MAPPING COMMUNITY COLLEGES AROUND THE WORLD

Comparative Perspectives and Collaborative Pathways

An Ecosystems Approach: Partnerships, Innovation, and Workforce Development

ISSUE 4

ACCT ASSOCIATION OF COMMUNITY COLLEGE TRUSTEES

STARSCHOLARS NETWORK

About ACCT

The Association of Community College Trustees (ACCT) is a non-profit educational organization of governing boards, representing more than 6,500 elected and appointed trustees who serve on over 500 governing boards of community, technical, and junior colleges in the United States and beyond.

ACCT's mission is to foster the principles and practices of exemplary governance while promoting high quality and affordable higher education, cutting-edge workforce and development training, student success, and the opportunity for all individuals to achieve economic self-sufficiency and security.

In accordance with this mission, ACCT seeks to facilitate global learning and engagement by its member institutions in order to prepare students to succeed in an increasingly interconnected world and globalized workforce. With staff expertise in international education and a network of institutional leaders and practitioners, ACCT's global education programs are designed to broaden access to international education for an underserved sector and student population; provide needed technical and capacity building assistance; and identify and disseminate innovative solutions and good practices.

About STAR Scholars Network

The STAR Scholars Network is a global consortium of researchers, scholars, and academic leaders committed to advancing transnational research, academic mobility, and international collaboration. With over 33, 000 members across more than 100 countries, the network supports scholarly exchange through publications, conferences, and mentoring programs. Our mission is to promote inclusive global scholarship and foster equitable partnerships that uplift historically underrepresented voices in academia.

Edited by Robin Matross Helms, Ph.D. and Krishna Bista, Ed.D.
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ABOUT THIS SERIES

Mapping Community Colleges Around the World: Comparative Perspectives and Collaborative Pathways reflects a strategic collaboration between the Association of Community College Trustees and the STAR Scholars Network. This series of briefs:

- Highlights effective regional, national, local, and institutional policies and programs that support, fund, evaluate, and strengthen community colleges and similar institutions, and enable them to fulfill their missions and goals.
- Identifies structural, operational, programmatic, and curricular frameworks and good practices around the world that can serve as models for the development of institutions and educational systems in other geographic contexts.
- Investigates the challenges facing community colleges and their global counterparts, as a means toward developing shared solutions as well as contextually specific approaches.
- Explores synergies that can serve as the basis for mutually beneficial partnerships and collaborations that engage institutions, industry, and government to promote student success and socioeconomic development.
- Celebrates the successes and contributions of this unique educational sector, amplifies its visibility, adds to the body of scholarly literature and knowledge, and identifies areas for additional research.

In designing this publication, we have adopted a true community college ethos. Like our institutions, we've emphasized access, proactively tapping our collective networks to invite a wide array of contributions and voices and enabling wide distribution. Throughout the series, you'll find articles written by trustees, institution presidents and leaders, scholars, practitioners, and industry partners, which collectively provide a rich and nuanced array of insights and represent a unique contribution to scholarship and our collective understanding of community colleges and their impact worldwide.

We encourage you to share the publication widely, and hope it inspires continued dialogue and innovation that benefit our students, institutions, local economies, and ultimately, our shared global community.

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Editors' Introduction

Welcome to the fourth installment of *Mapping Community Colleges Around the World*! This volume aims to inform educators, policymakers, and industry leaders seeking to strengthen the connection between education and the future of work.

Across the globe, workforce development has emerged as one of the most pressing challenges facing higher education systems. Rapid technological change, demographic shifts, globalization, and evolving labor market demands have transformed the skills required for meaningful employment. Institutions that once focused primarily on knowledge transmission are now expected to play a far more active role in preparing learners for dynamic careers, fostering economic mobility, and supporting regional and national development. Community colleges and their international counterparts are uniquely positioned to respond to these demands due to their strong connections with local communities, industries, and diverse student populations.

This volume brings together scholars, practitioners, and industry leaders to explore innovative approaches for preparing the next generation of skilled workers. The articles illustrate how collaboration among educational institutions, governments, industries, and communities can strengthen workforce pipelines while promoting equitable access to opportunity.

The volume begins by examining the broader workforce context shaping higher education today. Volzer highlights the growing shortage of skilled workers in the United States manufacturing sector and the urgent need for coordinated strategies that engage community colleges, industry leaders, and policymakers to build sustainable talent pipelines. This national perspective establishes the importance of systemic responses to workforce challenges.

Building on this context, Riobé offers a global lens by examining workforce development initiatives in Peru. Her analysis emphasizes the importance of collaboration between educational institutions and industry partners, demonstrating how shared strategies and international dialogue can improve alignment between academic programs and regional labor market needs. Similarly, Brandenburg and colleagues introduce the concept of Internationalization in Higher Education for Society (IHES), which reframes internationalization as a mechanism for addressing societal challenges and expanding global competencies beyond the campus.

Several articles then explore institutional and system-level innovations that respond to workforce transformation. Abraham and colleagues present a case study of Miami Dade College's comprehensive workforce education blueprint, demonstrating how large urban institutions can partner with government agencies and industry leaders to develop responsive programs in areas such as artificial intelligence, healthcare, and advanced technology. Beecher and Wynn complement this perspective by illustrating how statewide coordination supported by technology platforms can strengthen partnerships between community colleges, industry, and government stakeholders. And in line with ACCT's mission and focus, Parson's article explores the role of trustees and governing boards as connectors between the college and local community.

Other contributions examine emerging models of workforce education grounded in collaboration and experiential learning. Looker describes how Algonquin College's Human-Centred Design Lab integrates industry partnerships into the curriculum, allowing students to work on real-world challenges while developing critical problem-solving skills. Venugopal and Rose highlight industry-driven initiatives in India that align academic programs with the needs of rapidly evolving technology sectors through hackathons, mentorship programs, and collaborative curriculum design.

Workforce development also depends on removing barriers that prevent students from fully engaging in their studies. Hardiek's article demonstrates how ensuring immediate access to course materials can significantly improve student engagement and retention, reinforcing the importance of addressing basic student needs as part of workforce preparation strategies.

Finally, Slotte's article explores the complex relationship between international student mobility and workforce integration in Finland. By examining internship systems and employer participation, the article highlights the need for ecosystem-based approaches that connect higher education institutions, employers, and government agencies to support both domestic and international talent development.

The articles in this volume reveal a common theme: effective workforce development requires collaboration across sectors and borders. Institutions must move beyond isolated initiatives toward coordinated strategies that integrate curriculum design, industry engagement, student support services, and international partnerships.

Community colleges and similar institutions worldwide are central to this effort. Their mission of access, responsiveness, and community engagement positions them as critical actors in building inclusive workforce systems that prepare learners for the challenges of the twenty-first century.

Special thanks to colleagues Erin Baldwin and Lindsey P. Myers for their contributions to editing this volume.

Building the Next Generation of Skilled Workers: SME's Manufacturing Imperative—Workforce Pipeline Challenge

Deb Volzer
Vice President, Workforce Development, SME

The U.S. manufacturing sector faces an unprecedented workforce shortage. With over 600,000 positions currently unfilled, the gap is projected to grow to 4 million unfilled positions by 2030 (SME, 2024). This shortfall jeopardizes national security, economic stability, and the competitive advantage of US industry. Left unaddressed, the economic impact could exceed $4 trillion in lost GDP, and the offshoring of manufacturing operations could accelerate. Simultaneously, the country has an untapped talent pool of 8 million young adults aged 18–24 who are not currently pursuing post-secondary education or engaged in the workforce. Recruiting and reskilling these individuals, along with unemployed and underemployed adults, is vital to securing the future of US manufacturing.

SME has supported manufacturing for 90 years, from our founding as the American Society of Tool Engineers, to our evolution to the Society of Manufacturing Engineers in 1969, to becoming SME in 2013. SME is dedicated to advancing the manufacturing industry through technological innovation, workforce development, and unprecedented partnerships – including with the education sector. Through its expertise in engaging employers, developing advanced manufacturing curricula, and fostering collaboration, SME empowers community colleges to build robust manufacturing workforce pipelines.

The Manufacturing Imperative – Workforce Pipeline Challenge (MI-WPC) is a key example of SME's collaboration with community colleges. Launched in September 2023, the MI-WPC is a transformative initiative designed to address critical workforce shortages in manufacturing by partnering with 25 diverse community colleges across 17 states. Its first year saw considerable progress among participating colleges and shared challenges that will inform the development and evolution of the program going forward.

Phase 1: Initial activities and outcomes

In its inaugural phase, the MI-WPC set out to assess the unique challenges and opportunities within each college's community; foster collaboration among stakeholders; collect actionable data; and develop individualized strategic plans to meet local needs.

The initial assessment of challenges and opportunities highlighted shared priorities across participating colleges, including:

- Engaging small and medium-sized manufacturers to strengthen partnerships
- Expanding career awareness and outreach to attract new learners
- Aligning programs with learner needs through flexible modalities
- Strengthening connections with community-based organizations (CBOs) and
- Increasing program capacity through faculty, funding, and facilities.

To address these priorities, the MI-WPC implemented three cornerstone strategies:

1. **Council leadership:** The program activated three advisory councils—Champion's Advisory Council, President's Advisory Council, and the Manufacturing Association Advisory Council—to provide holistic perspectives on workforce barriers and best practices. These councils were designed to collaborate across levels, ensuring the voices of industry and education were mutually informed and aligned.

2. **Insight studies:** Focused research was conducted to uncover industry needs, learner barriers, and opportunities to leverage community based organizations. These studies will inform actionable strategies and solutions, paving the way for improved employer engagement, enhanced outreach, and reduced barriers for learners.

3. **Expanded support and resources:** To meet growing demands, the MI-WPC team expanded significantly, increasing its staff, and providing participating colleges with a) tools to enhance career outreach, b) access to the Tooling-U-SME comprehensive online course catalog, and c) partnerships for targeted learner engagement. These resources empowered colleges to innovate, scale programs, and connect with underserved populations.

Throughout the first year, the MI-WPC worked to influence systemic change by addressing barriers, advocating for policy shifts, and sharing best practices across colleges and federal agencies. With over 14,000 course completions and 280 learners enrolled in online programs via Tooling-U-SME, the initiative shows early signs of success. This ambitious program is more than a response to the workforce gap; it is a commitment to revitalizing the manufacturing sector as a cornerstone of America's middle class. MI-WPC directly supports national priorities to secure and expand US capacity for advanced manufacturing.

Phase 2: Increasing awareness, access, and capacity

Early on, MI-WPC's data collection and analysis surfaced three critical challenges:

1. **Public perception of manufacturing:** The widespread misconception of manufacturing as a "dirty, dark, and dangerous" industry continues to hinder recruitment efforts. This negative image, coupled with a lack of career awareness and general knowledge of manufacturing opportunities, discourages learners from pursuing such careers.

2. **Access:** Large, untapped talent pools exist among traditionally underserved populations, including veterans, justice-involved learners, and homeschool students. The lack of viable academic pathways limits these students' potential to contribute to the manufacturing workforce.

3. **Capacity:** Increasing manufacturing and STEM course offerings is often hindered by difficulties in recruiting qualified instructors, due largely to the salary disparity between industry and higher education positions. Limited funding restricts efforts to upgrade facilities, acquire modern equipment, and provide competitive compensation for instructors.

Addressing such systemic issues requires targeted, supported, and innovative strategies to ensure sustainable progress. As described in the subsequent sections, participating colleges made notable progress in tackling these challenges during Phase 1 of the initiative; going forward these challenges have served as a framework and focus for Phase 2 and beyond.

Increasing awareness and addressing negative public perception

To combat negative perceptions of the manufacturing sector, it is crucial to engage the community by highlighting the benefits of these careers and showcasing the modern, dynamic working environment. Achieving this goal requires a collaborative effort from all stakeholders to drive meaningful change. In its first year, MI-WPC focused on increasing enrollment and engaging in manufacturing and STEM programs by mitigating misconceptions and introducing otherwise hidden career opportunities.

Across 25 colleges 2,113 events were held, engaging 42,976 individuals. More than half of the events targeted high school students. Thirty-four percent of the events included faculty presentations, further engaging the community and sharing valuable information about manufacturing education and career opportunities. A popular outreach strategy was summer camps, which provided K-12 learners with the chance to explore manufacturing career pathways and develop STEM competencies, preparing them for future educational journeys.

Dual enrollment programs provide high school students with an early opportunity to gain valuable skills and credentials for in-demand careers, creating a seamless transition into higher education and accelerating their readiness for the workforce. MI-WPC colleges have successfully engaged secondary schools through dual and concurrent enrollment programs, reaching 9,140 dual credit students. This included more than 1,000 sections, 669 unique courses, and 2,596 certificates awarded; among these, welding courses were particularly popular, reflecting strong industry demand.

While dual credit programs effectively equip learners with marketable skills prior to graduation, scaling these efforts will require additional resources and strategic partnerships. Courses in some fields, such as welding, consistently attract both secondary and post-secondary students due to their accessibility and high demand; however other manufacturing and STEM fields, such as machining, maintenance, and mechatronics, often remain under-enrolled and overlooked. To meet the industry's workforce needs, targeted career awareness strategies are essential to raise interest in these lesser-known programs.

Increasing access to expand talent pipelines

Addressing workforce demands requires colleges to actively engage all available populations, including veterans, youth, unemployed workers, and justice-involved individuals.

Veterans: Of the MI-WPC colleges, 95% reported having dedicated strategies to support veterans, including community networking, financial assistance, and specialized programs. Veterans are an exceptional talent pool for manufacturing because they bring strong technical skills, as well as enduring skills such as discipline, safety awareness, teamwork, adaptability, and leadership, developed through military service.

Justice-involved Individuals: 62% of participating colleges supported targeted initiatives to serve justice-involved individuals over the past year. These efforts not only reduce recidivism, contributing to public safety and community stability, but also provide a vital talent pipeline for the manufacturing industry. In the past year alone, participating colleges awarded 245 industry-recognized certificates across 19 programs to justice-involved individuals, with welding and OSHA 10 certifications being the most in demand.

Homeschool students: An often-overlooked group in the broader educational landscape, these learners offer untapped potential for enriching the manufacturing talent pipeline. By providing homeschooling families with access to manufacturing and STEM-focused programs, colleges can engage students who thrive in more individualized learning environments. These students, who often demonstrate high levels of self-direction and motivation, are uniquely positioned to benefit from flexible, hands-on education that prepares them for careers in the manufacturing sector.

To effectively reach this demographic, partnerships between colleges and homeschooling networks are crucial, offering targeted programs and dual enrollment options that cater to their unique educational needs. Providing these students with early exposure to industry-recognized credentials and real-world experiences will foster a new generation of skilled workers who are prepared to meet the demands of the evolving manufacturing industry.

Building capacity

To effectively expand the workforce talent pipeline, colleges must increase the availability of manufacturing and STEM courses. In year one of the MI-WPC, participating colleges successfully expanded their offerings by adding over 400 new courses and 4,390 total sections; 3,312 of these were STEM-related, underscoring the strong alignment with high-demand fields. This expansion engaged 9,285 new learners. Despite these achievements, challenges such as the availability of qualified instructors and the need for funding to acquire new course equipment remain critical hurdles to overcome.

Beyond the addition of traditional STEM courses and short-term training programs, participating colleges have also prioritized the development and expansion of apprenticeship programs. These programs are viewed as a promising workforce strategy, offering clear career pathways, and facilitating economic mobility. To bolster apprenticeship enrollments, colleges sought support from local manufacturers, emphasizing the value of these "earn-and-learn" opportunities.

Conclusion

In its inaugural year, the MI-WPC program achieved significant milestones, laying the foundation for future growth and demonstrating the program's transformative potential in manufacturing education. Addressing challenges in public awareness and perception, capacity, and access has produced strong results. Nonetheless, challenges such as faculty shortages and funding gaps remain persistent obstacles. Addressing these issues with targeted investments, improved communication, and strategic resource allocation will be essential for ensuring the program's long-term success. Entering its second year, MI-WPC translated these insights directly into strategy, positioning the program to sustain momentum and deliver on its ambitious vision for impact.

Year two significantly accelerated both the scale and impact of the program. To date, the MI-WPC has enrolled nearly 45,000 net new students, delivered close to 4,000 events across participating colleges, and—through a targeted demographic study with eight institutions—referred nearly 2,000 learners into aligned education and career pathways. In total, these efforts have reached almost 700,000 unique individuals, substantially expanding awareness, access, and engagement across participating states.

In the final year of the MI-WPC, we are moving from momentum to full execution. We will operationalize proven best practices to achieve 100% college participation in Manufacturing Day/Month activities (up from nearly 90%), address critical faculty shortages through focused recruitment and retention strategies, and scale the use of industry-aligned curriculum, ensuring clear, connected pathways that translate education into employment outcomes.

About the author

Dr. Deb Volzer is Vice President, Workforce Development at SME, where she leads national strategies to drive economic mobility and innovation in manufacturing to meet current and emerging industry needs. With 25+ years in higher education and 15 in government relations, Dr. Volzer aligns industry needs with programming for resilient populations. She was the architect of the Manufacturing Imperative - Workforce Pipeline Challenge, partnering with 25 colleges across 17 states to increase talent and drive economic mobility.
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Global Competency and Workforce Development: Lessons from Peru

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"If you want to go fast, go alone. If you want to go far, go together." This African proverb resonates deeply with the work of global workforce development. Lasting, impactful change cannot happen in isolation but through collaboration, alignment, and shared purpose.

In November 2023, I had the privilege of traveling to Peru as an invited speaker by the U.S. Embassy to discuss workforce development with Peru's *institutos* and their corporate and governmental partners. The visit to Peru reaffirmed that no matter the geographic location, building a skilled, adaptable workforce requires collaboration, innovation, and intentional alignment with local economic needs.

Shared challenges: Diversity and local alignment

One of the most striking parallels between Peru's *institutos* and U.S. community colleges is their diversity. Just as American community colleges serve urban, suburban, and rural populations, Peru's *institutos* reflect the country's varied geography—from bustling cities like Lima to rural and mountainous regions. This diversity shapes the institutions' characteristics, funding sources, and the student populations they serve. It also presents significant challenges, particularly in aligning programs with regional workforce demands.

During my visit, a recurring theme among Peru's *institutos* was the disconnect between academic offerings and local industry needs. For instance, *institutos* in agricultural regions often need more programs in modern farming technologies. At the same time, those in urban centers sometimes fail to prepare students for jobs in technology, logistics, or finance. This misalignment leaves students underprepared for the workforce and frustrates employers seeking skilled talent.

The challenges faced by community colleges are similar in the United States, but industry-specific partnerships have helped bridge the gap. For instance, community colleges design curricula that reflect evolving labor market demands by collaborating with local businesses. This responsiveness ensures that students graduate with skills aligned to real-world opportunities. However, Peru's *institutos*, particularly in underfunded rural areas, often need more resources or systems to foster such collaboration. Their decentralized funding structures amplify disparities, leaving some institutions struggling to innovate and adapt to community needs.

Transferability: A missed opportunity

A significant difference between the two systems lies in transferability. Formal partnerships between community colleges and four-year universities in the United States create pathways for students to transfer from associate degrees to bachelor's programs. Access to continued education pathways enhances the value of community college credentials and empowers students to pursue higher-paying, specialized careers.

In Peru, transferability between *institutos* and universities is limited or nonexistent. This siloed structure isolates technical education from traditional academic pathways, creating barriers for students who want to continue their education. For Peru's workforce, this lack of upward mobility stifles the development of a dynamic and versatile talent pipeline. The absence of seamless education pathways forces students to choose between technical training and higher education, limiting their long-term economic potential.

Collaboration as the key

Despite these challenges, the principle remains clear: We can go further by working together. In Peru, observations of how collaboration is already shaping progress were inspirational. The Ministry of Education is central in fostering partnerships between *institutos* and industry. Convening educators, employers, and government officials ensures that conversations about workforce needs are inclusive and actionable. This centralized approach offers valuable lessons for the U.S., where partnerships are often institution-led and need more national coordination.

During conversations with instituto leaders, emphasis focused on their unique role as conveners—bridges between education and industry. Like U.S. community colleges, *institutos* are well-positioned to foster relationships that benefit students, employers, and entire communities. Strategies that have proven effective in the United States, including industry-specific roundtables facilitating ongoing dialogue between educators and employers, were piloted. These partnerships ensure curricula remain aligned with labor market demands while creating opportunities for experiential learning, such as internships and apprenticeships.

A framework for engaging industry partners

This model offers a comprehensive framework for industry engagement (Riobé, 2023) that can be adapted to diverse local contexts. Grounded in workforce development practices emerging from U.S. community colleges, the model integrates a six-step process for identifying regional industry needs with a parallel six-step strategy for cultivating and sustaining industry partnerships, strengthening alignment between education and employment.

How to Understand Local Workforce Needs

1. **Identify key industry partners:** Research influential industry players and trade associations to prioritize sectors with the most pressing workforce needs.
2. **Build relationships:** Establish trust through consistent engagement—attend industry events, host networking opportunities, and hold one-on-one meetings with stakeholders. Furthermore, connect with and leverage alumni networks.
3. **Communicate the benefits:** Highlight the mutual value of educational partnerships, including access to skilled workers, opportunities to shape curricula, and solutions to labor shortages.

4. **Collaborate on an agenda:** Co-create focused agendas that address sector-specific challenges, ensuring meetings yield actionable outcomes.
5. **Facilitate dialogue:** Encourage open, meaningful discussions that identify shared priorities and practical solutions during industry roundtables.
6. **Follow up and follow through:** After meetings, develop and implement action plans to maintain momentum and demonstrate the value of ongoing collaboration.

This framework sparked meaningful dialogue with instituto leaders, who saw its potential to foster stronger industry relationships and drive innovation in their programs.

Building pathways to economic mobility

Aligning curricula with workforce demands and fostering industry partnerships are critical, but creating pathways is equally important. In the U.S., community colleges have shown that upward mobility happens when technical education connects to higher education and employment. These pathways give students options—entering the workforce immediately, pursuing further education, or both.

In Peru, expanding transferability between *institutos* and universities could unlock greater economic opportunities for students. By creating seamless transitions, Peru's educational system can better support lifelong learning and career advancement while meeting the evolving needs of its economy.

Lessons learned and shared

The experience in Peru highlighted that the challenges faced by educational institutions are universal—but so, too, is the potential for collaboration to overcome them. Whether in the Andes or the Midwest, the goal is the same: To prepare students for meaningful careers while strengthening local economies.

For Peru's *institutos*, this means building relationships with industry partners and advocating for systems that allow transferability and alignment across educational sectors. For U.S. community colleges, Peru's centralized coordination offers a valuable model for fostering national support and cohesion in workforce development efforts.

The transformative power of education

Community colleges in the United States—like Peru's *institutos*—are engines of economic mobility. They offer second chances, career pathways, and opportunities to build generational wealth.

In Peru, there is a strong presence of leaders with the same passion and resolve to serve their students and communities. Their resilience and commitment were inspiring. They reminded me why this work matters: Education has the power to change lives. But we cannot do it alone. Collaboration—among educators, employers, and policymakers—is the key to creating systems that truly meet the needs of students and the workforce.

Moving forward together

The proverb says it best: *If you want to go fast, go alone. If you want to go far, go together.* By working together across borders and systems, we can learn from one another and create educational pathways that build stronger, more competitive, and more connected workforces. Reflecting on this time in Peru fills me with gratitude for the opportunity to contribute to this global conversation. The challenges may be complex, but the potential for impact is limitless. Together, we can create educational systems that transform lives and empower future generations, no matter where they are in the world.

Reference

Riobé, F. (2023). *Internationalizing a community college curriculum: Global jobs for a global world* (Doctoral dissertation, Ferris State University). Ferris State University.

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Internationalization in Higher Education for Society (IHES): Collaborating for Community Impact

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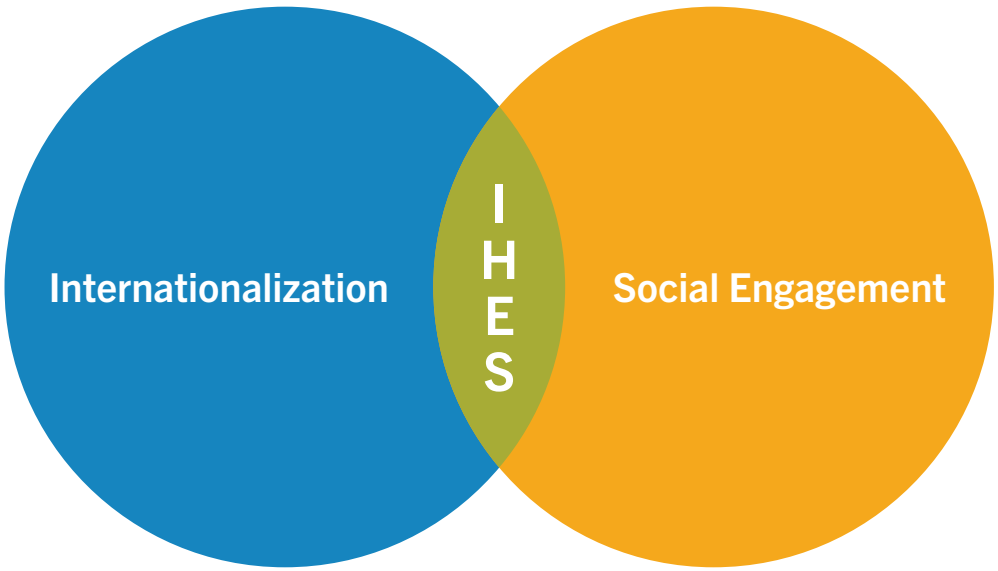
Introduction: IHES concept and goals

Over the last five years, the concept of Internationalization in Higher Education for Society (IHES) has gained traction, especially in Latin America. Coined by Uwe Brandenburg from the Global Impact Institute and developed with professors Hans de Wit, Elspeth Jones and Betty Leask in 2019, it describes the power and dynamics of using internationalization in higher education – student and faculty mobility as well as "internationalization at home" activities such as virtual exchange, and bringing global dimensions to the on-campus curriculum – to develop global mindsets in the wider population outside higher education.

With the rise of many global crises and shared challenges, such as climate change, it has become obvious that higher education internationalization, which is often focused internally on institution-level strategies and activities, has to be understood in a wider societal framework. While many higher education institutions – particularly community colleges and institutions with similar missions around the world – have robust social engagement frameworks and operations, often there is little connection or interplay between these activities and internationalization. IHES is situated in the overlap between social engagement and internationalization, bridging a critical gap and amplifying the impact of institutions' work in both areas.



In practical application, IHES instrumentalizes the international assets of higher education institutions for the benefit of the wider community, with the goal to create global minds in all citizens of a country, county, region, or city – a growing necessity in an interconnected world. A hallmark of the IHES approach is leveraging resources and expertise already available at higher education institutions (e.g., incoming international students and staff, campus members with an international background, faculty who have undertaken collaboration with global counterparts, students returning from an education abroad experience) to bring global perspectives to the wider public through structured engagement and projects, and at no significant cost to the institution or community.

IHES is especially powerful in settings of small regional higher education institutions in rural areas outside of metropolitan centers/capital cities, including many community colleges whose missions are deeply embedded in local development. It is a win-win approach because all stakeholders benefit: communities expand their global outlook and become more competitive globally; students improve their teaching/training/mentoring skills when working with audiences outside higher education; and faculty/scholars have opportunities to apply scientific approaches to practical problems and concrete societal challenges.

IHES in action: Global examples

Europe

The Global Impact Institute (GII), based in the Czech Republic, has spearheaded multiple Europe-based IHES projects in recent years, including several funded by Erasmus+. Erasmus+ is the European Union's flagship program for education, training, youth, and sport, supporting cross-border cooperation, innovation, and capacity-building. It builds on the original ERASMUS student mobility program launched in 1987, and as of 2025 has supported over 13 million learners, educators, and youth participants across Europe and partner countries worldwide. These projects include:

- **The Diverse Internationalization of Teacher Education (DITE) project** (Nov 2021–Oct 2024) aimed to strengthen the internationalization of teacher education by sensitizing future teachers to international perspectives and embedding diverse global dimensions into teacher-training curricula. The consortium involved higher education institutions from Poland (University of Szczecin; Adam Mickiewicz University), Portugal (University of Porto), Spain (Rovira i Virgili University), the Czech Republic (Global Impact Institute) and the SGroup network, working together on research, training modules, and tools to support inclusive internationalization practices and to inform policy dialogue at the European Union (EU) level.
- **The SENSEI Academy** (2023-2026) is one of a highly selective group of 16 EU Teacher Academies funded under the Erasmus+ "Partnerships for Excellence" action. It focuses on embedding inclusion in teacher education, and supporting future and in-service teachers in developing inclusive, intercultural, and socially responsive teaching practices. Core activities include co-developing joint curricula and micro-credentials, piloting inclusive teaching approaches in schools, international staff collaboration and mobility, applied research, and structured partnerships between higher education institutions and school communities across Europe.
- **The VIVES University of Applied Sciences** in Belgium developed a holistic global engagement policy – People, Planet, Prosperity, Peace, Partnership – which encompasses their entire strategy and education. They developed their own Global Engagement in Higher Education 2030: An Inspirational Framework, based on the United Nations Sustainable Development Goals. This framework resulted in community-oriented learning formats such as challenge-based courses with local stakeholders, sustainability projects with municipalities and NGOs, student-led social innovation initiatives, and long-term partnerships addressing regional social, environmental, and economic challenges.

Latin America

For Latin American institutions, the integration of teaching, research, and community engagement is not new. These institutions have long responded to local and global societal demands through community engagement (Labraña et al., 2023). They also reflect on their role within the societies they serve, considering both local connections and internationalization projections. These institutions emphasize the importance of engaging with both local and international communities to seek joint solutions (Cassol et al., 2023).

This integration is underscored by national legislation and policies throughout the region. Key themes across the legislative objectives of the Latin American higher education sector, as identified by the UNESCO International Institute for Higher Education in Latin America and the Caribbean (UNESCO/IESALC) Higher Education Policy Observatory include social responsibility, culture, and sustainability (UNESCO/IESALC, 2024). Further region-level analysis indicates that the top five dimensions and objectives specified in individual countries' national higher education plans are access, inclusion, quality, internationalization, and relevance. Taken together, these policies constitute a clear mandate for the higher education sector to respond to socio-economic challenges faced by the region, with a global lens and interface. IHES seems to be the binding framework for these ideas; examples of successful projects include:

Chile

- **Become Glocal** has concluded; however, it remains a highly valuable experience for students, academics, and companies in Chile, Colombia, The Hague, and Spain. The initiative contributed to the development of courses aimed at strengthening international awareness among students, while also supporting academics in designing and delivering curricula that respond to the demands of an increasingly interconnected global context.
- **BeGlobal** is currently entering its third year of implementation. The project has facilitated meaningful connections among NGOs, students, academics, and higher education institutions in Finland, France, Chile, and Colombia. Through gamification-based methodologies, the BeGlobal project promotes the integration of a global perspective into teaching practices and community engagement initiatives, fostering active global citizenship and collaborative learning.
- **LIVETAPLA** has developed an online platform that showcases a range of IHES projects implemented across Latin America. The platform aims to highlight good practices and facilitate the identification of potential partners for future collaborative initiatives. In addition, LIVETAPLA has organized several workshops designed as co-creation spaces to advance an IHES model tailored to Latin American institutions and aligned with regional needs.

Brazil

- **PalmaSolar** is a community-based photovoltaic project developed in Conjunto Palmeiras, Fortaleza (Ceará), within the ecosystem of initiatives led by Banco Palmas. Designed to address energy vulnerability among low-income households, it aims to reduce electricity costs while expanding access to renewable energy. The Instituto Federal do Ceará (IFCE), part of Brazil's Federal Network of Professional, Scientific and Technological Education, played a central role in structuring the project's technical, educational, and research dimensions.

In partnership with the Deutsche Sparkassenstiftung für internationale Kooperation, IFCE provided technical consultancy, delivered training for residents and community agents, and conducted applied research on socio-economic impacts (IFCE, 2025). Through workshops, participatory diagnostics, and operational support, the institution adapted internationally informed methodologies to local socio-territorial realities. The project led to measurable reductions in electricity expenditure and strengthened community autonomy and local capacity for sustainable energy management.

- **SENAI CIMATEC**, based in Salvador (Bahia), integrates higher education, applied research, and industrial innovation within Brazil's Serviço Nacional de Aprendizagem Industrial (SENAI). Over the past decade, it has built an extensive international cooperation network to strengthen research and innovation governance. Strategic partnerships with the Fraunhofer-Gesellschaft (Germany) and the Massachusetts Institute of Technology (MIT) in the United States consolidated internationally benchmarked methodologies and technological capabilities.

During the COVID-19 crisis in 2020, SENAI CIMATEC mobilized this capacity to coordinate the adaptation and national production of ventilators originally designed by NASA. The technology was licensed, re-engineered to meet Brazilian regulatory standards, and produced with the Brazilian company Russer. Delivered to municipal health systems nationwide, the ventilators expanded intensive care capacity. Sustained international cooperation proved instrumental in enabling this rapid and socially impactful response.

Outcomes and impact

In projects where systematic evaluation frameworks have been implemented, such as the IHES and DITE initiatives, a mixed-methods approach combining quantitative and qualitative evidence has proven fruitful. Quantitatively, pre-to-post surveys were used at multiple levels to capture change over time, including shifts in personality traits, attitudes and values, perceptions and opinions, as well as self-reported learning outcomes and competence development. Qualitatively, impact was explored through the systematic collection of individual stories, change pathways, and participant reflections, allowing the project to trace how and why change occurred in different contexts. These narratives were used not as standalone anecdotes, but to contextualize and illustrate quantitative findings, strengthening interpretation and credibility.

As a next step, IHES aims to further systematize impact measurement by introducing longitudinal follow-up surveys, more structured outcome indicators, and deeper integration of qualitative case studies to better capture medium- and long-term effects at individual, institutional, and community levels.

Advice for community colleges seeking to adopt an IHES approach

Our analysis suggests that IHES works well and is transferable both geographically and institutionally. It is particularly well aligned with community colleges, as it strategically connects internationalization with their existing mission of community engagement and social responsibility.

For community colleges beginning to take an IHES approach, the key first step is to anchor international activities in concrete local needs. This process begins by first engaging local stakeholders such as community organizations, associations, schools, municipalities, and public authorities, to jointly identify the most pressing societal challenges in the region. These challenges should then be discussed with students, for example in seminars or project-based courses, to explore which issues the community college could realistically address through international, intercultural, or collaborative activities. Based on this reflection, a limited number of focused project ideas should be selected and discussed in depth with the relevant stakeholders.

Effective IHES initiatives are co-created with the community: projects are developed collaboratively, with community partners actively shaping objectives, activities, and expected outcomes. Each IHES initiative should be treated as a service-learning project, where the community partner acts as the key decision-maker and ultimate "client," and student learning is intentionally linked to tangible societal impact.

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Meeting the Workforce Call to Be Future Ready: Miami Dade College's Approach

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Across the nation, workforce demands are undergoing rapid and unprecedented transformation in what might be called the greatest workforce disruption since the Industrial Age. This shift is characterized by a dual challenge: employers seeking adaptable employees for positions still "under development" and employees seeking flexible, innovative training for new or expanded skills. At the same time, local governments are eager for partnerships to ensure their communities have opportunity.

Amidst this workforce transformation, Miami Dade College (MDC), one of the largest in the nation, reimagined work-based learning and developed an educational blueprint with industry, governmental, and college partners, leveraging policies and accessing targeted funding to further solidify its role as the community's workforce development engine. Applying this workforce education blueprint in emerging technology, nursing, education, and automotive industries yielded a transportable model. This article offers a case study of MDC's replicable workforce education blueprint and provides valuable lessons for community colleges seeking to address workforce disruptions and create responsive, future-ready programs.

A brief background of Miami Dade College

Since its founding in 1960, MDC has transformed lives and served as an economic engine for Miami-Dade County. The college now enrolls 125,000 students annually across eight campuses, offering more than 300 academic pathways. It is the only public community college in a county of 2.69 million residents, who are predominantly Hispanic (69.1%) and Black (16.9%), with a per capita income of $35,563 and 14.5% of residents living below the poverty line. MDC's student body mirrors the community with 58% of students first-generation, 63% attending part-time, and 73% working while attending classes.

Embracing these challenges, MDC has excelled in fostering economic and social mobility, earning a #10 ranking in U.S. News and World Report's Top Performers on Social Mobility. The College's success stems from its workforce education blueprint with four elements: ensuring a fertile landscape for workforce development; reimagining workforce models and integrating bundled approaches to student credentials; scaling growth through partnerships; and strengthening the workforce pipeline through policies, data, and marketing.

Curricular changes for workforce development and student success

MDC began by analyzing global and local industry trends to identify workforce needs, including a critical nursing shortage and Miami's emergence as a tech hub with a growing demand for professionals in cybersecurity, cloud computing, and artificial intelligence (AI). To meet these community needs, MDC reviewed its stackable credentials model and identified academic degrees to modify or develop for these in-demand fields. These credentials included college credit certificates (CCCs), associate degrees, and bachelor's degrees. For example, for AI workforce preparation, the College introduced two new CCCs (AI Awareness and AI Practitioner), an Applied AI Associate in Science, and a Bachelor of Science in Applied AI. Programs were tailored for flexibility, ensuring that MDC offered online and in-person options and that new industry certifications were integrated into courses, giving students practical credentials that were immediately valuable in the workforce.

To further these workforce training efforts, MDC created physical hubs that centralized training, collaboration, and innovation:

- **Nursing:** The Simulation Hospital where students combine knowledge acquired in the classroom with hands-on experience in a safe environment.
- **Education:** The ExCEL (Excellence Center for Educator Learning) for teacher preparation and in-service training of current teachers.
- **Technology workforce training:** The Artificial Intelligence (AI) Center and the National Cybersecurity Center of Excellence provide cutting-edge, industry-standard facilities and resources for training in AI, cybersecurity, and other emerging technologies, equipping students and community members with in-demand technical skills.

To better serve working adults, MDC incorporated non-traditional credit-earning opportunities into the emerging workforce professional development pipeline:

- Non-credit course offerings through the School of Continuing Education and Professional Development were enhanced, and students who have transitioned to credit programs can earn college credits for previous non-credit coursework aligned with credit course competencies.
- Through the College's prior learning assessment (PLA) process, students can earn college credits for non-MDC learning and work experience.
- The College also expanded its apprenticeship offerings to include emerging workforce areas. As Florida's first college designated a Program Sponsor by the Florida Department of Education, MDC registered apprentices and employers in Registered Apprenticeship Programs (RAPs), and earned national recognition in 2023 as an Apprenticeship Ambassador. Apprentices in these identified workforce areas have immersed themselves in the apprenticeship programs using a "Learn and Earn" model and transitioned to full-time, high-wage jobs upon program completion.

Scaling growth through partnerships

Strategic partnerships are central to the success of MDC's workforce education blueprint. Federal partnerships and funding from the U.S. Department of Education (USDE) and the National Science Foundation (NSF) helped build sustainable programs and hubs. State-funded grants like the Pathways to Career Opportunities Grant (PCOG) enabled MDC to develop apprenticeships, including the Grow Your Own Teacher Apprenticeship Program where MDC students completed a 12-week teacher residency program during their final term and seamlessly transitioned to full-time permanent teaching positions. Through Florida's Linking Industry to Nursing Education (LINE) fund, the College expanded its certification program for licensed practical nurses.

Industry collaboration has been especially critical, including paid apprenticeship programs for MDC automotive students with Warren Henry Auto Group and the Bean Automotive Group, as well as experiential learning and job placement opportunities with Google, IBM, and local startups. To enhance these partnerships, MDC leveraged a $10 million grant from the Economic Development Administration's Good Jobs Challenge to implement Miami Tech Works, a training program designed to create a tech talent pipeline in South Florida in collaboration with over 30 employers, including Microsoft, Blackstone Technology and Innovations, and Assurant. These industry partners also served on advisory boards to shape degree pathways and experiential learning opportunities for students.

Locally, MDC collaborated with CareerSource South Florida, the region's workforce development agency, and partnered with local government officials for the Future Ready Scholarship Program, a groundbreaking initiative enabling Miami-Dade County residents to earn associate degrees at no cost. MDC also partnered with Miami-Dade County Public Schools (M-DCPS) to provide dual enrollment courses, allowing high school students to graduate with both college credits and industry certification to enter the workforce. Looking beyond the bachelor's degree, partnerships with universities such as Florida International University (FIU) and the University of Florida (UF) ensured seamless transitions for students pursuing advanced degrees.

Strengthening the workforce pipeline through policies, data, and marketing

The MDC workforce education blueprint was supported by institutional policies and procedures, starting with MDC's 2021-2026 Strategic Plan, which aligned institutional goals with local emerging workforce needs. Strategic Goal 4, *Fueling the Talent Needs of a Global Economy*, emphasized degree completion, certification attainment, and job placement. To ensure students were prepared for the future of work, this goal prioritized experiential learning opportunities, including internships, apprenticeships, practicums, and research.

MDC relied on data-informed decision-making to drive the success of its workforce education blueprint. Dashboards tracked key metrics such as persistence and completion rates, while the College's annual effectiveness reporting process evaluated departmental goals. These tools enabled MDC departments to implement actionable strategies to enhance student success in both credit and non-credit programs as well as strategies to ensure program relevance and agility in the rapidly changing workforce environment.

MDC then amplified the impact and reach of its workforce education blueprint through strategic marketing and public relations. By celebrating key achievements, partnerships, and student successes in public forums, MDC attracted additional collaborators, funders, and learners. This culture of recognition encouraged sustained engagement and community buy-in for MDC's efforts to enhance the local talent pipeline.

Conclusion

MDC's workforce education blueprint provides a roadmap for community colleges to address workforce disruptions and create future-ready programs for all students. MDC's approach also highlights the pivotal role of agile, data-driven, collaborative, and innovative leadership in this roadmap to creating such future-ready programs. The workforce education blueprint's flexibility enables institutions to begin addressing emerging workforce needs, even if only one or two elements are initially in place. MDC's model is a testament to how relevant curriculum, strategic partnerships, and data-informed, agile leadership can empower institutions to meet emerging workforce needs and equip students for success in a dynamic global and local economy. The "joining of hands" by colleges and industry is an imperative for propelling not only the social mobility of individuals, but also the economic development of our communities and nation.

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Strategic Coordination for Statewide Workforce Development: The Role of Technology to Manage a Triadic Relationship

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Workforce and economic development initiatives are critical for the competitiveness of the U.S. economy and ultimately benefit industries and individuals by providing jobs with competitive salaries. Economic development requires long-term planning, community engagement, and collaboration among government, industry, and education to achieve shared goals. Essential to the success of these initiatives are community and technical colleges, which help supply the talent and develop the skills individuals need to support their local industries and, ultimately, their local economies.

Community colleges have an explicit goal "to provide open-door relevant occupational education and training to a diversified workforce, thereby reflecting the combination of responsiveness to employers' skill needs and students' concern for employment" (Columbia Teachers College). Community and technical colleges partner with government and industry to develop relevant workforce training programs.

Community college systems vary in how much control their system offices have over their colleges. Some systems are centralized, while others are decentralized, giving colleges more autonomy to address local economic needs. Regardless of the governance model, the central office plays a role in coordinating policies and funding. Often, workforce development programs and administration are separate from credit bearing programs offered by community colleges.

This article explores the use of technology by a community college system office to coordinate workforce development initiatives across its member colleges and support the state's industries and economic development.

Why is workforce development important?

Workforce development initiatives are essential to support economic policies at the local, state, and national levels. At the heart of such policies is a workforce equipped with skills and experiences needed to meet the demands of the Fourth Industrial Revolution. Community colleges, in turn, are key providers of the training and education that help individuals acquire these new skills, meet the demands of an evolving job market, and advance their careers.

The triadic relationship between industry, government, and community colleges supports individuals, local communities, economic development, and companies operating in local, national, and global markets. Nurturing and sustaining relationships with industry partners is crucial for understanding their evolving needs and ensuring the community's continued success.

Approaches to workforce development

The Federal Reserve Bank of St. Louis defines workforce development as "a relatively wide range of activities, policies, and programs employed by geographies to create, sustain, and retain a viable workforce that can support current and future business and industry" (Crews 2010). They go on to say that reaching a consensus on a definition for workforce development is challenging due to differing interpretations among its constituencies. Each member of the triadic relationship brings their own lens and approaches to workforce development.

By developing the skills necessary for a modern workforce, community colleges help attract industries that bring higher-paying jobs and increased tax revenues to their state. The Community College Research Center at Teachers College, Columbia University, identifies three critical components to workforce-responsive education: 1) curriculum driven by the needs of local industries; 2) flexible delivery methods to meet the needs of both students and industry; and 3) a mixture of workplace and classroom-based learning.

Partners in workforce development

Community and technical college leaders work with industry leaders, trade associations, government officials, and local public school districts to collectively identify and serve the needs of their region's workforce. These groups help colleges keep their program offerings relevant and also create demand for their services.

Partnerships take different forms and levels of formality, but at their core is an understanding that all entities involved are working to create good jobs that advance the region's economic agenda. Partnering means there is open communication and alignment on the types of skills and roles that need to be created, and an understanding that the community college can be a primary resource for providing the education and training required for a skilled workforce to meet local needs. Community colleges create workforce development and continuing education programs to meet the immediate, pressing needs of the local community. They quickly and effectively skill up individuals, preparing them for an industry certification.

Managing system-wide partnerships is challenging. Individual colleges often form their own working relationships with stakeholders such as community leaders, businesses, and government agencies. While these individual relationships are often fruitful and productive at the college level, they can lead to disjointed experiences for stakeholders and unnecessary competition among colleges within the system. In addition, inefficiencies can arise if colleges duplicate workforce development programs, which may occur without coordination and a holistic understanding of programs needed across the system's colleges.

The use of technology across a system

Technology plays an important role both in better coordinating colleges within a system and maintaining the autonomy of each college to support workforce development programs across state. Understanding the relationships each college has with businesses, government agencies, politicians, donors, and others within and beyond the state's borders provides many benefits for the system, the individual colleges, and the broader stakeholder network.

Technologies such as constituent relationship management (CRM) and marketing and communication automation solutions allow system offices to map relationships between the colleges and their constituents, identify key contacts, track the activities and communication colleges have undertaken with individuals in these organizations, and spot opportunities to coordinate across colleges to support the state's economic development needs.

By facilitating effective communication and coordination between the system office and its colleges, such technologies help ensure that consistent messaging is sent to stakeholders on how they can support their state's economic initiatives. When used effectively over time, they can help system offices identify gaps in workforce development programs that are needed to retain and attract industries to their state and enable schools to understand and serve their partners efficiently and from a data-driven foundation.

An example in action: The Alabama Community College System

Like in many U.S. states (and other contexts around the world), as companies located in Alabama modernize, they require workers with technical skills in areas such as robotics and automation, and are looking to the state's community colleges to provide them. To this end, an example of an effective industry-education partnership at the individual college level is a collaboration between Wayne Farms, a poultry producer, and Lurleen B. Wallace Community College and Enterprise State Community College. In order to meet the need for skilled workers in its modernized plants, Wayne Farms worked with these colleges to establish Alabama's first accredited mechatronics apprenticeship program. This program combines classroom instruction with paid on-the-job internships at Wayne Farms, providing students with the hands-on experience and technical knowledge required for success. (WTVY News 4, 2020).

To promote and scale collaborations of this type, the Alabama Governor's Office and the Alabama Community College System launched a statewide workforce development initiative, with the goal of creating a system-level workforce development strategy while allowing for college-level autonomy. As part of the initiative, the system's Chancellor's Office and Chief Information Officer created a technology solution to 1) map each college's relationships with local businesses, past engagements, and established partnerships, then 2) roll the college-level information up into a single view across the system. Having this information at the system level allows the system office to better coordinate with individual colleges to leverage their industry relationships in support of the Governor's mandates.

Conclusion: The power of technology

The Alabama example illustrates how constituent relationship management technologies provide vital information to the Chancellor's Office and save time by helping staff understand the programs offered by the colleges, who they are working with in their communities, and workforce needs across the state. The rise of artificial intelligence and agents elevates the work of staff to identify patterns across the system and automate routine tasks allowing staff to focus on the strategic aspects of their work. Technology streamlines the process of building this understanding, provides the Chancellor's Office with real-time information to inform decision-making, and tracks empirical evidence of the work the colleges are doing to support statewide mandates.

A state's long-term economic success depends on a skilled workforce that can meet the needs of its industries. Community and technical colleges play a vital role in this triadic relationship by aligning with state economic and industrial needs. These colleges become a crucial part of a state's policy initiatives, creating an environment that attracts industry through a readily available skilled workforce. The first steps on this journey for a Chancellor's Office are building consensus across constituencies on a "north star; for the project; creating a governance structure that benefits stakeholders; and selecting CRM technologies that support today's goals and will grow over the coming years as workforce development priorities and the technology evolve.

The views expressed in this article are those of the authors and do not represent those of Salesforce.

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Catalyzing Connection and Enabling Change: Shared Governance and the Role of Trustees

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As highlighted throughout all four installments of the *Mapping Community Colleges Around the World series*, and underscored continually in news headlines and lived experiences, the global workforce is undergoing profound change. There can be no doubt that AI and other technologies are reshaping the skills and expertise needed to support industry, local/regional/national economies, and the global good. Higher education, including the community college sector, has a responsibility to respond to these developments. Collaborations among academia, business, government and other stakeholders in the workforce ecosystem – such as those described throughout the articles in this publication – are more crucial than ever.

Given their fiduciary responsibility to their institutions and deep community ties, governing boards and trustees – and their equivalent around the world – have an important role to play in this ecosystem. This article explores the role of institutional governing bodies in catalyzing essential collaborations and enabling change and innovation to meet evolving workforce needs.

Creating a culture of change: A collaborative leadership paradigm

Higher education is often criticized for being "siloed," with leaders engaging only those issues that they perceive as their responsibility. In response to this characterization, Northeastern University advances the case for collaborative leadership. The paradigm is defined as "a management practice in which members of a leadership team work together across sectors to make decisions [that] keep the organization thriving." (DiFranza, 2019) The outcomes of collaborative leadership – transparency, trust, and engagement of diverse perspectives – assist in making change a core process in organizational development. Community colleges have an opportunity to apply this paradigm so that change becomes a permanent part of the institution's culture.

In relation to the definition above, an important question is "who are the members of the leadership team"? In higher education, often an initial response is chancellors, presidents, provosts, and other administrators. At large universities, the members of the governing board may not be viewed as core to the leadership team; at community colleges, however, trustees often function somewhat differently than at other types of institutions.

First, community college trustees are typically closer to and more reflective of the constituencies served by their colleges, and thus are well-positioned to surface emerging community needs that require attention and may impact operations. In addition, community college boards generally meet quite frequently; ten to twelve times annually, while their four–year counterparts often meet quarterly. This cadence allows community college boards to address emerging issues and consider institutional responses in real-time. This responsiveness, combined with up-to-date institutional policies (also the purview of boards) that enable the president to take swift action and an attitude of trust in the president's decision-making creates the culture of innovation and change needed for workforce responsiveness.

Tapping trustee expertise for program development

While specific academic content and program operations are the purview of faculty and administrators, in the workforce development ecosystem, trustees can be tapped for their content expertise to inform innovation. A strategy that is described in the US and Canada is to have trustees serve on instructional program advisory committees. Examples demonstrate how members serve: In the US, the Head Radiographer at the local hospital meets with the college's Radiologic-Technology committee; an attorney serves on the paralegal program committee; a local business owner serves on the management associate degree committee; and a retired judge serves on the Criminal Justice committee. Canadian trustees provide advice to a variety of business programs (Dennison and Fleming). As a result of their service on such committees, these individuals demonstrate understanding of program challenges and can be spokespersons for these programs during budget development and accreditation reviews.

Translating management best practices from industry to academia

Recent survey data from the Association of Community College Trustees and the Center for the Study of Community Colleges (2025) indicate that community college trustees work in a wide variety of industries – and with an average age of 65, many are well advanced in their careers and have attained leadership positions in their respective fields. Their hard-earned expertise in business operations can position trustees well to see how industry best-practices might be applied in the college setting – though it is important that trustees apply such insights in an advisory capacity and respect the president's authority to make operational decisions. At one US college, for example, the board's knowledge of industry salary levels informed discussions and negotiations about faculty salary levels, resulting in a salary package that was both fiscally achievable and well-received by the faculty - which in turn contributed to a cross-institutional culture of collaboration and trust.

Ambassadors and symbols of campus culture

As visible members of both the campus and local communities, trustees are well positioned to serve as ambassadors for the college, telling its story and celebrating its accomplishments and successes. Actively engaging trustees in significant institutional events can help them highlight milestones, and informs how trustees build knowledge and enthusiasm in the community that will translate into opportunities for collaboration.

For example, one US college president recognized that board members' participation in and understanding of the college's graduation ceremonies were limited. Given the graduation ceremony as an especially significant marker of accomplishments, the president initiated a practice of "robing" trustees in academic regalia prior to the ceremony, and recognizing them during the program. This demonstrated to graduates that trustees were invested in and took pride in their accomplishments, publicly reinforced board members' integral connection to the institution, and positioned them for their ambassadorial role.

Planning for the future

In order for community colleges to meet the rapidly evolving needs of the modern workforce, the importance of a collaborative culture that enables change cannot be overemphasized. Northeastern University's assessment of the worth of a collaborative leadership approach suggests that the outcome is the growth of agility, innovation, and high functioning teams leading to a lasting impact throughout the organization (DiFranza, 2019). While respecting the distinct roles of the board (setting policy) and the president/administrators (implementing board policy to manage operations), trustees are key players in enabling the success of students, institutions, industry, and ultimately, the global workforce ecosystem.

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A Human-Centered Approach: Algonquin College's Cooperative Model for Training Skilled Workers

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A human-centered lens for talent cultivation

Human-centered design (HCD) is a problem-solving approach that examines systems from the perspective of the people who use them (Interaction Design Foundation, 2025). While often associated with product development or service design, its relevance to workforce development lies in the simple question: *What does training look like when we design it from the perspective of the learner?*

To illustrate HCD, let us try a thought experiment. Imagine a wheelchair-user entering a restroom designed with "accessibility" in mind: wide stall, grab bar, accessible handle—but the toilet paper dispenser is mounted completely out of reach! The designers intended to help but failed to view the environment from the user's perspective. This gap between intention and lived experience is common in both design and education.

Similarly, postsecondary systems often design programs, curricula, and credentials around institutional needs and norms rather than student realities. Meanwhile, industries evolve faster than traditional curriculum cycles, leaving learners with credentials that do not always lead to employment. HCD corrects this disconnect by grounding decisions in the behaviors, motivations, constraints, and aspirations of students themselves.

At the same time, the challenges employers face, including aging workforces, new technologies, environmental pressures, and shifting consumer expectations, are part of complex socio-technical systems. As Don Norman (2025) notes, effective designers must understand culture, economics, politics, and human behavior. The same is true for effective workforce strategies. Emerging industries need problem-solvers who can work across silos and situate products, services, and processes within larger environmental, economic, and social systems.

A human-centered model for talent cultivation must therefore align various stakeholder groups:

- **Students:** Primary beneficiaries whose skills, confidence, and career readiness matter most.
- **Educators:** Architects of learning experiences who translate industry needs into curriculum.
- **Industry partners:** Providers of real problems, applied learning opportunities, and employment pathways.
- **Policymakers and administrators**: Enablers of funding, structures, and flexibility needed to innovate.

What follows is a framework for and case examples of how Algonquin College's Human-Centred Design Lab (HCDL) built an industry-academia cooperative model that aligns these stakeholders around shared goals.

Program framework

HCDL is an interdisciplinary research and design agency embedded in Algonquin College, a polytechnic post-secondary college in Ottawa, Canada. Its mission is to apply human-centered and systems-thinking methodologies to community-based research that advances the UN Sustainable Development Goals. The lab conducts mixed-methods research and designs interventions audited against inclusive design frameworks and national and provincial accessibility legislation.

The lab manages two kinds of industry projects: *in-class projects* that are embedded in academic programs and align with course learning objectives and semester milestones, and *funded projects* that hire student research assistants and faculty subject matter experts from various academic programs to design and develop longer-term projects. This article focuses on in-class projects because they reach the greatest number of learners and offer an instructive model for system-level coordination.

The lab begins by meeting with potential industry partners to identify a problem space that aligns with both the partner's objectives and the learning outcomes of the industry projects course in the program hosting the project. Within the course, students are divided into teams of up to five, meaning the problem space must be broad enough for multiple teams to explore different facets while still contributing to a unified project goal. Rather than running a siloed industry projects course, HCDL uses a program-wide cadence. Faculty across other courses coordinate learning outcomes with the project timeline, enabling students to learn a method from different courses one week and apply it their industry project course the next. This cross-course alignment is one of the most powerful features of the model: it turns a single project into an integrated, semester-long learning ecosystem.

Faculty maintain freedom to evolve their courses, but shared project milestones create a collaborative structure. In the first week of the semester, students meet the industry partner; within weeks they are designing research protocols, collecting data, synthesizing findings, and developing evidence-based service or systems interventions. Coordinated curriculum supports accelerated skill development and deepens the connection between academic learning and applied practice.

Case examples

Canada Science and Technology Museum

HCDL partnered with Ingenium, the federal Crown corporation that operates the Canada Science and Technology Museum, to explore how emerging technologies could enhance both onsite and remote visitor experiences. Students consulted diverse demographics and toured the museum's large artifact vault, then designed interactive prototypes such as:

- A digital board game allowing grandparents and grandchildren to explore artifacts together.
- An augmented reality application that overlays digitized vault items onto physical exhibits.

Students practiced mixed-methods research, inclusive design, and prototyping with a national-level cultural institution while producing concepts for future museum programming.

Centre for Air Travel Research (National Research Council Canada)

The Centre for Air Travel Research partnered with HCDL to investigate accessibility barriers in air travel. Students conducted interviews and surveys with passengers with disabilities and designed interventions such as:

- An accessible in-flight dining interface for children and passengers with mobility limitations.
- Redesigned security screening procedures for wheelchair users.
- Tactile and audio-enhanced wayfinding for visually impaired travelers.

One team earned first place at the college's Applied Research Showcase, an indication of both student mastery and the value of solving real, meaningful problems.

City of Ottawa (CityStudio Program)

As part of the international CityStudio network, Ottawa tasked students with designing innovative civic services for future residents. Students collaborated with municipal stakeholders to explore solutions related to affordable housing, green transportation, and newcomer employment pathways. Their work resulted in multiple recognitions, including second place and the People's Choice Award at HUBBUB, the CityStudio awards presented at City Hall. This example illustrates not only skill development but also the civic impact of student-driven design.

Lessons learned for training skilled workers: Insights for key stakeholders

After more than a decade designing and facilitating industry-embedded learning experiences, several lessons have emerged. These insights offer practical guidance for the four stakeholder groups whose decisions shape the talent pipeline: students, educators, industry partners, and policymakers and trustees. The strongest models work when each group understands its role in a shared ecosystem rather than operating in isolation.

For educators: Align curriculum and teach for transferable skills

Cross-course coordination can dramatically accelerate student skill development. When faculty align project milestones with course outcomes, students learn a concept in one class and immediately apply it in another, deepening retention and strengthening outcomes. But alignment alone is not enough. Students often struggle to articulate how classroom activities translate into workplace competencies. Educators can bridge this gap by explicitly connecting course outcomes to real job requirements and emphasizing transferable skills such as research, synthesis, prototyping, testing, and communication that students can confidently describe in resumes, interviews, and portfolios.

Educators also benefit from working with fewer, stronger partners rather than many small or superficial ones. A single partner with a broad problem space allows multiple student teams to contribute meaningfully while reducing administrative complexity and maintaining project quality.

Lesson for educators: The goal is not simply delivering a project; it is building a coherent learning ecosystem that teaches students how to think, practice, and communicate like professionals.

For industry partners: Bridge the experience gap through human-centered collaboration

Students entering today's workforce face a paradox: "entry-level" roles often require years of experience (Anders, 2021). In-class projects expose students to real industry practices, but employers must help bridge the final distance to employment. HCD offers a way forward. By grounding program design in student motivations and constraints, industry partners co-create learning experiences that are both rigorous and accessible. This approach reduces barriers to participation, expands the talent pool, and results in stronger, more diverse early-career pipelines.

Structured, ongoing partnerships, rather than transactional, one-off engagements, produce the greatest value. When industry commits to a sustained relationship, students gain richer experiences, faculty can iterate and strengthen curricula, and employers begin to see the college as a reliable partner in long-term talent development.

Lesson for industry: Invest in junior talent, participate in program design, and engage in multi-term partnerships that build capacity for both students and employers.

For policymakers and trustees: Enable flexible, future-ready learning pathways

Traditional academic structures—stacked prerequisites, rigid sequencing, long program cycles—do not always match the pace of industry change. Policymakers and trustees are uniquely positioned to remove structural barriers and support models that allow students to upskill quickly and meaningfully. Flexibility in certificates, microcredentials, interdisciplinary pathways, and non-linear progression enables colleges to respond to emerging industries where competencies may become obsolete within months. Trustees can set expectations for agility and ensure administrative structures support innovation rather than delay it.

Trustees must also understand the strategic value of human-centered and systems-thinking competencies. These are not "soft skills"; they are the core skills of modern work, essential in healthcare, advanced manufacturing, transportation, trades, and public service. Investing in design capacity strengthens local and regional competitiveness. Finally, trustees should view global perspectives as integral to workforce readiness. Skills such as intercultural communication, empathy, and collaboration across differences can be embedded into coursework, even without travel. These competencies prepare students for globally connected industries and diverse communities.

Lesson for policymakers and trustees: Flexible policy frameworks and intentional investment in HCD capabilities enable colleges to build the kind of agile learning pathways and global competencies the future workforce requires.

For students: Build confidence through real-world practice

Students consistently report increased confidence, stronger portfolios, and clearer career direction when they work on real problems with real partners. Human-centered, interdisciplinary projects allow students to practice navigating ambiguity, conducting research, synthesizing complex information, and presenting solutions—all skills they will use throughout their careers. Students benefit from understanding that the value of these projects lies not only in the final deliverable but in the process: interviewing users, analyzing systems, prototyping interventions, and reflecting on what worked and what didn't. These experiences help students articulate their strengths to employers and recognize their own capacity for leadership and problem-solving.

Lesson for students: Engage fully, ask questions, document your learning, and trust that the skills you are building, many of which may feel intangible, will become your strongest assets in the job market.

Reflections and broader implications for community colleges

This case demonstrates that community colleges, which are often overlooked in discussions of innovation and internationalization, are uniquely positioned to cultivate the next generation of skilled workers. They serve diverse learners, operate close to industry, and can move quickly when programs are structured for collaboration and flexibility.

The HCDL model offers a framework for how colleges can strengthen relationships across the four stakeholder groups: learners, educators, employers, and system-level decisionmakers. When each group plays its role effectively, the ecosystem becomes more equitable, resilient, and capable of preparing students for work that is increasingly complex and interconnected.

Ultimately, the most important insight is this: *Talent is abundant in community colleges; systems determine whether it can flourish.*

When colleges adopt human-centered, interdisciplinary, industry-connected approaches and trustees support them with policy, resources, and strategic clarity, they create the conditions for students to move confidently into careers, for employers to gain the skilled workers they need, and for communities to benefit from innovation and economic resilience.

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Meeting Student Basic Needs to Improve Retention and Success: BibliU and Jackson College

Rachael Hardiek
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Community colleges sit at the intersection of access, opportunity, and economic mobility. They serve students who are working, raising families, navigating financial insecurity, or returning to school after time away—students for whom the cost of textbooks or delays in accessing course materials can be the difference between staying enrolled or stopping out. For institutions like Jackson College in Michigan (USA), supporting these learners requires more than high-quality instruction; it requires addressing the basic needs barriers that can limit a student's ability to engage with their coursework from the start.

Guaranteeing Day 1 access to required learning materials is one such strategy that speaks directly to the community college mission of affordability and access. When students have what they need to participate fully, they are more likely to stay on track academically, persist from term to term, and ultimately complete their programs. In a funding environment increasingly tied to student success metrics, improving retention is not only essential for institutional sustainability but also central to the promise community colleges make to their communities.

This article examines Jackson College's partnership with BibliU as a case study in how removing cost and access barriers can strengthen engagement and improve retention. By analyzing student usage patterns alongside academic and enrollment data, the college sought to understand how a more equitable approach to course materials could support student success at scale. The following sections summarize the results of this analysis, and explore the broader implications for community college leaders committed to advancing basic needs support, student success, and data-informed decision making.

BibliU & Jackson College

BibliU partners with colleges and universities to deliver a fully integrated campus store experience—combining affordable, Day 1 access to course materials with hybrid physical and online retail. Through BibliU Access, a model that delivers digital materials before the start of the semester, BibliU achieves its core mission is to ensure that colleges and universities can guarantee all students have immediate access to the essential learning content they need at prices 30-50% lower than traditional approaches. BibliU empowers institutions to streamline their textbook, courseware, and campus store workflows, while helping to drive equity in education and enhance student outcomes.

Jackson College is a public institution in Jackson County, Michigan. Prior to adopting the BibliU platform, Jackson had a long-term partnership with a major campus retailer responsible for providing course materials. Driven by the goals of reducing textbook costs and removing barriers to student success, Jackson explored various bookstore models to find the right fit. Ultimately, Jackson College partnered with BibliU to provide an innovative solution and launched Universal Learning on campus in Fall 2021.

Impact study overview

Two years after Jackson College launched BibliU's Universal Learning model, an impact study was conducted to understand how removing textbook cost and access barriers affected student success. The study drew on two complementary sources of information: BibliU's engagement data, which captured patterns of how and when students accessed their materials, and the college's existing student records, which include enrollment and attendance behaviors, program information, and academic outcomes. Bringing these data together created a fuller picture of how students interacted with their learning resources once financial and logistical obstacles were removed.

The analysis covered more than 9,000 students enrolled between August 2021 and April 2023; after excluding students whose courses did not use BibliU or who were not enrolled during the study window, the final dataset included 5,546 students. This group reflects the reality of Jackson's student body: learners juggling work, caregiving, financial pressures, and part-time enrollment. Rather than attempting to prove causation, the study examined how regular engagement with course materials, made possible through guaranteed Day 1 access, related to patterns in academic performance, persistence, and retention. This approach allowed researchers to assess whether improved access supported stronger student outcomes over time.

Impact study results

Engagement with BibliU varied widely among Jackson College students during the two-year study period. While some students used the platform only a few times, others returned to it consistently throughout the term, with the median student accessing course materials nearly 30 times. This pattern suggests that once cost and access barriers were removed, many students regularly engaged with their learning resources in ways that had previously been out of reach.

The study found a clear, positive relationship between students' engagement with BibliU and their academic performance. Students who used the platform more frequently achieved notably higher GPAs than those who used it only a handful of times. Heavy users averaged a GPA of 3.4, which was one full point higher than students with minimal engagement, and even moderate users performed at or above the institutional average. While the analysis does not establish causation, the direction and consistency of these patterns demonstrate that when students reliably have the materials they need, they are better positioned to succeed academically.

Retention patterns followed a similar trajectory. Students who began at Jackson the same semester BibliU launched, referred to as the BibliU Cohort, showed the strongest persistence Jackson had seen among first-time enrollees since 2018. Continued enrollment was most common among students who used BibliU regularly; nearly all heavy users persisted from Fall to Spring, while less than half of non/light users did the same. This widening gap over subsequent terms reinforces a core insight for community colleges: eliminating basic needs barriers, such as the ability to afford or access course materials, supports the kind of steady academic engagement that helps students stay enrolled and make progress toward completion.

Broader impact

Taken together, these findings highlight how addressing a fundamental student need — access to required learning materials — can positively influence both academic momentum and long-term persistence. When students no longer face the financial strain of high textbook costs or the logistical challenge of delayed access, they are better able to engage deeply with coursework from day one. This matters profoundly in community colleges, where students often balance employment, caregiving, and financial insecurity, and where even small barriers can derail academic progress.

The impact study illustrates that improved access leads to more consistent engagement, and consistent engagement helps sustain students through the critical early semesters when attrition is typically highest. For institutional leaders, this connection reinforces the importance of data-informed decision-making. By integrating usage analytics with student performance and retention data, Jackson College was able to understand, not just anecdotally but empirically, how removing cost barriers supports core student success measures.

This work also underscores the value of strong partnerships. Jackson College's collaboration with BibliU shows how institutions can work with external partners to mitigate resource gaps, streamline operations, and prioritize equitable access to learning. In an environment where community colleges must stretch limited resources, such partnerships enable scalable, sustainable change aligned with institutional missions.

Ultimately, the broader impact of this initiative extends beyond grades or year-over-year enrollment numbers. It demonstrates how an intentional strategy to meet students' basic needs can create a more stable foundation for learning that supports retention, completion, and economic mobility. By ensuring that every student has the materials required to learn, community colleges reinforce a simple but powerful message: *your success is possible here, and we are providing support and removing barriers to help you achieve it.*

This essay is based on the impact report done by Green Shoots Market Intelligence in partnership with Jackson College. Access the full impact report here.

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Compulsory Internships in Finland: Symbiosis Between Universities of Applied Sciences and Industry

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In mapping community colleges and their global counterparts, you will come across the term University of Applied Sciences (UAS), which is common in some European countries, such as Finland, Norway, Denmark, the Baltics, Germany, the Netherlands, and Belgium. They are usually more practice-oriented in their education and more applied in their research than traditional research universities, and serve labor market needs. What generally also sets them apart from such universities is the compulsory internships required for the degree. This leads to a symbiotic relationship in which industry relies on employers to offer internships. This symbiosis is far from simple or always successful. However, a key development for the future is an ecosystem approach.

Universities of Applied Sciences

Finland has a dual higher education system comprising 22 Universities of Applied Sciences (UASs) and 13 research universities. They are all public. In Finland, the UASs offer bachelor's degrees, which are 3-4 years of full-time study. They also offer master's degrees, which are rather unusual in global comparison, as they require a minimum of two years of relevant work experience in the field after the bachelor's degree. Master's degrees are usually completed as part-time studies over two years in the form of a leadership development project for the student's current employer.

Bachelor's degrees require 1-3 periods of compulsory internships depending on the degree in question. These can range from a couple of weeks to a couple of months at a time. The UASs usually do not take any responsibility for the acquisition of the internships even though they are a compulsory part of the degree. Instead it is up to each student to secure the internships. As internships are regarded as studies conducted in another location rather than employment, UAS internships can (and often are) unpaid. Study credits and the learning experience compensate the student. Generally, this arrangement works well, and domestic students succeed in securing the internships needed and graduate as planned. However, international students struggle significantly in doing the same – despite attending the same degree programs as their domestic peers.

International student recruitment and retention

Internationalization of higher education is an essential topic in Finland as the population is both aging and diminishing. There is an urgent need for study- and work-based immigration to meet the ever-growing need for highly skilled talent. Additionally, public funding has continued to diminish and especially the UASs have repeatedly been hit hard by government cuts. This has led to increased interest in international student recruitment of non-EU/EEA nationals who are required to pay tuition fees. Although this is understandable from a financial perspective, it is questionable whether it is an ethical and sustainable strategy. Not only is there the question of brain drain from the source countries, but also the view of international students (or talents) as cash cows and entities of labor for the host country.

Since the responsibility for securing internships falls entirely on students rather than the UASs, domestic and international students are left on highly unequal footing. Domestic students with local networks through parents, relatives, and acquaintances have the possibility of navigating the so-called *hidden job market* which is significant as around 70% of all vacancies in Finland are never advertised openly. Domestic students have better knowledge of local employers, job searching strategies, and work culture and do not face language barriers to employment. In general, local language requirements are very high and a serious impediment for employment of international students even in short-term internships.

A symbiosis which is beyond the control of the UAS

If international students cannot secure the compulsory internships required for their degrees they cannot graduate. This also means that the tuition fees paid by academic year will not bring the expected return on investment in terms of a degree certificate, nor in terms of a pathway to employment and career development in the host country. This has implications for the UASs' international student recruitment, as one of the top reasons for students to complete education abroad is precisely the expectations previously mentioned. Living costs and tuition fees add to the necessity for international degree students to secure employment during studies and many wish to remain in the host country after graduation.

This leaves UASs in a situation where they are essentially dependent on local employers' willingness to offer internships to international students. However, the UASs have no power over the employers in this matter. Thus, the symbiosis between UASs and industry through compulsory internships is a central element of degree-based education – but entirely based on the efforts of the international students and the willingness of the local employers. What, then, is the role of the UASs in this relationship?

Need and potential for an ecosystems approach

These challenges are by no means unique to Finland. They occur in many other countries and regions as well. In several countries the barriers to employment for international students and graduates might not be as severe in capital regions or in certain fields (such as nursing or ICT) but remain a significant concern in more rural areas and more traditional industries. This is especially relevant for UASs as they have a specific regional focus and mandate. This is something we found in the Erasmus+ INTERLOCALITY-project co-funded by the EU, involving four UASs in Finland, Denmark, Germany, and the Netherlands, together with a non-profit organization in Sicily. In the project, we addressed not only the employability of international students and graduates but also the "employer-ability" of local employers. Additionally, we investigated the potential roles of UASs and third sector organizations (government and non-government organizations, municipalities, labor market organizations, associations etc.) in both aspects.

Traditionally, the role of UASs has been to provide education and research opportunities, and sometimes to offer career support for students. This support has rarely extended to graduates. Support for employers has usually consisted of projects and research collaborations, company visits, guest lectures, and sometimes job portals, recruitment fairs and networking events. It has not extended to supporting employers in the reception of international students and graduates in the work community.

In the INTERLOCALITY project, we developed online training courses for higher education institutions, small and medium-sized enterprises, and third-sector organizations to learn more about both employability and employer-ability regarding international students and graduates. The aim is to increase interactions among these stakeholder groups and deepen understanding of the different perspectives they represent. These courses can serve as tools for any actors to initiate a path towards enhancing mutual understanding and collaboration among stakeholders, laying the foundations for local ecosystems.

The Finnish Talent Boost ecosystem

One of the most developed ecosystems for attracting and retaining international talent is the Talent Boost program in Finland. The program was implemented in 2021 and involves multiple stakeholders, including government bodies, municipalities, higher education institutions, research centers, associations, labor market organizations, and employers. All Finnish higher education institutions received Talent Boost funding for 2021-2024 from the Ministry of Education and Culture together with the Ministry of Economic Affairs and Employment.

The program has now been running for five years and is well-established. It has even become a regularly featured best-practice example for neighboring countries and regions. However, some major changes were implemented as of 2025. Chief among these was that the Talent Boost funding for higher education institutions ended after 2024. As it is now up to each higher education institution to decide whether to fund related activities, membership in the Talent Boost network has become voluntary rather than compulsory. Another major change as of 2025 was that most support for labor market entry and integration was transferred from the state to municipalities. This means the members of the national Talent Boost network have changed and have an increasingly regional focus. The Talent Boost program, as such, was renewed in 2023 and runs until 2027.

Conclusions

Compulsory internships in UASs create a dependency on local employers for awarding degrees. However, this symbiosis is beyond the control of either UASs or students, as it relies on employers' willingness, which, in turn, is not obligatory. It is therefore in the best interest of UASs to not only support the employability of their students and graduates but also the employer-ability of local employers. As resources are generally scarce in UASs, it is beneficial to tackle these challenges through collaborative pathways, such as an ecosystems approach exemplified in the INTERLOCALITY project. This provides both students and employers with broad access to information, training, and networking needed to create mutually beneficial relationships. It also creates dynamic interactions among government bodies, municipalities, higher education institutions, third-sector organizations, and industry, fostering more balanced collaboration.

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Giving Apples to Newtons: Nurturing Talent to Shape the Future Workforce

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In recent years, India has witnessed remarkable growth in overall graduate employability, rising to approximately 56.35% in 2026 with domains such as technology and management leading the employment landscape. (India Skills Report, 2026)

As per NASSCOM Strategic Review (2025), India's technology industry is projected to achieve a revenue milestone of over $300 billion in FY2026. This projection continues to highlight the ever-evolving demand for skilled professionals in driving innovation, advancing digital transformation, and promoting economic growth. (NASSCOM, 2025)

Despite this progress, a majority of graduates continue to struggle in meeting industry demands and fall short of essential jobready skills such as effective communication, adaptability, and problemsolving. This discrepancy is particularly evident in areas such as cybersecurity, cloud computing, data analytics, software development, artificial intelligence, and machine learning where industry continues to grow faster than the availability of adequate skilled workforce.

To mitigate these concerns and provide a sustainable pipeline of skilled talent, a robust framework is essential in building an ecosystem that ensures graduates are equipped with the necessary skills for the evolving IT landscape.

Cognizant's role in bridging the skill gap

Cognizant is redefining talent development through a holistic industry–academia partnership model. In this initiative, campus regional councils partner with academic institutions to strengthen the connection between education and industrial exposure, further reducing the skill gap and fostering employability. These councils identify academic needs, co-create customized programs and ensure their smooth execution. The process of creating specialised programs include introducing blended learning models, developing micro-credentials for job-ready skills, and designing industry-aligned learning frameworks to address real-world challenges.

The customized programs align with Cognizant's Synapse initiative, which aims to upskill over two million individuals with advanced skills in generative AI and other emerging technologies by 2030. By collaborating with governments, academic institutions and industry partners, Synapse creates new pathways to success, further enhancing Cognizant's commitment to bridging the skill gap and empowering the next generation of innovators. (Cognizant, 2025)

One of the flagships and acclaimed programs of Synapse is the Nurture Partner Network (NPN) program, which offers industry orientation and career skilling opportunities to aspiring students from partnered colleges. As a Knowledge Partner, Cognizant nurtures students in industry-relevant streams or branches through various campus engagements.

NPN is a comprehensive and well-rounded program encompassing multiple facets and dimensions. To begin with, NPN starts with collaboration with higher education institutions (HEIs) to ensure curricula are aligned with industry requirements. Furthermore, educational frameworks that are both relevant and practical are developed through participation in Boards of Studies (BoS) or as an Academy Council Member (ACM) with department heads, faculty, and industry experts. This collaboration is further strengthened through initiatives such as hackathons, which provide students with hands-on experience, while invitations to innovative events keep them informed of industry trends. Alongside these initiatives, groups of students from specific branches or niche skills are adopted through customized credit or value-added programs, which profile and nurture talent, thereby opening specialized recruitment or internship opportunities to enhance employability. Finally, technical sessions and grooming workshops are organized for selected students, aligning them with industry needs and preparing them for employment.

Industry-academia collaboration is a powerful catalyst for bridging the skill gap between theoretical knowledge and practical application. It ensures that students are well-equipped to meet real-world challenges by bringing cutting-edge industry insights into the classroom, enriching the learning experience, and making education more dynamic and relevant. For industry, collaboration with academic institutions provides access to fresh talent and innovative ideas, fostering a culture of continuous improvement and competitiveness. Together, they create a robust ecosystem that supports research and development, drives technological advancements, and ultimately bridges the skill gap, ensuring a workforce ready to meet the demands of the modern economy.

Case study

The pilot program was initiated with one engineering college, where a cohort of selected students from the Artificial Intelligence/Machine Learning degree was adopted. Cognizant co-created the curriculum with the college and introduced a one-credit course to align students with industry needs. Key activities included sessions with Subject Matter Experts (SMEs), hackathons to apply theoretical concepts in the real world, and active mentorship from Cognizant SMEs during the hackathons. The outcomes were transformative, with students gaining proficiency in the chosen skill and top performers being offered internships and jobs with Cognizant.

Following the successful pilot initiative, the program expanded to 39 colleges in 2025 and scaled across India. These institutions were selected based on their commitment to collaborate and the presence of specific skills or technologies in their existing curriculum that could be further enhanced with Cognizant's support. Through this initiative, we nurtured more than 4,500 students in 2025 by providing specialized training in seven industry-relevant and high-demand domains, including artificial intelligence/machine learning, cybersecurity, biotechnology, and data science. After successful completion of training and following a rigorous selection process, students were offered fulltime employment opportunities at Cognizant, further bridging the gap between academia and industry. Here are some insightful and compelling experiences from participants in the Nurture Partner Network program who gained specialized opportunities and valuable industry exposure through this initiative.

Participant 1, a participant in the hackathon-based hiring process, shared the experience:

"The hackathon-based hiring process was an incredibly enriching experience from start to finish. The format provided a dynamic platform for me to demonstrate my technical prowess and collaborative skills. Each challenge presented was not only stimulating but also closely mirrored real-world scenarios, allowing me to showcase my problem-solving abilities in a practical setting."

Participant 2 highlighted the exposure to new technologies and tools:

"One of the most significant ways in which hackathons have impacted my career is by exposing me to a diverse range of technologies and problem-solving strategies. In each hackathon, I had the chance to work with cutting-edge tools and platforms from machine learning libraries. These experiences have helped me stay abreast of emerging trends in the tech industry and have equipped me with practical skills that I can apply in real-world projects."

Participant 3 reflected on the comprehensive learning experience:

Participating in the NPN program has been transformative, profoundly shaping my understanding of technology and industry needs. The hackathon honed my leadership skills, while navigating project development phases deepened my grasp of the intricacies involved. Weekly mentor sessions offered fresh perspectives and innovative solutions. Rigorous technical interviews, though challenging, were encouraging and further strengthened my technical expertise.

Challenges, solutions, and future outlook

While the NPN program has achieved tremendous success in its initial phase, it still faces challenges related to aligning academic schedules with industry timelines and maintaining continuous curriculum updates. To address these issues, the program emphasizes regular communication between stakeholders, flexible structures, and ongoing curriculum reviews. These measures not only overcome current challenges but also build a solid foundation for growth and sustainability. Looking ahead, the future of industry–academia collaborations appears to be promising, with potential developments including more integrated learning experiences, enhanced use of technology in education, and broader industry participation. With these advancements, the program is well-positioned to scale and sustain its momentum, further strengthening student development and contributing meaningfully to industry.

Industry-aligned programs like NPN symbolize the strength of an ecosystem-driven approach in bridging the skill gap and enhancing employability. By leveraging the collective expertise of industry partners, HEIs, Boards of Studies, and ACM bodies, the program ensures that students are well-prepared to meet the demands of the modern workforce and are industry ready. The success of initiatives like Cognizant's collaboration with colleges highlights the transformative power of partnerships in creating sustainable impact across both education and industry.

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