## Focus: Interoperability

Tsugi is built upon a set of open source implementations of standards like IMS Learning Tools Interoperability, IMS ContentItem, IMS Common Cartridge, and others. These libraries not only implement the standards but are also regularly tested against the various LMS systems in the marketplace and are adapted to work with subtle differences in the standards implementations of the LMS systems.

Each tool built with Tsugi supports interoperability standards and can be hosted on its own in a Tsugi container for many tenants. When Tsugi acts as a stand-alone MOOC platform, the platform communicates with its own Tsugi tools using interoperability standards.

## Focus: Innovation

The Tsugi platform has been in production for over two years at scale in support of a number of MOOC offerings on Coursera supporting >100K students. While Tsugi is designed to run in production at scale, modularity, automatic database migration, and automatic upgrades allows constant evolution and innovation.

Deploying, maintaining and upgrading Tsugi is as easy as a WordPress installation.

The Tsugi APIs are available in PHP, Java and Node with plans for a Python API in the future. PHP is the most complete Tsugi implementation in order to make contributing to the Tsugi framework or developing a Tsugi tool possible for developers of any skill level.

## Getting Started

**Developer Training**

The www.tsugi.org web site includes videos and documentation on how to install, configure and maintain a Tsugi implementation as well as how to build a Tsugi tool. The web site is designed as self-paced modules to get new developers and operations staff through their initial learning curve with Tsugi. The site includes assessments and even awards OBI compliant badges as milestones are achieved in the training.

**Research / Collaboration**

The Tsugi research project is led by Dr. Charles Severance who is one of the founders of the Sakai Open Source LMS system as well as one of the primary authors of the IMS Learning Tools Interoperability 1.1 specification. He leads the Tsugi effort as a faculty member of the University of Michigan School of Information.

There is still a great deal of work to do on Tsugi. Collaborators are welcome and we are fund raising to expand the research staff working on Tsugi. Our goal in 2017 is to move Tsugi to a 1.0 release across our four programming languages.

Gear image, CC0 from Pexels on pixabay.com

Bricks image CC0 from Nikiko on pixabay.com

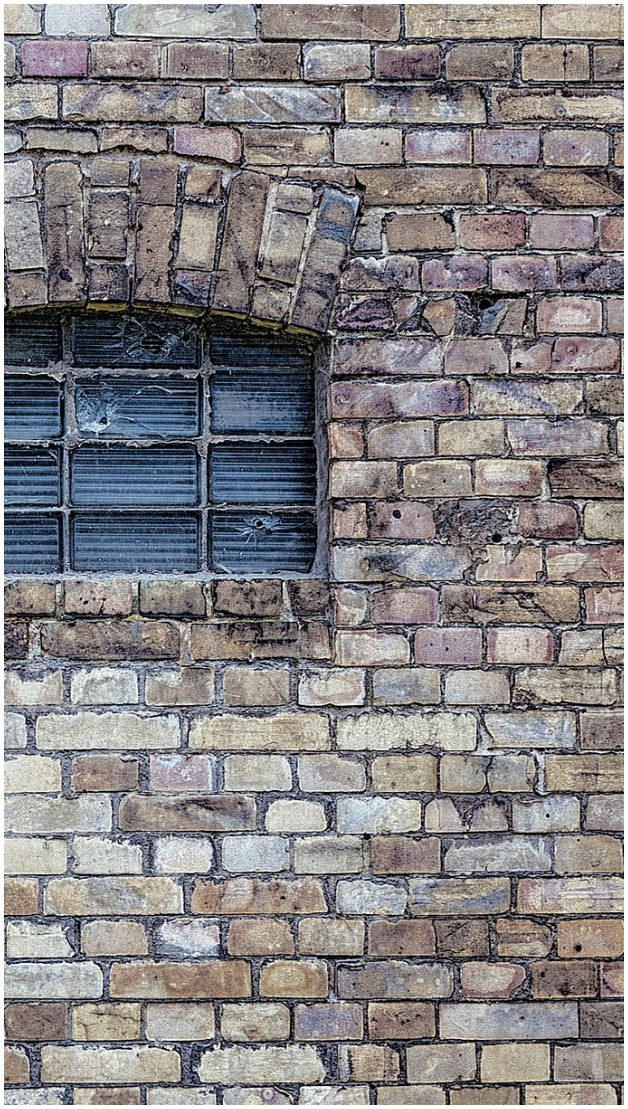

www.tsugi.org

# Tsugi

## Building the Next Generation Digital Learning Environment


tsugi

# Researching and Developing Technology to Enable the Next Generation Digital Learning Environment



**Educational Application Store**

Tsugi enables the development and hosting of learning applications that can be seamlessly integrated into Learning Management Systems.

**Learning Object Repository**

Tsugi's LOR features allow course content to be developed outside of the LMS and easily imported into any number of course shells.


## Independent Componetry

Tsugi is a ground-up implementation of learning tools and capabilities with standards compliance and seamless interoperability as founding principles, Tsugi is a leading research effort in defining the technical structure of the "Next Generation Digital Learning Environment" (NGDLE).

By focusing on a "lego block" approach, Tsugi can be used to achieve a wide variety of use cases by selecting and composing the core components in many different ways.

**www.tsugi.org**

**MOOC Platform**

Tsugi can act as an LMS for a single course. Tsugi can be used to transform static Open Educational Resources on the web into an interactive MOOC.

**API Libraries**

By using Tsugi's well-tested open source implementations of interoperability standards, developers can focus on application functionality.

## Flexible Deployment Options

Instead of taking a single-instance monolithic cloud-hosted approach, Tsugi enables a wide range of low-cost independent deployment options. A single faculty member can build a web site to promote and share their course materials and supporting tools.

A university can provide an expandable education "app store" where faculty can use Tsugi tools from a wide range of sources while keeping all of the learner data under control of the university. An edtech startup can quickly build a multi-tenant cloud-hosted application using Tsugi as infrastructure.