U.S. CHAMBER OF COMMERCE FOUNDATION YOUTH EMPLOYMENT SERIES

COMPETING ON INNOVATION:
DISRUPTING THE EDUCATION ENTERPRISE TO BUILD TOMORROW'S TALENT, TODAY

U.S. CHAMBER OF COMMERCE FOUNDATION
Center for Education and Workforce

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INTRODUCTION

Today, K-12 schools, colleges and universities, and workforce programs are interested in partnering with employers to increase career opportunities for students. This has taken the form of businesses playing an expanded role in advising curriculum and scaling up work-based learning opportunities such as internships and youth apprenticeships. As we aim to close the gap between what employers need and the skills youth and young adults possess, these partnerships are even more critical for preparing students for the workforce.

However, in a world where businesses increasingly compete on innovation, how well do traditional approaches prepare students to be drivers of innovation? Even in the most robust school systems, access to quality work-based learning experiences is limited to too few students. This is particularly problematic since these experiences are an important part of the career development process and can be a differentiator when pursuing employment.

The U.S. Chamber of Commerce Foundation (USCCF) proposes a transformational approach to prepare youth to develop stronger innovation and workplace skills through real-world experiences. By placing a stronger emphasis on employer-led problem-based learning at all education levels, innovation moves from the periphery to the center of the curriculum.

As part of USCCF's Youth Employment Series, this paper examines how businesses can rebuild their talent pipelines to ensure that they will have the employees needed to drive and support innovation. It examines how employers are organizing to compete on innovation and how they can work with education partners to transform career preparation for America's youth.[1]

The paper begins with a review of how companies and workers compete on innovation. We then introduce what it takes to build innovation talent. From there we explore how to begin establishing business-education partnerships that can disrupt the education enterprise. Throughout the paper we highlight promising and emerging practices that demonstrate both the interest in and the viability of building innovation talent. The paper concludes with a discussion of how to scale innovation talent opportunities and the unique ability of the business community to lead the way.

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COMPETING ON INNOVATION AND THE RACE AGAINST ROUTINE WORK

The United States will increasingly need to innovate if it is to maintain its position as a global economic leader.[2] Our economic engine is, in many respects, dependent on the ability of existing firms and new startups to constantly improve, adapt, and reinvent themselves to remain competitive. This, coupled with the growing pace of globalization and automation, will put workers in a race against the routine work of the past. No longer is innovation something reserved for upper-level management or found in a lab.[3] It is now embedded in the basic fabric of the modern workplace at every level, including those occupations commonly referred to as "middle skill."[4] In other words, both businesses and workers need to be drivers of innovation to succeed in a knowledge-based economy.

Innovation—for the purpose of this paper—is not only defined as technological or scientific breakthroughs that happen infrequently. Instead, we take a much broader perspective of innovation as something that occurs daily inside companies to execute new ideas and approaches that produce business and social value. It is the ability to continually evolve and adapt to challenges and opportunities and is the cornerstone of free-market systems that drive the global economy.[5]

In some respects innovation is deeply related to and encompasses entrepreneurship. While we depend on entrepreneurship to launch new business ventures, innovation also involves the creation of new business models, processes, or other major changes in existing enterprises.

So how are companies competing on innovation? They are approaching it as a team-based enterprise that more fully engages workers across major functions and levels. Today, workers are less likely to be asked to perform routine tasks in an isolated environment.[6] Rather, they are expected to work as members of cross-functional teams tasked with producing solutions for the larger enterprise. These teams often include members from other locations and companies throughout the world.[7] This changing organization of work requires employees to be experts in a subject domain or function, as well as have a broader understanding of how to apply their expertise as a member of a team. This includes foundational "soft skills" that are frequently lacking in job candidates and new recruits, such as teamwork, communication, problem solving, and critical thinking.

The team-based nature of innovation and the need for both depth and breadth in skills are quickly becoming key features of the modern workplace. This has significant implications not only for how we build innovation talent, but also for the education institutions whose mission is to prepare students for success in the race against routine work.

BUILDING INNOVATION TALENT

If our economy depends on our ability to compete on innovation, then we need an approach for preparing the talent that will sustain it. This approach must be designed to better reflect the current organization of work and the skills that are in demand by companies. It must also prepare existing and future workers to function effectively in teams driving new ideas at all levels.

The work of innovation cannot simply be taught; it must be practiced and supported by employers and their talent pipeline partners. The best way to build innovation talent is to immerse cross-functional and interdisciplinary teams of students in employer-sponsored challenges in need of solutions.

What Makes Challenges Different

- **Authentic**—Challenges must be a real business problem or opportunity rather than one constructed by educators. For individuals and teams to fully appreciate the gravity of the challenge, the work must engage students in a real and substantive way with actual stakeholders tied to the challenge resolution.

- **Business Sponsored**—Challenges must be sponsored by one or more employer stakeholders that have a vested interest in the solution. Challenges can also be sponsored by governments, nonprofits, or community-based institutions that rely on innovation to achieve societal goals.

- **Diverse**—Challenges engage various participants learning how to work effectively with people from different backgrounds and perspectives. This critical feature reflects the increasing diversity of the workplace and the changing demographics of an employer's customer base.

- **Team Based**—Challenges do not rest on the genius of any one individual or entrepreneur. They are interdisciplinary projects requiring a team-based approach. This requires skills that leverage each person's expertise while demonstrating a breadth of understanding on how any individual's contribution can inform the larger solution.

- **Ill-Structured**—Challenges must defy an immediate, apparent, or definite solution. They must allow for multiple approaches to advance a solution.

- **Student Led**—Challenges require solutions that are driven by students working as self-directed teams. Instead of instructor-led problem solving, teams are given tools to understand the challenge, pursue a solution, and learn collectively from success or failure. Business sponsors and instructors play a support role and intervene to maintain timetables, help teams reach a decision, and guide them past an impasse.

- **Scalable**—Challenges should be designed to engage multiple teams investigating a variety of approaches. The best challenges are those that can be crowdsourced to several project teams either competing against one another or collaborating on a solution.

- **Reflective**—Challenges at their core are a learning opportunity, even when executed on behalf of a business. Similar to how innovation occurs in the market economy, the ill-structured nature of the challenge requires a trial and error process among multiple and competing solutions. This mirrors how innovation works in a market economy.

With innovation serving as a cornerstone of how companies operate in today's economy, there are examples of where many of the features that define innovation-based challenges are beginning to take root inside of K-12 schools, postsecondary institutions, and community-based organizations.

K-12: In 2008, the Illinois Department of Commerce and Economic Opportunity, the Illinois State Board of Education, and the Illinois Mathematics and Science Academy launched a pilot program called Illinois Innovation Talent. The program matched middle- and high-school teams with industry partners that posed authentic challenges. The program began by pairing one corporate partner with one team. It later expanded to have several student teams assigned to a common challenge supported by one or more corporate partners. In three years, the program sponsored 42 challenges that reached 92 schools, 274 teachers, and 4,300 students.[8]

2-Year Postsecondary: The National Science Foundation (NSF) launched a program to improve STEM education in community colleges. NSF organized challenges where students—supported by faculty, the community, and business partners—proposed STEM-based solutions to real-world problems. The challenges focused on big data, infrastructure security, and sustainability (including water, food, energy, and the environment). Students were asked to explore their topics, identify an authentic problem, and propose a solution while articulating the underlying science and technology learnings that informed it.[9]

4-Year Postsecondary: The Liberal Education and America's Promise program launched by the American Association of Colleges and Universities, encourages teams of students to engage in unstructured problems with outside stakeholders. This requires them to use many skill sets common to a liberal arts education (e.g., critical thinking, communication, and problem solving).[10]

Community-Based Organizations: i.c.stars is a community-based nonprofit that uses a problem-based approach for teaching and supporting out-of-school youth. It focuses on connecting youth to employer-sponsored information technology and application challenges that address a real need. Students who successfully complete a project have the opportunity to continue working with their partner company and eventually be employed full time. Organizations like i.c.stars enable companies to tap into hidden talent outside of traditional education settings.[11]

These are just a few examples of how innovation is finding its way into education and training, and how education partners are interested in working with the business community to create a more authentic and scalable work experience. While we continue to learn from programs experimenting with how to best build innovation talent, we now turn to how business and education can partner to build on leading practices.

BENEFITS OF BUILDING INNOVATION TALENT

The need to build innovation talent has profound implications for how the business community can engage education and training systems to develop and source employees. Innovation challenges should not displace traditional work-based learning opportunities such as internships and apprenticeships. But they can add value to existing efforts and create shared value for all parties.

For education providers, moving innovation to the center of the curriculum helps establish strong connections between what students are learning in the classroom and the real-world application of that learning. In an environment where career readiness and preparation are increasingly a priority, challenges directly connect students to the world of work. They also provide equitable access to high-quality, real-world experiences that are often scarce with internships and other place-based opportunities.

Students benefit by having a more engaging curriculum where they can apply their teamwork and critical thinking skills to problems with stakeholders interested in their ideas, approaches, and solutions. Students also gain insight into a company or industry. They can begin to link to industry mentors and develop relationships with employers as they explore careers. For many students, this is an important and often missing networking opportunity.

Competing on innovation can also better engage opportunity youth—those who are disconnected from both school and work. Community-based providers and other intermediaries can find ways of involving disconnected youth in project experiences. These projects can be delivered outside the traditional education environment and often better reflect their mastery of skills and competencies. This engaging, project-based approach may prove to be more effective for youth who have not been successful in traditional education and work-based settings.

Employers also benefit when promoting innovation talent. For example, they can enhance their brand recognition and provide early exposure to the occupations on which their competitiveness depends. This is critical for students in the beginning stages of exploring their career interests. Challenges can also become more sophisticated and more representative of the work experiences that define an industry or company as a student progresses. For instance, firms can offer challenges to a preferred network of programs that enable students to pursue more advanced projects as they navigate their education pathways. Using such a strategy provides the business community with an excellent opportunity to cultivate talent and identify potential recruits.

IMPLICATIONS FOR DISRUPTING THE EDUCATION ENTERPRISE

As leading companies break down organizational boundaries to support the work of cross-functional and interdisciplinary teams, developing a new talent pipeline to support innovation requires businesses to work with partners to transform the education enterprise in a similar fashion.

COURSE AND PROGRAM SILOS

Employers and their partners must begin to eliminate silos between academic subject areas, between STEM and non-STEM programs, and between college- and career-readiness programs. For example, the idea of competing on innovation allows us to reimagine how Career and Technical Education (CTE) is delivered inside schools at both the high school and community college levels. Specifically, CTE could be redesigned to prepare all students, not just students pursuing programs of study that have historically not required four years of college or more. CTE would then serve as a hub where students from all academic and technical interest areas come together and form teams to register for business-sponsored challenges.

Similarly, colleges and universities can support innovation centers on campus so that students from diverse programs can register as members of teams. Colleges and universities can specialize challenges in industries to develop preferred-provider relationships that connect students to career transition opportunities postgraduation.

EDUCATION INSTITUTIONS

The idea of disrupting traditional silos extends beyond courses and programs. It can also impact institutions. One can imagine the possibility of organizing challenges that bring students together from different institutions and at different levels. In today's workplace, teams are seldom homogeneous in terms of knowledge, abilities, and experience. Instead, the most effective teams are often intergenerational with diverse perspectives, backgrounds, and skill sets. The business community can create challenges that enable students to come together in ways that are not easily achieved under the existing organization of education institutions. Paring students in high schools with students in colleges can also help youth better transition into postsecondary education.

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THE CREDENTIALING ENVIRONMENT

Competing on innovation can also disrupt the credentialing environment at all levels and offer new and creative ways for the business community to manage the quality of the challenge experience. By way of illustration, employers—either individually or as an industry—can credential, certify, or endorse students who successfully complete one or a series of challenges. This form of recognition—whether as a stand-alone credential or diploma endorsement—that is led by and for the business community can better signal that students have been vetted by employers and have proven to be effective contributors in driving innovation. This includes demonstrating skills such as communication, team work, and critical thinking, which are highly sought after by employers but seldom captured in today's credentials.

GLOBAL CITIZENSHIP AND ENGAGEMENT

Competing on innovation provides opportunities for the business community to break down barriers between countries. Many companies seek employees who have global skills and competencies and understand the need to compete based on access to global markets. Much more than language skills and cultural awareness, employers need workers who can solve problems across global markets and engage effectively with teams around the world. The power of crowdsourcing challenges on a global scale gives students opportunities to explore new solutions that may solve many of the most intransigent challenges facing the world.

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SCALING INNOVATION CHALLENGES THROUGH BUSINESS LEADERSHIP

For innovation challenges to become a central feature of the education system, employers must play a more expansive leadership role in designing and executing experiences in partnership with education providers. However, how can we scale in a manner that reduces the burden of implementation for all stakeholders and secures more employer participation?

While individual companies can pursue innovation challenge partnerships, networks of employers can achieve economies of scale. Specifically, business associations can support a range of challenges in a shared infrastructure. This infrastructure can provide challenge design support, school recruitment, marketing, and generally build capacity for their business members. Once activated, business associations could organize innovation challenges to achieve their members' objectives, whether promoting career awareness, recruiting talent, or both.

In addition, business associations can provide the support partnering schools need to effectively engage with employers. For example, for schools to implement challenges effectively, teachers must take on new roles as facilitators. This may require more professional development or training. To support this need, the business community can provide outside professional development that helps teachers learn how to manage employer-sponsored challenges. Alternatively, the business community can advocate for other stakeholders, such as state agencies, to focus professional development resources on supporting employer-sponsored challenges in their partner institutions.

Finally, business associations can leverage technology solutions that better manage and coordinate the work of all partners involved in implementing innovation challenges. This includes crowdsourcing technologies for recruiting students and teams, providing project management platforms to support challenge implementation, and linking social media profiles for advanced networking and even digital badging. All of this cultivates an ecosystem around innovation that can eventually scale and transcend traditional programs and silos.

> **How can we scale in a manner that reduces the burden of implementation for all stakeholders and secures more employer participation?**

CONCLUSION

Competing on innovation will continue to be a key driver of economic growth and competitiveness. Building the talent that can drive innovation in the economy will increasingly become a necessity for the business community and the education system from which they source talent.

While examples exist on how education partners are working with the business community to build innovation talent, we need to move these efforts to scale. We propose a road map for how to move forward in scaling these efforts with key roles for state and regional business associations.

State and regional business organizations—such as chambers of commerce and industry associations—can begin by engaging their business members in sponsoring challenge experiences as pilot projects that lead to new forms of credentialing or recognition for participating youth. Business groups can launch workshops for designing challenges in partnership with education. From there, the business community can create regional or multistate collaboratives that support a larger challenge infrastructure, encouraging greater access to and participation in business-led challenges.

The U.S. Chamber of Commerce Foundation is promoting and supporting state and regional pilot projects and will use these projects to explore how to scale challenges in the coming years. The Virginia Chamber Foundation, for instance, is taking the lead on this approach in its state through partnerships with local chambers and secondary institutions.

We invite you and your organization to join with the U.S. Chamber of Commerce Foundation and begin building innovation talent today. To learn more, visit **www.YouthEmploymentWorks.org**.

ABOUT USCCF'S YOUTH EMPLOYMENT SERIES

As employers continue to struggle to find the skilled workers they need to compete globally, the U.S. Chamber of Commerce Foundation (USCCF) commits to driving sustainable solutions that build capacity for employers to hire youth and young adults. USCCF's Youth Employment initiative engages chambers of commerce to explore how they are uniquely positioned to support the business community's efforts to create a talent pool of skilled workers. This series aims to highlight demand-driven approaches for chambers and other business associations looking to address youth unemployment to help America's economy grow, businesses remain competitive, and students access opportunities for success.

ABOUT THE CENTER FOR EDUCATION AND WORKFORCE

The Center for Education and Workforce is a program of the U.S. Chamber of Commerce Foundation, an affiliate of the U.S. Chamber of Commerce. The center is dedicated to strengthening America's long-term competitiveness through informing and mobilizing the business community to be engaged partners, challenging the status quo, and connecting education and workforce reform to economic development.

To learn more about how you can engage in the Youth Employment initiative, contact Erica Kashiri, director of policy and programs at the U.S. Chamber of Commerce Foundation's Center for Education and Workforce, at **ekashiri@uschamber.com**.

ENDNOTES

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8.   Illinois Mathematics and Science Academy (IMSA), *2009 Illinois Innovation Talent Pilot Project Program Summary*, Aurora: IMSA for Program Years 2009, 2011, and 2012.

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10. Association of American College & Universities (AAC&U), *The Leap Challenge: Education for a World of Unscripted Problems*, www.aacu.org/leap/challenge.

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COMPETING ON INNOVATION

Disrupting the Education Enterprise to Build Tomorrow's Talent, Today

Today, companies will increasingly compete on innovation...

IMPROVE → ADAPT → REINVENT

And so will workers...

Jobs are changing, putting all workers in a race to gain the skills they need to advance their careers.

WE NEED TO PREPARE YOUNG ADULTS TO BE DRIVERS OF INNOVATION IN TODAY'S ECONOMY.

BUILDING INNOVATION TALENT

Our education and training systems need to offer experiences, sponsored by the business community, that reflect today's world of work.

THE NEW ORGANIZATION OF BUSINESS	EMPLOYER REQUIREMENTS	TRANSFORMING CAREER PREPARATION
NON ROUTINE	Every worker possess **both a breadth and depth** of skills to drive solutions for the larger enterprise.	Students demonstrate **both deep technical knowledge and a broader understanding** of how to apply their expertise as a member of a team.
TEAM BASED	Workers engage as members of **cross-functional teams** that drive innovation through problem solving.	Real-world challenges are solved by **teams of students** from diverse backgrounds.
SOLUTION DRIVEN	Workers at all levels **continuously innovate** to develop new ideas and solutions.	Challenges are unbounded to allow for **multiple approaches** to advance a solution.

IMPLICATIONS FOR DISRUPTING THE EDUCATION ENTERPRISE

✓ Break down academic silos and institutional barriers

✓ Promote credentials that recognize innovation experiences

✓ Signal globally competitive skills and career readiness to employers