

**PROMOTING EFFECTIVE  
DIALOGUE BETWEEN  
BUSINESS AND EDUCATION  
AROUND THE NEED  
FOR DEEPER LEARNING**



*Creating Solutions. Inspiring Action.*

## ABOUT BHEF

The Business-Higher Education Forum (BHEF) is the nation's oldest organization of senior business and higher education executives dedicated to advancing innovative solutions to U.S. education and workforce challenges. Composed of Fortune 500 CEOs, prominent college and university presidents, and other leaders, BHEF addresses issues fundamental to our global competitiveness. BHEF is committed to helping to drive better alignment between education and the workforce to create the innovation workforce necessary to keep regions, states, and the nation economically competitive.

For more information about the Business-Higher Education Forum, including links to current and completed BHEF initiatives, publications, and more: [www.bhef.com](http://www.bhef.com)



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## BHEF'S INQUIRY INTO DEEPER LEARNING

The jobs that will drive the U.S. economy in the 21st century increasingly require employees with both mastery of core content knowledge in a given field *and* well-developed workplace competencies, such as the ability to think critically and solve complex problems, work collaboratively, communicate effectively, and learn how to learn (e.g., self-directed learning).

However, as employers scan the current workforce and anticipate future workforce needs, they frequently find that employees are not well-equipped with core content knowledge and 21st century workplace competencies, the combination of which the William and Flora Hewlett Foundation defines as “deeper learning.” The cumulative effect of these deficiencies impedes U.S. economic competitiveness, security, equity, and civic engagement.

Business and education leaders have engaged for some time in discussion around these gaps, yet the misalignment between student outcomes and workforce demand still exists. On the education side, the K-16 curriculum is generally not providing students who enter the workplace with a deep foundation in deeper learning capabilities. Similarly, the business community has generally failed to produce a nuanced articulation of its workforce needs, particularly with regard to the 21st century competencies of highest priority in different occupations and organizational levels. Moreover, how employers assesses and train workers to be proficient in these competencies is equally opaque. Bridging the communication gap will require a deeper dialogue between business and education sectors that enables K-16 to better adapt curricula and co-curricular experiences to build deeper learning in students.

The Business-Higher Education Forum (BHEF), in partnership with the William and Flora Hewlett Foundation, is examining the need for students to possess workplace competencies and core content knowledge as essential prerequisites of college and career readiness, and building the business case for improved competencies to fuel the innovation economy. To build the case, BHEF worked through networks of national business partners and conducted a series of in-depth interviews with key corporate representatives to illuminate the role deeper learning plays in hiring, evaluation, training, and promotion of employees.

Through our members, as well as through affiliates of Louisville’s Business Leaders for Education working group, BHEF connected with chief talent officers of over a dozen organizations, ranging from health care, aerospace, defense, and finance to identify the demand for 21st century workplace competencies. We conducted at least one interview with each organization, and often conducted follow up conversations to build upon questions raised in the initial interview. Companies also were encouraged to provide job descriptions, assessment models, and internal communications that incorporate 21st century workplace competencies and illuminate the role these competencies play in hiring, evaluation, training, and promotion.

This BHEF Brief summarizes the findings from this research.

## THE BUSINESS CASE FOR DEEPER LEARNING: INSIGHTS FROM BHEF RESEARCH

**A**fter interviews with more than one dozen chief talent and training officers, BHEF gathered key insights about business demands for a workforce equipped with deeper learning attributes. These insights will help bring corporate needs for workplace competencies into better alignment with the education programs that are producing future members of the workforce.

**Rapid technological changes in the innovation economy, the increasing complexity of the challenges that companies are required to solve today, and the pace at which these solutions must be brought to market require that recent college graduates enter the workforce with a wide combination of high-order competencies that go beyond content knowledge.**

Whether driven by the demands of an increasingly competitive international workplace or the realities of an innovation economy that is changing rapidly and is expected to continue evolving at a fast pace, corporations have come to place a high value on deeper learning. However, while graduates generally have the content knowledge to perform effectively in the workforce, employers interviewed are observing deficiencies in the skill sets included under the umbrella of 21st century workplace competencies—such as critical thinking, problem solving, analytical reasoning, communication, and working in multi-cultural teams. In other words, potential hires for the workplace exit the education pipeline lacking the kind of balance between technical skills and workplace competencies that employers increasingly want and need.

For example, several of the companies interviewed are seeking college graduates with stronger communication competencies, notably written and oral communication skills. These skills are particularly important as technology continues to redefine teamwork, spanning corporate divisions, regions, and nations. Today, global corporations require employees with communication skills that enable them to work effectively in virtual and multi-cultural teams and engage with colleagues across multiple fields.

Many sectors of the economy, such as health, defense, and financial services, increasingly rely on employees who can effectively analyze large data sets for purposes of marketing, systems design, supply chain management, distribution of products and services, and other key business practices. While the workforce calls for a number of data specialists, the innovation economy is anticipating a major need for non-specialized employee “enabled” in understanding and analyzing large sets of data effectively. This requires employees who can critically analyze data to solve complex problems—a skill vital to innovation that is a strategic differentiator in corporate competitiveness.

**Leaner organizations, resulting from the recession and shifting demographics, are taking on a more integrated market model and are moving employees across divisions to give them a cross-functional work experience that deepens the company’s bench strength and fills gaps in the workforce. These organizational shifts require a more flexible employee with the ability to constantly adapt to new business practices and move rapidly among tasks and working environments.**

Even before the recent recession, companies aimed to streamline their operations. As a result, companies rely on fewer staff to meet workforce demands. To fill the gaps, it is common for companies to move employees across divisions and through a cross-functional work experience. That often means asking staff to regularly take new assignments and serve new functions, perhaps in new geographic locations. The days of employees serving one company in one job in one location have largely disappeared. As such, employees are being called on to be lifelong learners, and the 21st century skill known as meta-cognition, or “learning to learn,” is one that employers increasingly value in their workers.

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*“The innovation workplace in the 21st century global economy places higher demands on newly hired employees. Competencies previously developed in the first several years of professional employment, including expert communications and contributing in multidisciplinary teams, are now required of new hires. P-16 education must equip graduates with these critical abilities.”*

Brian Fitzgerald  
CEO  
BHEF

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IBM has been a leading advocate of this type of “T-shaped” professional who possesses both the deep content knowledge and the breadth of competencies that span across disciplines. That breadth of knowledge and expertise helps the employee become effective faster in new work assignments and in multidisciplinary and diverse work environments—a balance critical in today’s workplace.

**Companies are increasingly developing their own assessments to screen the abilities of applicants and current employees, including off-the-shelf and customized tools, and investing less in internal training programs to increase workplace competencies. Placing greater emphasis on developing those workplace competencies at the K-16 levels will realize considerable cost savings and, concomitantly, strengthen students’ competitiveness in the job market.**

A number of companies need to cast a very wide net, even globally, to find talent with the right skills for their business needs. Currently, many corporations are using credentials as a proxy for the attainment of 21st century competencies; yet, criticisms of the abilities of recent college graduates indicate degrees are often not effective gauges of whether potential employees possess 21st century competencies. More so, college graduates who do possess some of the sought-after competencies face difficulties applying those skills in a business setting.

As a result, companies are investing larger commitments of staff time and financial resources to develop a better understanding of the workforce competencies they need. This leads to the adoption of rigorous and aligned assessments in hiring, employee review, retention, and promotion. Some instruments are purchased off the shelf while others are custom-designed.

In several cases, corporate efforts to better understand 21st century competencies constituted nothing short of a high-priority, companywide strategic initiative, instituted with deep engagement and strong support from top leadership. There is evidence that companies are already reaping benefits from customized work around needed competencies; one company was able to decrease employee turnover in certain positions from over 70 percent to less than 30 percent by being more intentional about finding the people with the right technical knowledge and competencies for those positions.

**Developing the necessary 21st century workforce competencies in graduates will require closer collaboration between the corporations recruiting employees and the institutions educating them.**

There is mixed evidence about whether a meaningful dialogue is taking place between business and K-16 education around the broader issue of 21st century workplace competencies. Our impression is that such conversations are actually rare and, when they do take place, tend to be ad hoc, often based on personal relationships and limited to a single department or professor, rather than being strategic and comprehensive in nature and engaging top leadership from both sides.

## T-SHAPED PROFESSIONALS

The concept of a “T-shaped” professional refers to an individual with a deep knowledge of his or her discipline (the vertical leg of the T), but also the breadth of skills and knowledge that allow the individual to see how one discipline interacts with others (the horizontal arm of the T) and contribute to multiple dimensions of a company’s operations. The T-shaped professional stands in contrast to the I-shaped employee, an individual who specializes in one field and whose skills may come to be devalued following changes in technology or market conditions.

IBM has long advocated for the creation of more T-shaped professionals and has, since 2004, worked in partnership with higher education, government, and industry to promote the discipline of Service Science, Management, and Engineering (SSME). Through SSME, IBM seeks to increase the number of students studying science, technology, engineering, and math, more commonly known as the STEM fields. T-shaped professionals, as developed through SSME, are both collaborative innovators and adaptive innovators, prized for the depth of their problem-solving skills in one field and the breadth of their communication skills in many others.

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Donofrio, N., Spohrer, J., & Zadeh, H. (2010). *Research-Driven Medical Education and Practice: A Case for T-Shaped Professionals*. Retrieved from <http://www.ceri.msu.edu/wp-content/uploads/2010/06/A-Case-for-T-Shaped-Professionals-20090907-Hossein.pdf>.

Some of the barriers to these conversations include a proprietary view toward the use of competency models, a focus on clinical skills at the expense of training and softer skills, and an assumption, not always true, that a college degree is a proxy for the attainment of competencies.

For now, the “signaling” mechanism between business and higher education is neither rapid nor nuanced enough to ensure adequate development among potential employees of the competencies needed by business. Both business and higher education need to assert a more proactive partnership to bridge the 21st-century workplace competencies gap.

However, from this research we see opportunities for better communication between business and education to ensure that both sectors have the same understanding of 21st century workplace competencies and processes that would better prepare students for career success. Our work in this arena also suggests that universities are most effective engaging with companies on a local level, understanding the needs of particular companies within their regions rather than striving for a generic approach.

**Business-led partnerships that engage industry and educational institutions in *strategic*, rather than *transactional* relationships can help address the ineffective signaling between business and higher education on the need for 21st century workforce skills.**

In our experience and from our research, we have found that business-led interventions that focus on long-term strategic workforce development rather than short-term transactional activities can provide successful approaches to map corporate needs for competencies back to K-16 education.

For example, fellowship opportunities for faculty to work alongside practitioners—such as Boeing’s Welliver Faculty Fellowship Program—open channels for higher education to better understand the needs of industry and collaborate more effectively to accomplish respective goals. Similarly, establishing and sustaining co-curricular experiences for students as they work toward a degree often create productive synergies between corporations and universities, leading to better understandings from both sets of parties about respective goals.

At the University of Maryland, the Advanced Cybersecurity Experience for Students (ACES), a partnership between the University of Maryland and the Northrop Grumman Corporation, is building the nation’s first undergraduate interdisciplinary residential honors program in cybersecurity. ACES will serve as a national model that will help build a strong cybersecurity workforce in Maryland and provide a platform for deep interaction between the company and the university on the content knowledge and 21st century competencies needed by the industry. In an intensive role that connects leadership, philanthropy, and human capital, industry’s early and consistent participation in the ACES program is vital to connecting students to real-world experiences and training. Industry-based activities in the program include co-developing courses to help ensure that the competencies needed by industry are addressed, providing real-world problems that student teams are tasked to address, developing multi-year internship programs directly tied to students’ course work, providing guest lecturers, and contributing advisors and mentors for student capstone projects.

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*“At Principal Financial, we are not adding as many new staff members, but the ones we do add are those employees that are high impact.”*

Larry Zimpleman  
Chairman, President, and CEO  
Principal Financial Group

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## INVESTIGATING BUSINESS-EDUCATION ALIGNMENT IN LOUISVILLE, KENTUCKY

In addition to the interviews conducted with businesses across the country, BHEF also undertook a focused regional inquiry with business leaders in Louisville, Kentucky. Since 2007, BHEF has partnered with its corporate and higher education members in Louisville and with the local community to align the K-16 system with regional workforce needs and increase the region's college degree attainment rates, particularly for disadvantaged students. For its next phase of work, Louisville is driving alignment of its college completion goal, called "55,000 Degrees," with the skills needed for the 21st century workforce in high-demand industry clusters for the region, including advanced manufacturing, food and beverage manufacturing, value-added logistics and distribution, and lifelong wellness and aging care.

Facilitated through the Business Leaders for Education (BLE), a working group of the Louisville Chamber of Commerce, Greater Louisville Inc. (GLI), BHEF engaged with Louisville corporations to build a common understanding of the importance of 21st century workplace competencies within the different high-demand industry clusters. Louisville-specific findings include:

- To date, Louisville's businesses have generally been able to find the employees with the technical competencies they need. However, in the coming years, all sectors predicted an expected shortfall with increased competition for qualified employees.
- Within specific sectors, Louisville's businesses have identified competencies that add depth to the elements of deeper learning: mastery of core content knowledge, the ability to think critically and solve problems, the ability to work collaboratively communicate effectively in multi-cultural teams, and a high capacity for self-directed learning.
- In the health care sector, communicating effectively is important among employees and, in particular, between employees and patients. For example, respondents were careful to highlight that empathy had to underpin such communications.
- Louisville's businesses understand the magnitude of the challenge they are facing when it comes to hiring, and many have either developed robust assessment systems, or are in the process of shaping them. These systems assist with hiring, evaluation, and promotion of employees.
- In the IT sector, which overlays all five high-demand clusters in Louisville, respondents reported that they were more likely to find the workforce with the necessary 21st century competencies among a more experienced workforce, indicating the vital need to focus on how the education sector is producing graduates who can enter the workforce with the necessary skills immediately following graduation.

The findings indicate that while Louisville's businesses require employees with strong technical skills, they also require a workforce that possesses the 21st century competencies that will distinguish top-performing organizations. However, while Louisville's businesses have a deep understanding of their workforce needs in the high-demand industry clusters identified by GLI, they are not completely sure how to build the capacity needed by the region.

This work creates a foundation for business and education to partner in ensuring the development of 21st century workplace competencies. BHEF's work with the community, targeting Louisville's future competitiveness, offers a way to engage key businesses in the region and develop new programs that serve both the high-demand business clusters and the region's 21st century workplace competencies goals.



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## BRIDGING THE COMMUNICATION GAP: BHEF'S NATIONAL HIGHER EDUCATION AND WORKFORCE INITIATIVE

The insights from this research highlight an opportunity for business and education to communicate in a way that better aligns corporate needs for an innovation workforce with educational outcomes. BHEF's model of Strategic Business Engagement in Education bridges the communication gap by employing key corporate "levers" to move from the traditional transactional engagement to a strategic business engagement. While each lever can have impact independently, aligning them in business' engagements with higher education can have powerful synergistic effects. These levers include C-suite leadership, philanthropic efforts, employee engagement, a company's core competencies and expertise, and funded research.

These corporate levers are the core of BHEF's *National Higher Education and Workforce Initiative*—a response to calls by President Obama and business and higher education leaders to increase the supply of highly skilled U.S. workers, through the creation of innovative industry-higher education partnerships led by BHEF members. The Initiative represents a robust national strategy for improving higher education outcomes for undergraduates that prepare them to enter critical fields. In the first phase of the Initiative, BHEF launched twelve regional projects across the country to increase the persistence and degree completion of students, particularly women and underrepresented minorities, in key emerging fields such as data science and analytics, cybersecurity and energy, water and materials science, and engineering. A second cohort is in development for launch in the summer of 2013. In addition, BHEF created a national partnership of key industry and academic associations, government agencies, and professional societies that share learning on effective practices, seek opportunities for collaboration, and provide an effective, national scaling mechanism.

As part of a multi-tiered strategy to bring these projects to scale, BHEF is building networks at the national and state levels to share resources, learning, and insights. At the national level, BHEF in December 2012 launched the National Cybersecurity Network of academic institutions, companies, government agencies, and other stakeholders to support regional projects underway across the nation, with plans to launch similar networks in other sectors. At the state level, BHEF is working through several university systems, the heads of which are BHEF members, to scale effective practices throughout their organizations, and connect with community colleges and K-12 in forging new career pathways for students.

After undertaking this research around deeper learning, it became clear to us that a critical design principle in these regional projects and national networks needs greater emphasis: they need to provide both the deep content knowledge *and* equip students with the 21st century workplace competencies that businesses require to remain competitive in today's global marketplace. BHEF is committed to building a community of effective practice that builds both the academic content knowledge and the 21st century workplace competencies required for the jobs of the future, and the current and planned phases of the Initiative will incorporate intervention strategies specifically designed to integrate 21st century skills development.

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*"Today, we need to define 'teamwork' in the broadest possible terms. Students entering the workforce must have the ability to collaborate with professionals of varying backgrounds, skills, cultures, and perspectives; as well as those who may be based in other countries, which adds a virtual component. The more our institutions of higher learning can prepare students for an extremely collaborative, high-performing workplace where teams are global, virtual, and diverse, the better prepared they will be."*

John Veihmeyer  
Chairman and CEO  
KPMG LLP

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