

Building Bridges to Success

REGIONAL BUSINESS-HIGHER EDUCATION PARTNERSHIPS TO GROW AND DIVERSIFY THE STEM WORKFORCE

BHEF’s Sustained Focus on STEM

For more than a decade, the Business-Higher Education Forum (BHEF), a membership organization of leading business executives and university presidents, has dedicated itself to increasing the supply and diversity of talent with technical and scientific knowledge and skills.

In 2006, BHEF launched its first STEM Initiative to improve STEM P-16 outcomes. In 2007, BHEF adopted a goal of increasing the number of STEM degrees and the diversity of STEM graduates.

From 2010 to 2012, BHEF published research on STEM enrollment, persistence, and degree completion. With support from Raytheon Company, BHEF created simulation models showing the impact of STEM interventions and developed a U.S. STEM Undergraduate Model® with high-impact practices and multidimensional interventions.

In 2012, BHEF launched the National Higher Education and Workforce Initiative to formalize and expand business-higher education partnerships. Initial partnerships concentrated on talent needs in the emerging digital economy, especially cybersecurity and data science.

BHEF’s NSF Grant

In 2014, with major support from the National Science Foundation (NSF), BHEF launched a five-year project to demonstrate the efficacy of regional ecosystems of community colleges, four-year higher education institutions, and businesses in facilitating the retention and persistence of students in STEM fields.

The Focus of BHEF’s NSF Grant:

Developing evidence-based models for implementing strategic and sustainable engagement by business with higher education to increase the persistence of STEM students, particularly women and underrepresented minorities.

This project identified the transfer of students from two- to four-year institutions as a key juncture that could significantly increase the diversity and STEM degree attainment at the baccalaureate level.

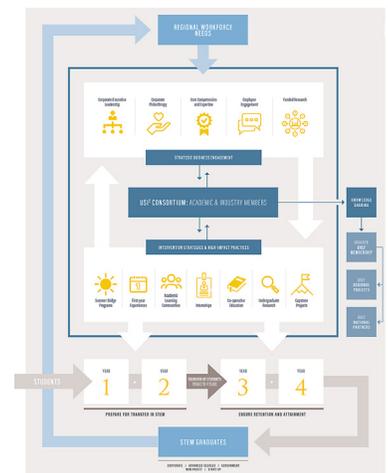
Partnerships Between Higher Education and Industry

To execute this project, BHEF formed the Undergraduate STEM Interventions with Industry consortium, with partnerships between higher education and businesses at five sites. The intent was to study how high-impact practices can increase STEM student persistence, transfer, and completion.

Higher Education	Business Partner(s)	Focus of Partnership
City University of New York	IBM	Capitalizing on existing infrastructure to support transfer students in data science and analytics and sustainability
Miami Dade College	NextEra Energy	Developing stackable credentials in data science and analytics
Northeastern University	Raytheon, IBM, others	Integrating work and learning in industry-informed IT and cybersecurity curriculum
University of Wisconsin-Milwaukee	Water Council	Pioneering a new work-based learning model in water science
Washington University in St. Louis	Boeing	Providing an alternative pathway for nontraditional students

To support these partnerships, BHEF developed its Theory of Action and Partnership Implementation Process.

- Theory of action.** Students begin at a two-year college, transfer to a four-year program, and persist to bachelor’s degrees and careers in STEM. Intended results are acquisition of STEM skills, improved student success, and greater diversity of STEM fields.



- **Partnership Implementation Process.** This process outlines steps and milestones to guide partners in creating new academic programs and student pathways.



Keys to Partnership Success

Across the five sites, more than **1,400** students were enrolled in programs and interventions. Among enrolled students:



Through in-depth review of these programs, BHEF identified nine keys to success in STEM-focused partnerships between higher education and business.

- **Develop and expand strategic partnerships that grow regional talent ecosystems.** The methodology in these partnerships is replicable, scalable, and can serve as a blueprint for moving partnerships from workforce analysis and competency mapping to revised employer hiring practices.
- **Use intermediaries and consortia as a catalyst for partnerships.** Consortia bring partners together, establish a shared vision, and create alignment.
- **Disseminate learning to inspire replication and scale.** BHEF and the sites have empowered others to apply the learnings at a larger scale.

Over the past decade, BHEF has catalyzed and supported over three dozen higher education/business partnerships.

- **Build business-engaged, high-impact practices into program design.** High-impact practices include internships, experiential learning, and first-year experiences.
- **Embed treatments in the academic enterprise.** Relying on grant funding is not sustainable. It is important to embed treatments in the enterprise to ensure program sustainability.
- **Meet learners where they are.** Higher education and business leaders must embrace a new model of continuous learning and skill development that serves nontraditional learners. Offerings must be accessible and fit into learners' lives.
- **Grow partnerships to ensure sustainability.** During the course of the grant, partnerships often grew to include other higher education and business organizations. Greater scale makes partnerships more sustainable.
- **Use partnerships to change company strategies for talent acquisition.** The industry partners involved in this project realized they should review their HR strategies.
- **Translate employer-led partnerships into transformative metrics-driven change.** Employer partnerships have the power to drive major changes. Metrics help leaders understand the impact of partnerships.

Call to Action

Through this NSF grant, the consortium that was formed, and the learning developed, BHEF hopes to inspire higher education and business leaders to take action—creating and scaling partnerships and replicating critical project elements. Such efforts will produce innovative pathways and programs and will ultimately develop the diverse, highly skilled 21st-century workforce the nation needs.

Additional Resources

To learn more about this NSF-funded initiative, about BHEF's STEM-focused work, and about BHEF's successes catalyzing partnerships, see the following resources:

- The full report on [Building Bridges to Success: Regional Business-Higher Education Partnerships to Grow and Diversify the STEM Workforce](#)
- [Creating Purposeful Partnerships: Business and Higher Education Working Together to Build Regional Talent Ecosystems for the Digital Economy](#)

Also, see the [BHEF website](#) and [BHEF's many publications](#).