Need for the EdUnify Project

Recently published data indicates that there is an increasing disparity between the number of jobs requiring postsecondary degrees and certificates and the number of United States workers receiving them. For example, a Georgetown University Center on Education and the Workforce report cautions that the United States is ¿on a collision course with the future, because we are facing an undersupply of workers with postsecondary education.¿[1] Specifically , the report states, ¿By 2018, the postsecondary system will have produced 3 million fewer college graduates than demanded by the labor market.¿[2] In light of these projected shortfalls, increasing efficiency of higher education and access to postsecondary programs are critically important. One of the major factors limiting the efficiency of higher education in the United States is the tremendous effort and cost required to integrate information systems across higher education institutions, service providers, and government agencies which provide instruction and services to students. Most processes that serve students are integration intensive such as:

- course transfer and articulation
- financial aid processing and reporting
- degree audit
- course listing and availability
- admissions processing
- registration and billing
- learning management
- academic advising
- career placement

Student and institutional data must move between information systems to make these processes work. In order for this data to move quickly and efficiently it must be automated. A disproportionate amount of information technology (IT) resources are employed implementing integrations and keeping these integrations operational, which impedes investment in innovation and hinders development of new services for students that might otherwise increase their access to higher education. The Gartner Group Enterprise Integration Research Center estimates that organizations spend 50 percent of their IT resources annually on integrating their applications and implementing data interchange with partners.[3] PESC estimates this total expenditure at $25 billion annually across higher education. This burden of cost and inefficiency prevents institutions of higher education and student service providers from implementing new services. With more efficient strategies for integration, academic institutions and education service providers could implement new services that leverage the speed and collaboration potential of the World Wide Web, improving services to students in key areas such as course transfer and articulation. These improved services will directly impact the number of students able to locate and access suitable degree programs, transferable courses, financial aid, library and information resources, study abroad programs, postgraduate funding opportunities and other important resources.

The causes of the high cost of integration have been the lack of common standards for expressing the data structures and the operations of data interchange as well as a lack of collaboration and reusability. The lack of collaboration between educational institutions, software vendors, and service providers on sharing operational data standards and details of integration implementations limits both the reusability of integration work and the effectiveness of data interchange standards. Presently, integrating information systems requires organizations to re-perform integration analysis and re-implement data interchange work already done by others. This rework multiplies the total cost of system integration effort across higher education. Traditionally, academic institutions, system vendors, and system integrators have used a variety of methods and technology for integrations that were incompatible with those of other organizations and not suitable for interoperation with trading partners or replication at other sites. Fortunately, over the past ten years integration standards have emerged and consolidated sufficiently such that IT architects now agree that integrations should be analyzed and implemented with a set of technologies known as ¿Web Services.¿ Not to be confused with web sites or any service generally available on the web, web services are specifically application programming interfaces (APIs) for building integrations between applications within an enterprise or between organizations over the web that are accessed via Hypertext Transfer Protocol (HTTP) and executed on a remote system hosting the requested services. They are the building blocks of integrations, which can be shared and reused. Web services technology has consolidated into two categories. The first category is commonly known as ¿Big Web Services¿ referring to the formalism of using the Extensible Markup Language (XML), Simple Object Access Protocol (SOAP), and the Web Services Description Language (WSDL) to define the data and operations of web services. The second category is RESTful Web Services, or Representational State Transfer (REST), which rely more on applying common conventions and practices of HTTP requests than on the formalism of the standards used by Big Web Services.[4] These two categories of web service practices reduce the artifacts of integration analysis and implementation to a manageable set of data definitions and web service descriptions, that can be published in a registry. Once shared these artifacts reduce the need for redundant analysis and development efforts and enable the collaboration necessary for innovation. EdUnify can be this web service registry and platform for collaboration for higher education.

Read more about the significance of the EdUnify project.

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[1] Anthony P. Carnevale, Nicole Smith, Jeff Strohl.Help Wanted: Projections of Jobs and Education Requirements through 2018.Washington, DC: Georgetown University, 2010. P. 7. Online at: http://cew.georgetown.edu/jobs2018.

[2] Anthony P. Carnevale.Help Wanted.P.16

[3] Gartner Group, as reported by P. Hallett, Schemalogic Corporation, at the 2003 Enterprise Data Forum, Philadelphia, PA, November 2003. Available online: http://www.wilshireconferences.com/EDF2003/tripreport.htm.

[4] Wikipedia contributors, "Web Services,"Wikipedia, The Free Encyclopedia, http://en.wikipedia.org/w/index.php?title=Web_Services&oldid=16520257 (accessed July 20, 2010).