BHEF’s National Higher Education and Workforce Initiative

STEM Pipeline for the Digital Economy
B/HERT Roundtable Program

Swinburne University of Technology
October 8, 2014
BHEF Mission and Focus
# BHEF Summary

The Business-Higher Education Forum (BHEF) is a membership organization of Fortune 500 CEOs, college and university presidents, and other leaders who collaborate to promote innovation and enhance U.S. global competitiveness.

## BHEF Mission

- BHEF members collaborate to increase baccalaureate attainment and improve alignment between higher education and the workforce by creating undergraduate pathways to produce a diverse, highly-skilled talent pool to meet demand in emerging fields.
- BHEF convenes business and academic leaders, and promotes effective undergraduate program design and development to create workforce solutions, and scaling guidance to increase the impact on baccalaureate outcomes.
- BHEF facilitates peer-to-peer engagement by its members and inspires peer leaders to act.

## Shape the National Agenda for Business & Education Collaboration through Convenings

- Through member meetings and convenings, BHEF members influence the national agenda on higher education and workforce.
- BHEF educates and fosters dialogue through access to its networks and peer-to-peer learning convenings.
- BHEF partners with industry associations to advance BHEF’s sector scaling strategy.

## Influence Practice & Policy through Research & Thought Leadership

- BHEF promotes innovative higher education solutions and analyzes workforce needs and trends to inform policy and practice.
- BHEF builds evidence through research and tools such as the BHEF U.S. STEM Undergraduate Model™.
- BHEF advances policy on behalf of its members through thought leadership that influences national dialogue and public policy.

## Address Workforce Needs through Programmatic Initiatives

- BHEF’s National Higher Education and Workforce Initiative (HEWI) promotes strategic business-higher education partnerships to advance projects that address regional workforce needs in emerging fields that drive innovation.
- On the national level, BHEF disseminates the learnings from its regional workforce projects and supports the scaling of effective practices through field and sector networks.
BHEF’s National Higher Education and Workforce Initiative (HEWI)
National Higher Education and Workforce Initiative

*Development of the Strategy*

Years of intensive work in BHEF’s Initiatives, STEM system dynamics modeling project, and a college and career readiness initiative provided insights that moved BHEF beyond STEM disciplines into developing STEM skills in emerging fields that power innovation.

The U.S. STEM Education Model® demonstrated that higher education represents the highest leverage point in the STEM talent ecosystem

A focus on STEM degrees would not meet the talent needs of U.S. companies—in either the number of graduates or the skills required—to innovate and remain competitive

Emerging fields such as data science, cyber security and social and mobile technologies, drive innovation within BHEF members’ companies

While programs at the graduate-level exist, undergraduates currently enrolled in STEM or other disciplines that businesses need—finance, marketing, communications, and policy—gain no exposure to or training in these fields

Embedding these fields into undergraduate disciplines, including STEM, the social sciences and humanities will create graduates with both scientist-level skills as well as “enabled professional” skills
BHEF Strategy

**National Higher Education and Workforce Initiative Framework**

Through HEWI, BHEF catalyzes regional market-driven projects in emerging cross-disciplinary fields in partnership with member academic institutions and companies in high-demand industries.

### HEWI Offerings

- **Leadership Convenings**
- **Program Development**
- **Scaling Guidance**

### A Selection of Current and Future Focus Areas

**Emerging Cross-Disciplinary Fields** *(BHEF Program Focus)*

- Data Science & Analytics
- Cybersecurity
- Risk Management
- Social & Mobile Technologies

**Industry Sectors** *(Member Application)*

- Aerospace & Defense
- Energy
- Financial Services
- Advanced Manufacturing
- Agriculture
- Infrastructure

**College/University Projects**

**Regional Initiatives** *(including University Systems)*

**National Initiatives**

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Key:  

- Current focus areas
- Future focus areas

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National Higher Education and Workforce Initiative: *Expansion Channel Strategy and Impact*

BHEF works on three levels to achieve the programmatic goals and objectives and to impact the development of a high-skilled workforce.

**College / University Projects**
- Share program framework
- Develop market landscape and conduct student migration analysis
- Facilitate local partnerships
- Encourage new innovation practices
- Assist with program growth and scaling via advisory services

**Regional Initiatives / University Systems**
- Set up and launch networks
- Develop a platform to share practices and disseminate information
- Expand stakeholder engagement (including industry and state-level associations)
- Develop a policy point of view and prioritize strategic opportunities

**National Networks**
- Develop the strategic agenda through the use of National Network subcommittees
- Aggregate and communicate common monitoring and evaluation metrics
- Translate industry demand signals
- Position and communicate evidence-based practices

**Initiatives / Strategies**
- Increased student awareness
- Increased persistence and completion
- Increased involvement by target population (increased diversity)
- Development of structured career pathways
- Increased partnerships

**Benefits / Outcomes**
- Spread best practices and adoption across regions
- Align investments of overlapping members/stakeholders
- Develop and grow the talent ecosystem of high-skill labor
- Develop regional network or partners

- Clear insights to market demand and industry signals
- Spread the adoption of practices across regions
- Share best practices through policy briefs and thought leadership
National Higher Education and Workforce Initiative:  
*Expansion Channel Strategy, Cyber Illustration*

Over the past two years BHEF’s CyberUP initiative has made significant impact across regional expansion channels and plans to continue to scale these results in new geographies.

**National:** Expanded BHEF’s National Cyber Network to 20 colleges / universities and more than 70 participants in November 2013 meeting.

Developed national priorities and action agenda including three working groups:

1. Vision and Growth
2. Talent Development
3. Evidence

**Regional:** Expanded CyberUP through the University System of Maryland (USM):

- Northrop Grumman awarded Cyber Scholars grant to University of Maryland, Baltimore County
- Introduced collaborations linking Raytheon Company with Towson University, and Lockheed Martin with Bowie State University through support from the Sloan Foundation
- Launched the USM-BHEF Undergraduate Cybersecurity Network, Maryland-area coalition

**College / University:** In Maryland, helped establish the first undergraduate honors program in cybersecurity, the Advanced Cybersecurity Experience for Students (ACES):

- Launched in 2013, planning funded by the Sloan Foundation, while programmatic investment came from Northrop Grumman and was matched by the university
- Brought Parsons into the project resulting in support for ACES scholarships
National Higher Education and Workforce Initiative: *Value and Outcomes*

BHEF improves alignment of talent ecosystems to high-skill labor market needs through strategic business and higher education partnerships, and regional and national networks.

**Value Proposition**

- **Leadership Convenings**
  - Facilitate strategic business and university engagement across regions and sectors
  - Link industry to academic associations for collective action

- **Program Development**
  - Partnership tools and engagement model for building regional partnerships, research and policy briefs
  - Support program design for increased student persistence
  - Assessment and metrics
  - Introduce partners to potential seed funders based on shared goals and values
  - Help partners navigate the fundraising landscape

- **Scaling and Impact**
  - Help partners identify early wins to seed broader implementation
  - Provide scaling guidance based on insights and evidence-based strategies
  - Help industry expand adoption

**Member Benefits**

- Creates partnerships and mobilizes for collective impact
- Spreads effective methods and establishes commitments from partners
- Provides financial support for college and university projects, and national networks
- Scales projects regionally and nationally

**Outcomes**

Improved alignment of the talent ecosystem with high-skill labor market needs:

- Increased quality and quantity of talent aligned with workforce needs across sectors
- More marketable skills and higher workforce placement for students to support innovation
- Increased representation of under-served populations, including minorities, women, veterans, and low-income populations, in emerging high-skill fields
**National Higher Education and Workforce Initiative:**

**Early Successes**

BHEF identifies emerging, cross-disciplinary fields that drive innovation and support strategic regional member partnerships to design new undergraduate pathways to high-skill, high-demand jobs in key sectors.

### Leadership Convenings

- Utilized convenings to **introduce emerging high-demand cross-disciplinary fields**, announced regional workforce projects, and connected BHEF’s work to scaling partners and policy makers
- Convened national business and academic association partners to **create a common STEM policy agenda**, and deliver a letter of commitment on behalf of 8 organizations to support President Obama’s STEM Goals
- Convened business and academic leaders to **focus on the devastating effects of sequestration** and delivered a letter to Congress urging a different approach to budget cuts
- Co-convened with the U.S. Navy a national summit in response to President Obama’s goal of **adding one million STEM graduates in a decade**

### Program Development

- **Identified emerging fields critical to innovation** and developed cybersecurity as the first field in which to develop programs
- Identified data science as the next cross-disciplinary field and supported program planning for a data science project with Case Western Reserve University and its partners
- **Supported the design, planning and launch of multiple market-driven higher education-business projects** that build undergraduate pathways to high-skill, high-demand jobs in several cross-disciplinary fields
- **Supported program planning in cybersecurity at the University System of Maryland (USM)**, which became the foundation for expansion throughout Greater Washington, D.C. and Tidewater, VA

### Scaling and Impact

- **Published the BHEF HEWI playbook** to guide regional project planning, design and assessment
- **Developed a case study about how a university and its partners are building a cybersecurity workforce** as a way to assist other regions scaling projects in emerging fields
- **Launched the BHEF-USM Cybersecurity Network, the Greater Washington Cybersecurity Network as well as the National Cybersecurity Network** which includes 22 colleges and universities, 15 companies and 70 cyber leaders
- **Shared insights and best-practices through regional and national convenings**
- **Built a coalition to create the National Data Science Network**, scheduled to launch in fall 2014
Plans for the Future: How does BHEF Expand our Impact?
HEWI Expansion and Partner Engagement:

**Expansion Overview**

Across its three channels, BHEF is expanding HEWI in two ways: by building on existing projects, and by launching initiatives in new geographies based on market demand.

**Existing Program Expansion**

BHEF will build on past successes to continue to increase HEWI impact in regional geographies through:

1. Growing individual projects to more students
2. Expanding within university/regional systems
3. Developing regional networks and scaling to the broader region (e.g., from Maryland to the Greater D.C. Area)

**Expansion in New Geographies**

4. New target locations are identified by market demand and member input; HEWI is then launched in each location through one of two approaches:
   - **Regional Approach:** A region with high workforce need and poised for partner engagement to form a network
   - **College/University Approach:** A college or university program with potential to expand with BHEF support

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Illustrative Map
HEWI Expansion and Partner Engagement:
Regional Approach Process to Launch Projects

BHEF executes the following process to stand up regional networks and launch projects when starting with the recommended regional approach.

<table>
<thead>
<tr>
<th>1</th>
<th>Select Region for Program Development</th>
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<tbody>
<tr>
<td>• Identify potential HEWI regions through market analysis and member input</td>
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<tr>
<td>• Assess the readiness of potential regions to launch HEWI programs (e.g., academic, business, and other partners’ needs, maturity, and interest)</td>
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<tr>
<td>• Select a region for expansion based on selection criteria</td>
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<tr>
<th>2</th>
<th>Establish Regional Partner Network</th>
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<tr>
<td>• Build relationships with potential partners and gain consensus on goals</td>
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<tr>
<td>• Establish a network framework, charter and governance structure to define decision-making processes</td>
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<tr>
<td>• Define roles and responsibilities for each partner</td>
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<tr>
<td>• Engage partners and coordinate efforts</td>
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<th>3</th>
<th>Develop Regional Strategy and Plan</th>
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<tr>
<td>• Determine employer needs through market analysis (e.g., workforce demand, skill and credential requirements)</td>
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<tr>
<td>• Assess the university landscape to understand existing programs’ strengths and gaps, and to identify institutions/departments to lead new programs</td>
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<tr>
<td>• Develop strategy for how to launch HEWI initiatives in the region</td>
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<th>4</th>
<th>Launch Projects at Colleges/Universities</th>
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<tr>
<td>• Determine the unique program design for each project based on BHEF design framework and effective practices</td>
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<tr>
<td>• Define the partner engagement approach including identification of lead partners for university/college initiatives, and establish project plans</td>
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<tr>
<td>• Launch and execute projects</td>
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<th>5</th>
<th>Scale and Sustain Projects</th>
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<tr>
<td>• Provide scaling guidance at the institution, system, and regional levels</td>
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<tr>
<td>• Facilitate collaboration across projects</td>
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<tr>
<td>• Share best practices, learnings, and support to improve programs</td>
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<tr>
<td>• Ensure project sustainability</td>
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<tr>
<td>• Monitor and evaluate programs, analyze findings, and adjust support as needed</td>
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**Key Questions Addressed**

1) Is this region a good fit for a HEWI Initiative?  
2) Can BHEF add value, is there a need for BHEF involvement?  
3) Do BHEF and partners have capacity to expand in a new region?  

1) Who are the potential partners?  
2) What does the partner ecosystem need to look like for this initiative to be successful?  

1) Can a HEWI project improve alignment of the talent ecosystem to labor market needs?  
2) What are the key guidelines and for program design?  

1) What institution(s) are best suited to launch a project? What partner ecosystem needs to be set up?  
2) What is the design for each program/location?  

1) How will the project(s) be sustained in the long run?  
2) How will the project(s) be scaled within the college/university and to other schools?
National Higher Education and Workforce Initiative: *Plans to Broaden Impact*

BHEF will expand the HEWI footprint by systematically adding cross-disciplinary fields and applying them to industries and sectors by collaborating with industry associations.

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<tr>
<th>Leadership Convenings</th>
<th>Program Development</th>
<th>Scaling and Impact</th>
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<tbody>
<tr>
<td>Co-host with Aerospace Industries Association and the National Defense Industrial Association to convene in Huntsville with aerospace engineering leaders in the fall of 2014 to launch a project</td>
<td>Plan a Financial Services Industry Workforce project that will develop cybersecurity, data science and analytics, risk management, and social and mobile technology skills for undergraduates who will enter the investment, banking, insurance, and services sectors</td>
<td>Received a ~$4.5M grant from the National Science Foundation to build Undergraduate STEM Interventions with Industry consortium, which will support community college students as they transfer to 4-year institutions, then transition to the workplace</td>
</tr>
<tr>
<td>Partner with the Business Roundtable to convene members of BHEF’s Founding Financial Services CEO Leadership Group and other financial services CEOs on September 3, 2014 to plan a New York City Financial Services Industry regional project</td>
<td>Support the development of data sciences majors, minors, and certificates on BHEF members’ academic institutions with business partners</td>
<td>Support the development of regional and national data science networks</td>
</tr>
<tr>
<td>Support a leadership convening in D.C. to extend BHEF’s cyber work into Virginia</td>
<td>Use a $300,000 grant from NBCUniversal to work with several institutions to develop a new media/broadcast engineering minor for the entertainment industry</td>
<td>Work with national scaling partners—Aerospace Industries Association, Association of Public and Land-grant Universities, Business Roundtable—to expand HEWI</td>
</tr>
<tr>
<td>Host the third annual National Cybersecurity Network Convening in Massachusetts, December 2014</td>
<td></td>
<td>Received a ~$1M grant from the Office of Naval Research to scale BHEF’s work in cyber in Washington, D.C., Maryland, and the Northern and Tidewater regions of Virginia</td>
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National Higher Education and Workforce Initiative: *Programmatic Expansion Opportunities*

BHEF has identified regional and institution-level opportunities to expand impact; we are in the process of evaluating the opportunities and defining the level of effort to fund and resource each.

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Field / Sector</th>
<th>Potential Partners</th>
<th>BHEF Role</th>
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<tbody>
<tr>
<td>Water Science</td>
<td>Utilities / Sustainability</td>
<td>CSU, UTEP, UNM, NMS, Parsons</td>
<td>Support, facilitate development of Rio Grande Compact; Engage partners in BHEF’s national data network; Connect project with BHEF members working in data science</td>
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<tr>
<td>Data Science Infrastructure</td>
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<tr>
<td>Cybersecurity in Greater Washington, D.C. and Tidewater, VA</td>
<td>Cybersecurity / Aerospace and defense</td>
<td>Accenture, McAfee, Northrop Grumman, ONR, Parsons, Raytheon, Greater Washington Board of Trade, George Washington University</td>
<td>Leverage BHEF regional cyber network infrastructure and program experience to create initiatives in higher education institutions in D.C., Northern and Tidewater, VA</td>
</tr>
<tr>
<td>Data science in Columbus metropolitan area</td>
<td>Data science / Health care, retail, energy, insurance, financial services, R&amp;D</td>
<td>OSU, IBM, Columbus Collaboratory (AEP, Battelle, Cardinal Health, Huntington Bancshares, L. Brands, Inc., Nationwide, OhioHealth)</td>
<td>Member-led project by OSU</td>
</tr>
<tr>
<td>Financial services in NYC</td>
<td>Cybersecurity, data science, risk management, and social and mobile technologies / Financial services (banking, investment, services, and insurance)</td>
<td>TIAA-CREF, Perella Weinberg Partners, Accenture, State Farm Insurance Companies, Principal Financial Group, Business Roundtable</td>
<td>Member-led project by BHEF Financial Services CEO Leadership Group</td>
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</table>
Discussion
For Additional Information

• National Higher Education and Workforce Initiative (HEWI)  
  http://www.bhef.com/our-work

• HEWI Publications, to include *Forging Strategic Partnerships for Undergraduate Innovation and Workforce Development* and *Strategy in Action: Building the Cybersecurity Workforce in Maryland*
  

