

Exploring the Power of a STEM Alliance

What's the Issue?

STEM alliances are an infrastructure of support within a community that drives forward engaging learning experiences in mathematics and science through the context of engineering and technology. As an alliance, the collective pursuit can be coordinated, measured, and improved thanks to the diverse representation of K-12, Career Tech and Higher Education along with business, community, and informal (out-of-school) education organizations.

As STEM alliances grow, they have the capacity to successfully engage today's youth; design and connect STEM learning opportunities; provide experiences in multiple settings; and encourage youth to pursue STEM career fields. Successful alliances leverage diverse and meaningful learning opportunities in and out of school creating an increasingly well-prepared and motivated workforce who are suited for careers in the five wealth-generating ecosystems¹ and complementary ecosystems.

This brief provides information and guidance for how a STEM alliance might be beneficial for a community.

Why It Matters To You

- Improving access to and the quality of STEM education opportunities requires the collective effort of a broad collection of organizations.
- Increased STEM education for students, including certifications, credentials, and associate's or bachelor's degrees are highly correlated to economic well-being.
- STEM jobs are growing and the pipeline is not keeping up. Seventy seven percent (77%) of jobs created between 2010 and 2020 will require post-secondary education. Currently, only 54% of the Oklahoma workforce is prepared for these jobs.²
- Manufacturing and high-tech jobs connected to Oklahoma's economic drivers are looking for communities that promote excellence in STEM education.



Recommended Actions

To better gauge the readiness of your region for a STEM alliance, consider reflecting on the following questions:

- Do regional stakeholders lack an understanding of STEM and its meaning for their region?
- Have regional key stakeholders and other key constituencies expressed concern with a lack of students entering the STEM workforce or being prepared to pursue STEM careers?
- Are there individual mathematics and science teachers in the region that are actively trying to cultivate critical thinking and reasoning skills through traditional mathematics and science classes?
- Are there individual schools or districts in the region that are looking to enhance their STEM efforts by implementing additional programs beyond mathematics or science classrooms?

If responses to the questions above lead you to believe that a focused effort by diverse stakeholders in the community might address the questions or better support existing efforts, you may have the right conditions for a successful STEM alliance.

To explore how a STEM alliance might be beneficial for your community, consider how the following sectors might contribute to and benefit from the efforts of a STEM alliance. Using a larger version of the table below, list responses for each sector might find value in a STEM alliance.

| Business & Community | K-12 Education | Higher Education | Career Tech Centers |
|----------------------|----------------|------------------|---------------------|
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Reflection Questions

- Why might stakeholders from different sectors represented in the table have unique perspectives of the value of a STEM alliance?
- Are there common themes and shared priorities that emerge across the sectors represented in the table?

Things to Consider

Why is a STEM alliance needed? To explain the need, it can be useful to explore local education and economic data and think about what stakeholders in your community would see as their current and future workforce needs.

What work can a STEM alliance do? A STEM alliance can identify, prioritize and align education priorities to community workforce needs.

Who should be involved in a STEM alliance? Determining who should be a part of the leadership team and who is involved in the larger STEM alliance is essential to ensuring a quality STEM alliance. This is explored more in STEM Brief #3.

How can you get the STEM alliance going? A Launch Meeting for the STEM alliance can serve to create a shared understanding of STEM and focus the future work of the STEM alliance. This is explored more in STEM Brief #3.

References

- 1: More information about Oklahoma's wealth-generating and complementary ecosystems can be found at <http://www.economicmodeling.com/wp-content/uploads/Deidre-Myers.pdf>
- 2: Source: 2010 ACS; EMSI Complete Employment - 2011.4