

In Search of STEM: A proposal for a central state information system for  
Science, Technology, Engineering, Mathematics

Despite all the talk about the importance of STEM education and its critical role in the future of the Massachusetts and national economy, there is no statewide or national infrastructure/system for connecting people/ effective programs and materials or providing key information about STEM for teachers, educational leaders, businesses and other stakeholders.

In fact, tens of millions of dollars are appropriated every year for STEM initiatives throughout the nation and yet the many STEM data warehouses, inventories and other resource lists are disconnected, disparate and difficult to use. We believe there should be a single site where interested parties can access information about all programs, projects, products, initiatives, collaborations and services in STEM education, preK through 20. We envision a portal that would serve the entire Commonwealth of Massachusetts and be a model for other states and, eventually, the nation.

We propose the following functionality and attributes for this “one stop application” STEM portal/clearinghouse:

The functions include:

1. Easy access to high quality STEM content
2. Capacity for networking
3. A suite of tools

The attributes include:

1. Alignment with standards
2. Contextualized resources
3. Personalized searching capacity
4. On demand access
5. Trusted sources
6. Sustainable design

The added value includes:

1. Organized by, with and for stakeholders
2. Juried/peer reviewed content
3. Capacity for contributed content
4. Up to date information
5. Constant communication to maintain engagement and currency

This will allow a full knowledge exchange system that coordinates all effective resources available to support PreK – 20 students and educators in order to meet the state’s STEM educational goals as determined by the MA STEM plan.

In order to begin the process of establishing this site, we see the need for the following:

- A review of existing institutional assets and those effective materials and practices already in existence

- The establishment of a process to determine criteria/rubrics selected by representatives of the stakeholder groups
- A consortium that will be responsible for updating and providing quality assurance going forward

The time is now and urgent action is needed. There are several models on which this effort can be built. For example, Kayanta (<http://www.kayanta.com>) is a search site that filters information down into what is most relevant to the reader. We also propose taking advantage of current Internet tools (such as Futures Search Conference (<http://www.futuressearch.net/>)) to help develop an action plan.

The next most important step is to secure support and funding. For support, we will be seeking the partnership of the Massachusetts Departments of Early Education and Care, Elementary and Secondary Education, Higher Education, the University of Massachusetts System and the Office of the Secretary of Education. We would also look to work with the Instructional Technology Division of the Executive Office of Administration and Finance and with the Office of the Lieutenant Governor which is coordinating all state efforts around STEM in MA.

In addition to these governmental agencies and offices, we will be connecting to the various educational and business professional organizations in Massachusetts as well as foundations, universities and other interested parties both on the state and national level. We will also be contacting industry partners such as Google, IBM and Intel which have shown interest in STEM education.

Finally, it is our long-range expectation that this system will be usable by other disciplines such as the arts (think STEAM). Our success in Massachusetts will serve as a model for other states and the nation.

Since such an endeavor has not been undertaken before, as we envision it, we expect that the site will be continuously evolving as new information is added and as tools change. In addition, we will leverage existing sites, sources and people in order not to “reinvent the wheel.”