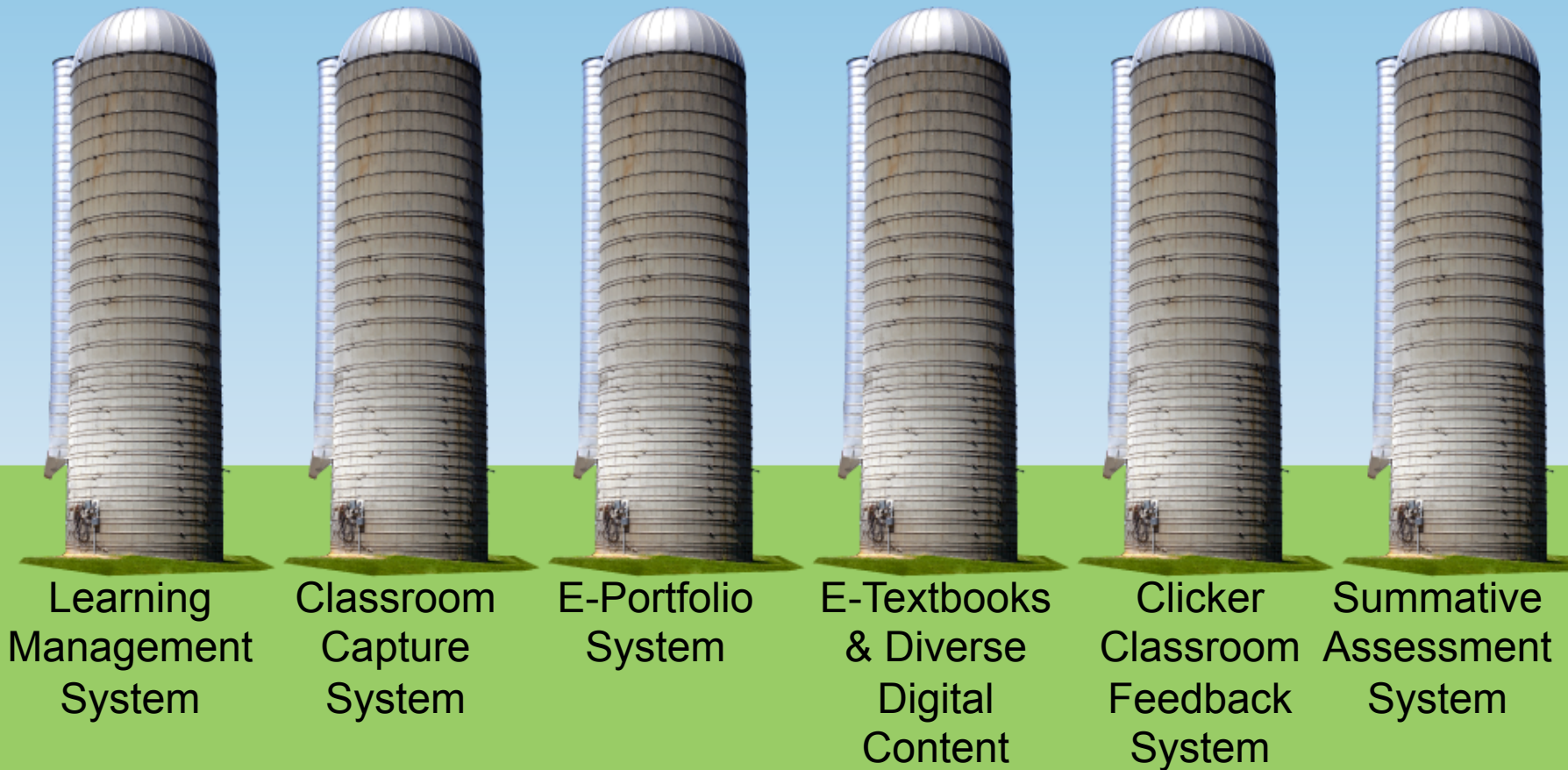
Better Learning from Better Learning Technology

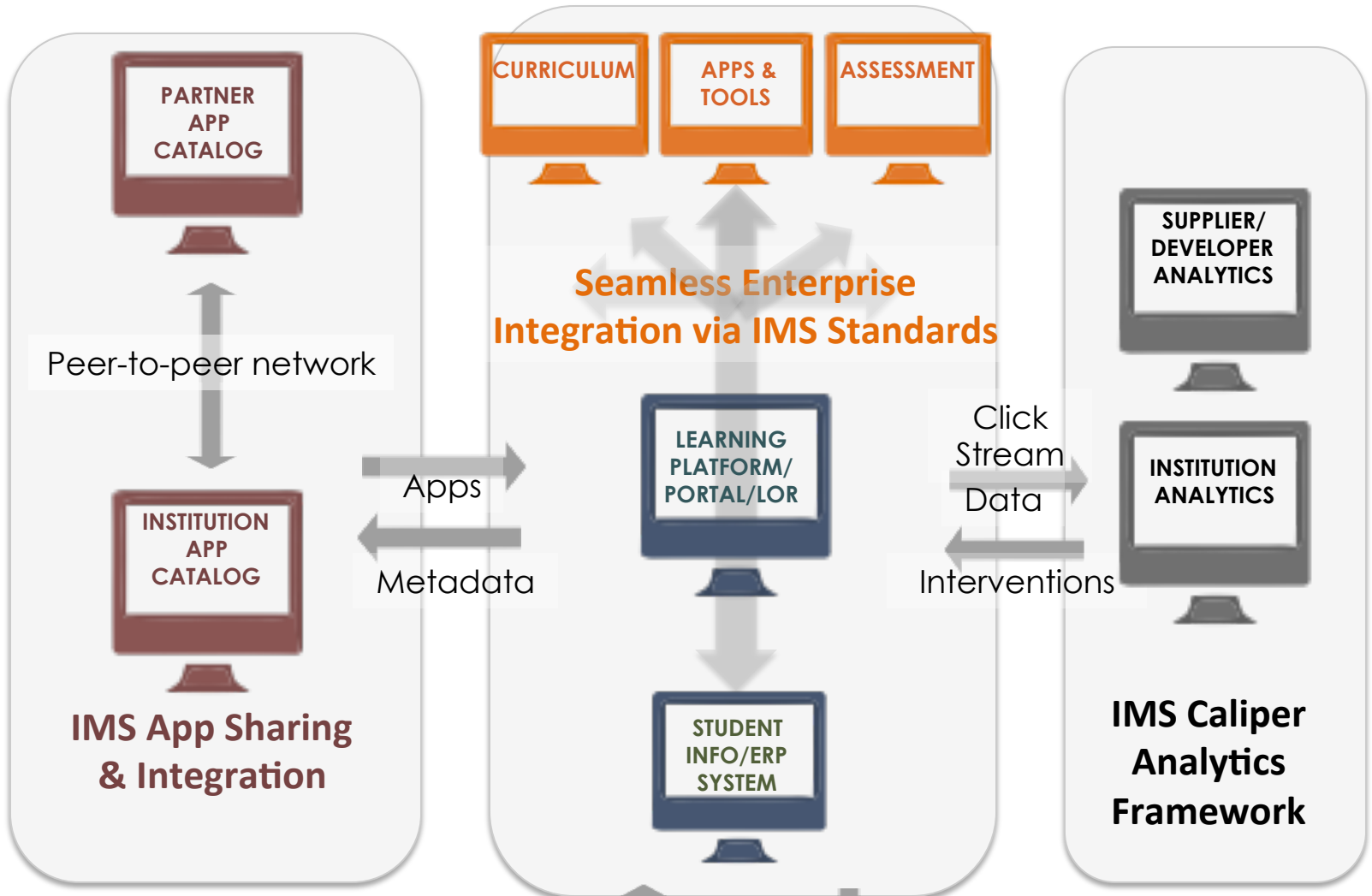


2015 Fiscal Results & Progress



Lack of Cross-Application Architecture = Silos





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FOR EDUCATIONAL
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IMS Technical Work



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IMS Mission Statement

*The mission of the
IMS Global Learning Consortium
is to advance technology
that can affordably scale and improve
educational participation and attainment*

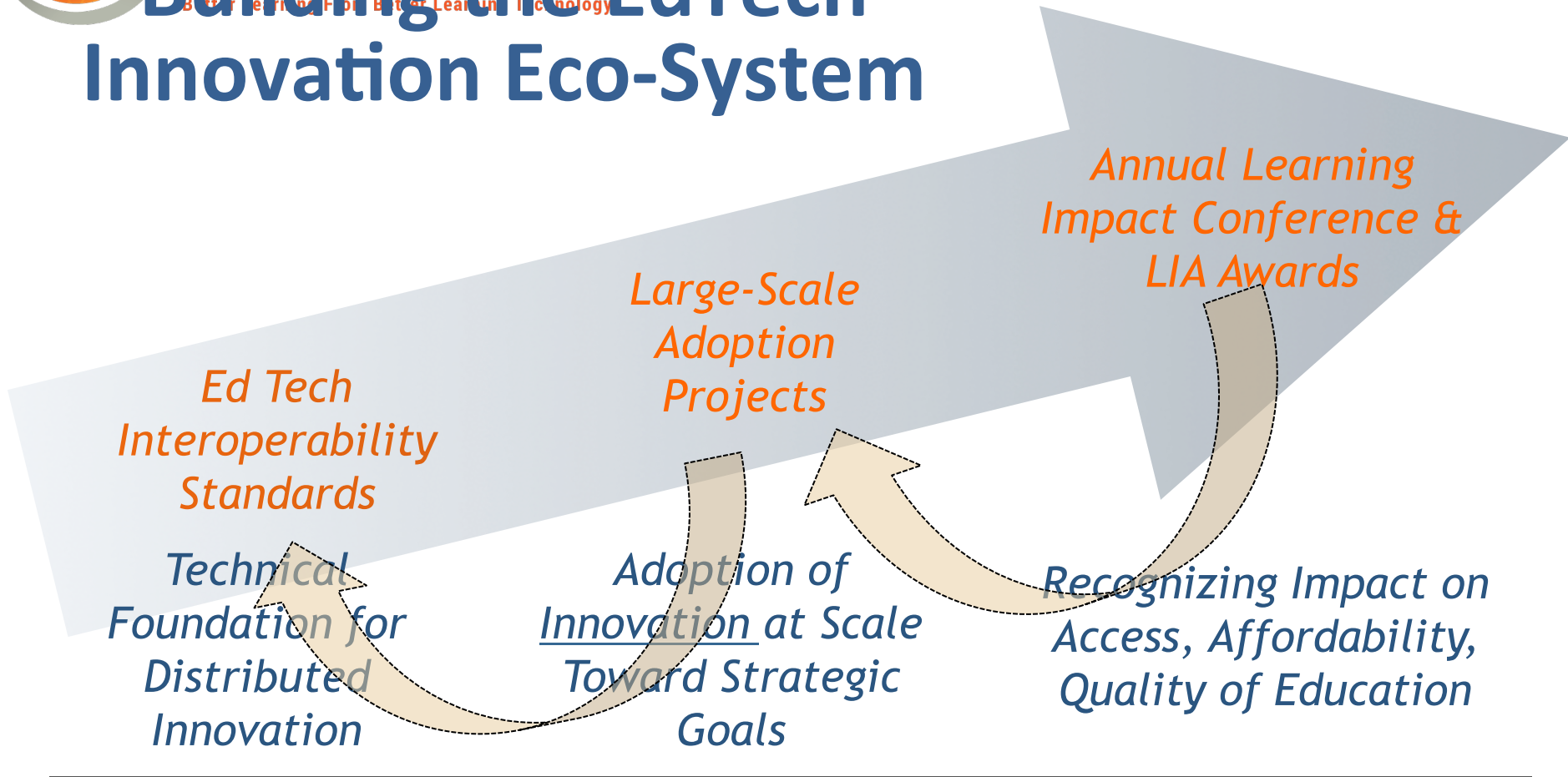


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Better Learning. For Better Learning. Technology.

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Purposeful Technology Innovation Applied to Improve Education



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A New Architecture for Learning

by [Rob Abel](#), [Malcolm Brown](#), and [John J. Suess](#)

Published on Monday, October 7, 2013 | [0 Comments](#)

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If we are to support students and faculty as connected learners and instructors, we must rethink our approach to academic technology architecture. At the foundation and core of that architecture is information technology, in its role as the strategic enabler of connected learning.



Rob Abel is Chief Executive Officer, IMS Global Learning Consortium. **Malcolm Brown** is Director, EDUCAUSE Learning Initiative (ELI). **Jack Suess** is Vice President of Information Technology and CIO, University of Maryland, Baltimore County.

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The Next Generation Digital Learning Environment

A Report on Research

Malcolm Brown, EDUCAUSE Learning Initiative

Joanne Dehoney, EDUCAUSE

Nancy Millichap, Next Generation Learning Challenges

ELI Paper

April 2015

<https://net.educause.edu/ir/library/pdf/eli3035.pdf>

Abstract

In partnership with the Bill & Melinda Gates Foundation, EDUCAUSE explored the gaps between current learning management tools and a digital learning environment that could meet the changing needs of higher



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The Language of Learning Analytics

August 6, 2015

By **Carl Straumsheim**

The world of learning analytics is full of metaphors. Educational-technology comparators from one another. Data are locked away in "silos." As an initiative to standardize the collection and reporting of learning analytics nears a public launch, can colleges and vendors learn to speak the same language?

"Analytics" is one of the hottest buzzwords in education. For

"Analytics" is one of the hottest buzzwords in education. For ed-tech companies, it is also a selling point. By using vendors' suites and solutions, colleges will gain access to data about why some students succeed and where and when others stumble -- or so the pitch goes.

But there's a catch, said Linda Feng, senior product manager for analytics and SIS integration at Instructure. "The whole premise is that all that data has to be in their world," she said.

"All these systems have their own languages that are written for their own needs," said John Whitmer, director for platform analytics and research at Blackboard. "In order to talk a common language, we have to agree to a common vocabulary."

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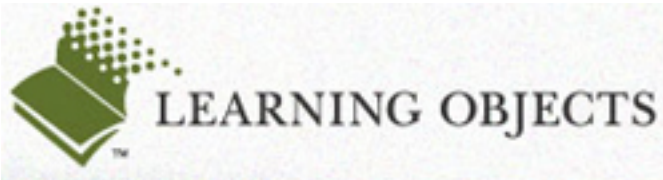
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Caliper v1.0 Adoption



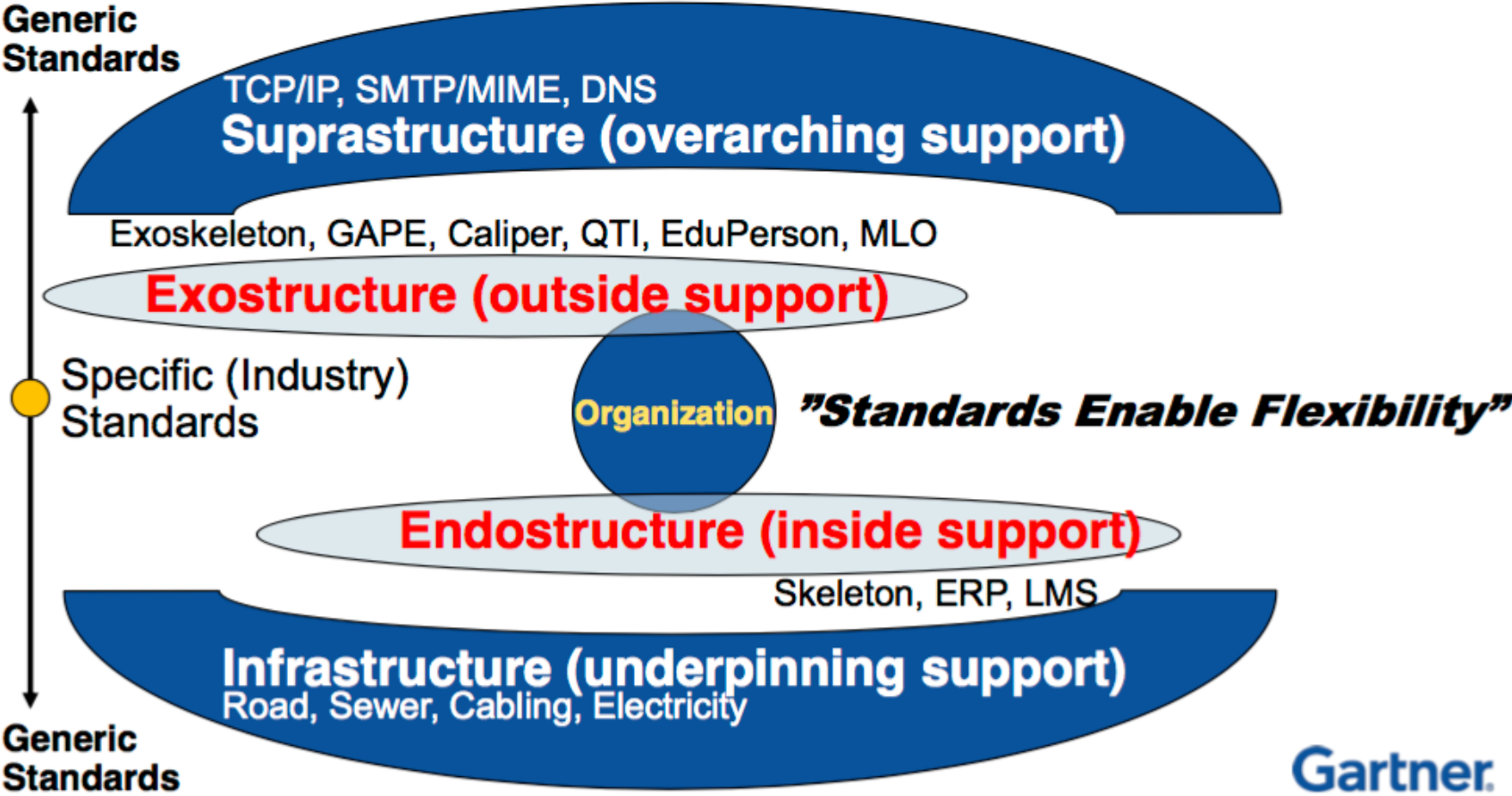
Caliper, by the IMS GLC, will be the standard for how learning data is collected

“Caliper opens up access to meaningful data”

“Caliper is built around the IMS Learning Sensor API to define basic events and standardize metrics across different learning environments, and also uses IMS LTI standards to integrate standardized measurement with tools interoperability. Put together, Caliper is less about analytics, and more about the data standardization that will eventually drive learning analytics efforts.”



Evolving 'Infrastructure' — Next: Focus on Exostructure!



Caliper: Click Stream Data for Learning Analytics

Scenario

Three years into a learning analytics initiative, officials at State University have seen positive results in course grades and student retention. The implementation of various Caliper-compliant applications, including an LMS replacement a year ago, promises even deeper insight into the connections between learning activities and outcomes. Caliper is a framework for learning data that enables the capture of highly granular data consistently across learning applications. Steve Holton, the university's CIO, has been working with the provost to develop tools and services that capitalize on Caliper data. For example, through Caliper instrumentation, a quizzing tool for math gathers data such as when students take quizzes, how long they spend on each problem, what sequence they follow, and which resources they consult. Crunching data about these events helps designers associate learning tactics with outcomes, which informs the structure of future quizzes and exams. A similar project, an online protein-modeling application, produces Caliper data that can indicate the effectiveness of learning activities based on how students interact with them.

Since the implementation of the new LMS, the IT staff have deployed several Caliper-compliant online learning tools, and data from these applications is being used to improve the LMS. The university encourages faculty and instructional designers to adopt only Caliper-compliant tools. Holton

1 What is it?

Caliper is a standard that enables the collection, storage, and transport of data about learning. As a learning analytics framework, Caliper provides a common-gauge rail for disparate applications to use and share data from student interactions with learning software and administrative systems. Increasingly, a student's learning environment extends beyond the campus LMS to other platforms and applications—often integrated using the [Learning Tools Interoperability](#) (LTI) specification—that generate data in a range of formats, often housed in disparate databases. Caliper is designed to overcome this disconnectedness by enabling data capture from student online interactions, devising a universal vocabulary to describe these events, and presenting collated data for use in learning analytics, research, and other learning-related endeavors. In much the same way that HTML codified an open standard for transfer and display of information, Caliper offers an open standard for learning-event data.

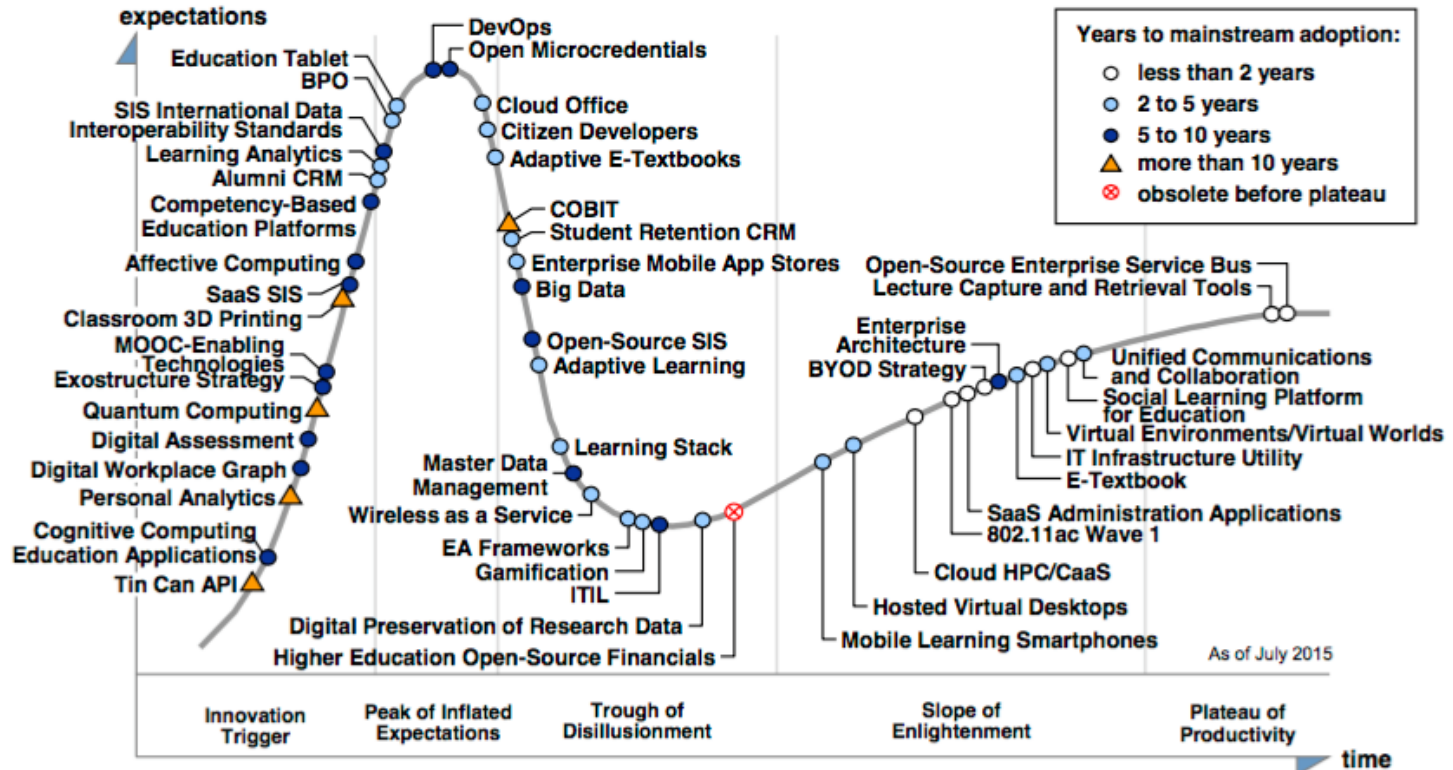
2 How does it work?

Caliper provides an information model that describes concepts, entities, and relationships. It is extensible, built on

describe general learning activities, such as enrolling in a course or taking an assessment. Developers can add profiles to

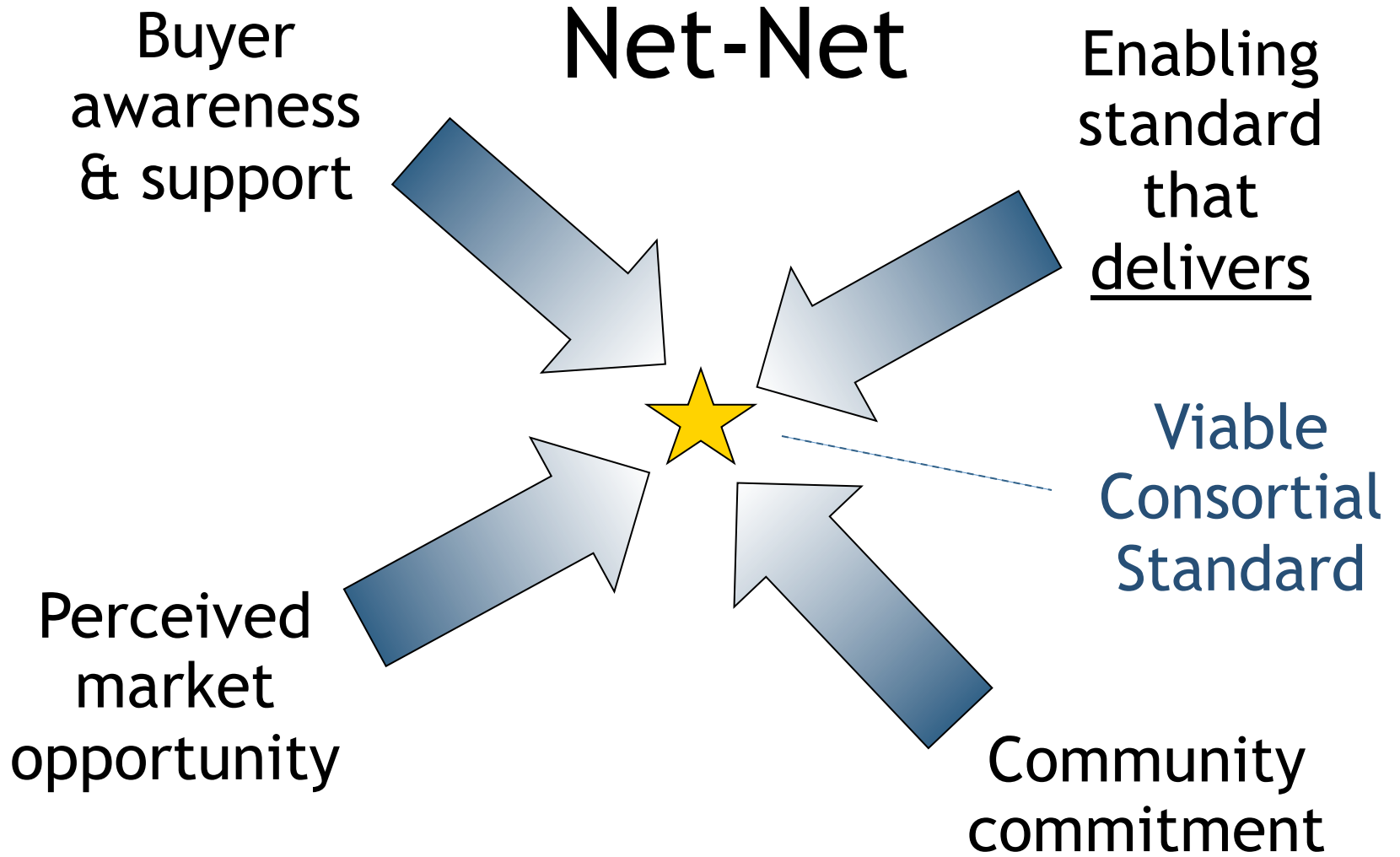
<https://library.educause.edu/resources/2016/3/7-things-you-should-know-about-caliper>

Hype Cycle for Education, 2015 - A CIO Toolbox



Off the Hype Cycle: 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, Open-Source Middleware Suites, MOOC, Mobile-Learning Low-Range/Midrange Handsets (10 total)

New: Tin Can API, Cognitive Computing Education Applications, Personal Analytics, Digital Workplace Graph, Digital Assessment, Classroom 3D Printing, MOOC-Enabling Technologies, Competency-Based Education Platforms, Learning Analytics, DevOps, Master Data Management, Open-Source Enterprise Service Bus (12 total)





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