



Convening 2 Briefing Book

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Council on Higher Education
as a Strategic Asset

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The mission of the Council on Higher Education as a Strategic Asset is to unite business, government, non-profit, and higher education leadership in developing an urgent national higher education strategy to raise the global competitive position of the United States.

The Case for a National Conversation about Higher Education as a Strategic Asset

The world and its industries, institutions, and societies are in a state of significant transformation. The transition to the Fourth Industrial Revolution, with its focus on technological innovation and global interconnectivity, is disrupting existing social, political, and economic patterns around the globe. While previous major shifts have created periods of dramatic change, the next decades promise to do so at a scale and velocity that is unprecedented in our history.

This transition holds both great promise and some challenges for the United States of America. Major advances in science and technology have the potential to expand our national and global economies and to address some of the most serious domestic and international challenges in our history. Maintaining the international competitiveness of the United States while also ensuring national security, sustaining our democracy, expanding economic prosperity and equality, and tackling global issues such as public health and climate change, will require a well-educated populace with the knowledge, competencies, and skills necessary to imagine new solutions and to thrive in our communities and workplaces of tomorrow.

Arthur Levine and Scott Van Pelt argue that as we move from a national, analog, industrial economy to a global, digital, knowledge economy, our country's higher education institutions will be more essential than ever in producing, preserving, applying, and disseminating the knowledge necessary to thrive in a dynamic, technologically advanced society (Levine & Van Pelt, 2021). But to do so, our country may need to once again reimagine our system of higher education and develop new models and policy frameworks designed to deliver on the type of educational outcomes necessary for our country to thrive in this new era.

Unlike most countries around the world, the U.S. does not have a single federal higher education system. Instead, our model relies on an implicit partnership between the state and federal governments and our public and private institutions to address multiple educational priorities and achieve the outcomes of our diverse communities and stakeholders. Our loosely coupled, diverse system has allowed for innovation and competitiveness among our individual faculty and institutions that has made U.S. higher education the envy of the world.

Its diversity, autonomy, and lack of centralized structure, and its unique combination of professional preparation and a broad education in the arts, humanities, and natural and social sciences, is lauded as the reason for its ingenuity, innovation, and economic and civic impact. But its distributed nature also makes it more difficult to create a cohesive and planful response to shared national priorities.

For years institutions and systems have created and implemented strategies designed to enhance academic quality and reputation, expand research, improve the efficiency of their operations, grow revenue, and increase student access and success.

Yet, despite spending hundreds of billions of dollars annually through funding streams to support research, financial aid, student support and operations¹, our country has no national plan through which it describes how America can most effectively position higher education as a strategic asset and support a community of institutions committed to collectively making progress on our national priorities and achieving a set of collective goals for our citizens.

Our diverse, decentralized post-secondary education system is our strength. Our individual institutions, state systems and associations, often supported by our philanthropic community, have developed innovative solutions to address the specific needs of their student populations and institutional and state-level goals. But as an industry, higher education has not fully realized how these local innovations could be further adapted to other locations and student populations so they can be scaled to maximum impact. Our distributed model of innovation also makes it more difficult to effectively respond to the major forces that are transforming our industries and the future of work. This calls for a more purposeful approach to funding, policy and collaboration at a national level that includes not only higher education institutions but partners from industry, government, and the non-profit and philanthropic communities.

As members of the Council on Competitiveness argued during its national convening in March 2023, *“The United States is lacking a national conversation about the purpose of education and how it relates to U.S. competitiveness in the 21st century.”*²

The Council on Competitiveness, as part of its National Commission on Innovation & Competitiveness Frontiers Summit, identified a number of cross-cutting themes that highlight the importance of a national higher education strategy as part of our country’s innovation and competitiveness strategy.

- The United States must bring a broader population of Americans into higher education, workforce development, innovation, and entrepreneurship to provide opportunities to build generational wealth and help families be successful. Models and partnerships are needed to close geographic and institutional gaps, and connect less resourced communities, higher education institutions, and community colleges to opportunities and assets for innovation. Universities can play a powerful role in nurturing and supporting innovators and prospective entrepreneurs.
- The United States must transform the K-20 education system and pipeline and establish different pathways through it. The education and training system should be capable of developing a diverse workforce demographically, regionally (Silicon Valley vs. rural Alabama), and for different industries in which people will work. The system should meet knowledge and skill needs with speed to match the pace of industry. More input from industry is needed so students understand what jobs will be available, and educators and trainers can provide them with needed skills.
- For a future of rapid change, students must be prepared with the ability to learn and relearn across their lives and be adaptable.
- Place-based-building or innovation strategies require a range of partnerships in different forms that involve entities such as political leaders; Federal, state, and local governments; communities; universities and community colleges; Federal laboratories; businesses and industry; philanthropic organizations; and others.

State leadership also recognizes the need to encourage greater, multi-sector collaboration to make substantial progress of our country’s more critical educational goals.

² National Commission on Innovation & Competitiveness Frontiers. Phase 2 Launch Summit Report. March 2023.

“We want access. We want affordability. And we want completion and graduation. And if we can think about things together and align our work around common goals, we are going to be much more successful as we think about the way forward and the important role higher education plays, both in developing and educating citizenry and also the workforce that we need.”³

—Utah Senate Majority Whip Ann Millner

States are already developing the types of collaborative models imagined by HESA to address state-level priorities. Just one example is the Massachusetts Alliance for Early College (MA4EC), which is a cross-sector coalition focused on dramatically increasing the number of students with access to high-quality early college in Massachusetts. Project leaders identified four main processes necessary to achieve their shared goals that could provide insights into effective strategies that could be replicated and expanded to drive positive change at a national level.⁴

- Collective Impact – building and activating a powerful, energized coalition of cross-sector partners around ambitious goals
- Policy Conditions- educating and advocating for sufficient, sustainable, and predictable funding and policy conditions to achieve goals
- Capacity Building – growing technical assistance, resources, and tools.
- Innovation – fostering a culture of innovation and improvement to promote program models that increase positive outcomes

The Council on Higher Education as a Strategic Asset (HESA) can serve as the convener that powers collective action towards achieving a set of national goals and creates a framework for leveraging collective impact, policy conditions, capacity building, and innovation at a national level. The power of HESA is in its diversity of voices and the constituencies they represent. Its work is focused, not on the success of a particular institution or constituency, but on the collective responsibility of these parties to secure the global competitiveness of our country, the health of our democracy, and the economic prosperity of our people.

³ <https://www.ncsl.org/state-legislatures-news/details/as-higher-education-evolves-states-and-universities-work-to-adapt>

⁴ <https://ma4ec.org>

Recap of Convening 1

The Commissioners and Strategic Advisors of the Council on Higher Education as a Strategic Asset (HESA) met for their first convening on June 6, 2023, in Washington, DC. The goal of the first meeting was to establish a common understanding of the purpose and goals of HESA and to develop a shared framework for change that would guide the work of the Council for the remaining three convenings.

Informed by a pre-convening survey and brief presentations by Council members and invited guests, the Council engaged in plenary and working group sessions designed to elicit issues and ideas for change that would impact HESA's goal of "creating a national higher education strategy to develop the human capital needed to strengthen America's global competitive position." In order to frame the discussions, the working sessions were organized around three proposed outcomes that HESA would need to address in order to achieve its goal.

- **Align Degrees and Credentials with Future Workforce Demands.** Innovate our approach to the design and delivery of post-secondary degrees and credentials to better align with the requirements of future industries and careers.
- **Graduate More Students and at Equitable Rates.** Reimagine educational pathways so more students from all sectors of our society can complete high-quality degrees and credentials and access learning opportunities throughout their lifetime.
- **Expand Access to High-impact Learning Experiences.** Create educational models that allow more students from all socioeconomic backgrounds to engage in the type of rigorous, future-proofed curriculum that prepares them to contribute meaningfully to our economy, society, and democracy.

Using these proposed outcomes to guide small group discussion, convening participants explored two overarching questions:

- What are the issues, challenges, or opportunities that HESA needs to address to make progress on each outcome at a national level?
- What are innovative ideas or models that HESA should consider to impact the outcome at a national level?

TOPICS FOR FURTHER DISCUSSION

From the small group and plenary discussions, four major cross-cutting themes emerged that will form the framework for Convening 2 on October 3-4. The major themes are:

- redefining partnerships between K-12, higher education, and industry to build multiple pathways into high-demand fields;
- designing a national approach to outcomes-based reporting that incentivizes achievement of national priorities and supports transparency;
- reimagining teaching and learning for an AI world; and
- creating a national infrastructure to advance post-secondary innovation.

DESIGN PRINCIPLES

In addition to an emerging set of recommendations to directly address the goals of the HESA project, a set of principles also began to take shape that could serve as a guide for how the final recommendations should be refined, prioritized, and communicated.

Rebuilding public trust in the value of postsecondary education

Council members expressed deep concern about the growing lack of confidence in higher education and the perceived value of a college degree. As HESA develops and communicates its recommendations, we will need to ensure that the recommendations are not perceived as self-serving and are framed through the lens of how postsecondary education can better serve the strategic interests of the United States and its citizens.

Expand access and achieve egalitarian outcomes

Achieving HESA's goals will require that our recommendations pay particular attention to how new models will expand the talent pipeline by providing greater access to high-quality degrees and credentials to more first generation, low-income, rural and adult students and students of color and address historic barriers that have hampered their ability to successfully complete their academic goals.

Lower the cost of attaining degrees and credentials

Much of the current questioning of the value of higher education is connected to cost and how college is becoming out of reach for many low- and middle-income families. As HESA develops its priority recommendations, it will need to pay particular attention to how those recommendations not only improve quality and access but also lower the total cost of completing a degree or credential.

Elevate and reward partnership and collaboration

HESA's goals and outcomes cannot be achieved by taking an insular approach to design or expecting individual institutions to innovate on their own. Change of this magnitude will require that HESA's recommendations include partnerships with key stakeholders and focus on multi-institutional collaboration as a priority.

Content of the HESA Convening 2 Briefing Book

HESA is not the only organization thinking deeply on this subject. Significant research and analysis has been conducted by a number of organizations to understand the underlying challenges and possible solutions that should be considered by HESA's Commissioners and Strategic Advisors as they form their recommendations. These substantial and thoughtful efforts by higher education institutions and associations, non-profit organizations, and the philanthropic community provide a rich set of information from which the Council can discuss, debate, and come to consensus on a focused set of priorities critical to the success of the United States and the elements of a national strategy to achieve those outcomes.

The Convening 2 Briefing Book provides a synthesis of the major concepts discussed across a small sampling of the many reports written on the four topics identified in Convening 1 for further exploration and development. It also highlights a small sample of the institutions, systems, and organizations who have developed and implemented innovative approaches to addressing these same topics as examples of what might be scaled nationally.

Section 3: Convening 2 Discussion Topics

TOPIC 1: Redefining partnerships between K-12, higher education, and industry to build multiple pathways into high-demand fields

Topic 1 focuses on the need to increase collaboration and shared responsibility between K-12, colleges and universities, and employers for the development and delivery of high quality, accessible pathways that prepare more individuals for entry and advancement in high demand fields. The topic recognizes the importance for the national higher education ecosystem to work together in engaging with other sectors of our economy and society for maximum impact and benefit.

Within the larger topic of redefining partnerships are four areas that would benefit from more detailed exploration:

- A. Creating national frameworks to support partnership and collaboration in the design of degrees and credentials.
- B. Expanding work-learning models to advance quality learning experiences.
- C. Developing better approaches to guidance and information about career pathways
- D. Standardizing and integrating credentialing systems across states, institutions, third-party providers, and employers



Creating a national framework to support partnership and collaboration in the design of degrees and credentials

One of U.S. higher education's great strengths is the diversity of its post-secondary education ecosystem. With more than 4000 Title IV degree-granting institutions (public, private, non-profit, for-profit) serving more than 16 million students in 2022, there are educational providers with a diversity of missions, program offerings, and costs delivered across a diversity of geographic locations and instructional modalities that serve the needs and goals of various student populations.

As Stewards of Place,⁵ colleges and universities are critical partners in advancing local and regional needs. Efforts to engage employers, higher education institutions and state agencies have demonstrated the power of effective partnerships in addressing specific outcomes within a state or region, such as the Business Higher Education Forum's efforts to grow the STEM workforce by building partnerships between industry partners and high education institutions in five states.⁶

There is great interest from within and outside higher education to investigate new approaches to more quickly and more cost effectively develop and expand partnerships that create multiple pathways for learners to develop and document the skills and competencies necessary to engage in the work of the future. This may require a redefining or redesigning how higher education institutions work with

⁵ <https://aascu.org/resources/recommitting-to-stewardship-of-place/>

⁶ https://www.bhef.com/sites/default/files/BHEF_Building%20Bridges_Exec_Summary.pdf

community and industry partners and the development of more robust and interconnected policy frameworks linking K-12, higher education, and the employer community around work-based learning.

The U.S. Department of Education is co-hosting a series of Unlocking Pathways Summits along with the U.S. Department of Labor, and Jobs for the Future. The purpose of the summits are to equip state teams to support K-12, higher education, and workforce leaders to create or expand education-to-workforce systems that are necessary to respond to shifting state economies and to leverage historic federal investments through the CHIPS and Science Act, the Bipartisan Infrastructure Law, and the Inflation Reduction Act. The goal is to re-envision and redesign education and workforce-development systems to align to the skills and competencies that students need to be successful in the future of work; to invest in cross-sector collaboration; and ultimately to prepare the workforce needed to meet economic and national security imperatives.⁷

The U.S. Chamber of Commerce Foundation has developed Talent Pipeline Management® (TPM)⁸ to provide guidance on how employers can engage authentically in co-designing high performing talent pipelines in partnership with their education and workforce development partners.

The World Economic Forum’s Centre for the New Economy and Society White Paper released a report “Strategies for the New Economy: Skills as the Currency of the Labour Market,” which recognized that existing education and learning systems played a critical role in expanding our economies and the middle class, but “they lack the features to achieve the scale and speed needed in the new world of work. In the midst of the 4IR, which is characterized by swift and unexpected change across economies and labour markets, a new shared vision for talent is needed to ensure current and future social mobility.”⁹

They call for a closer collaboration between policy makers, educators, and employers to fundamentally rethink how we define and recognize skills as the “core currency in the labour market.” They identified a set of strategy recommendations in three domains (learning ecosystem, workforce ecosystem, and enabling environment) that highlight how a focus on clearly

U.S. Chamber of Commerce Foundation Talent Pipeline Management® (TPM)

Strategy 1: Organize Employer Collaboratives. Create a collaborative that organizes employers to identify the most promising opportunities for engagement around similar workforce needs.

Strategy 2: Engage in Demand Planning
Develop projections for job openings to determine with accuracy the type of talent and how much of it employers need.

Strategy 3: Communicate Competency and Credential Requirements. Create a shared language to better communicate hiring requirements of critical jobs to improve employer signaling.

Strategy 4: Analyze Talent Flows.
Identify where employers historically source their most qualified talent and analyze the capacity of those sources— as well as untapped talent sources—to meet projected demand.

Strategy 5: Build Talent Supply Chains.
Build and manage the performance of talent supply chains to create a positive return on investment for all partners.

Strategy 6: Continuous Improvement.
Use data from your talent supply chain to identify the most promising improvement opportunities to generate a better return on investment in the future.

Source: <https://www.uschamberfoundation.org/talent-pipeline-management>

⁷ <https://www.ed.gov/news/media-advisories/us-deputy-secretary-and-under-secretary-education-visit-madison-wisconsin-promote-education-and-workforce-development-jobs-future>

⁸ <https://www.uschamberfoundation.org/talent-pipeline-management>

⁹ https://www3.weforum.org/docs/WEF_2019_Strategies_for_the_New_Economy_Skills.pdf

World Economic Forum Recommendations

Strategies for the New Economy: Skills as the Currency of the Labour Market

Learning Ecosystem Strategies

- *Build, adapt and certify foundational skills.* There is a need for new tools that can validate foundational skills across the age range, identify variation in proficiency and assess the need for further upskilling among the population.
- *Build, adapt and certify advanced skills.* To truly scale adult learning, more needs to be done to enable flexible learning trajectories that blend everyday responsibilities with lifelong learning. Educational technology can offer new ways to move beyond assessing the acquisition of advanced skills based on time spent in courses, credits completed or exams, toward iteratively measuring and developing proficiency and identifying both skills and subject area knowledge in tandem.
- *Build, adapt and certify skills among the adult workforce.* The scale of the reskilling and upskilling challenge requires better collaboration between businesses alongside a shift away from the traditional delineation between government-funded education and employer-funded education. Renewed adult training systems need to strike a more effective balance between public and private responsibility for financing skilling, greater agility to labour market demands and greater comparability of learning content across companies.
- *Realize the potential of educational technology and personalized learning.* As in-demand skills continuously evolve, educators and businesses have an opportunity to adapt curricula and learning, introducing needed reforms alongside greater efficiencies of scale through educational technology (edtech) that encompasses web-based learning, virtual reality and smart systems powered by artificial intelligence. This reflects a need to reframe current edtech solutions away from methods for delivering isolated solutions and towards alignment with comprehensive skills frameworks.

Workforce ecosystem strategies

- *Map the skills content of jobs.* A dynamic system for mapping skills to tasks and jobs will enhance the signaling of skill needs between education systems and the labour market today and in the future. Better signaling to learners of high-value and in-demand skills can support broader recognition of job opportunities in the labour market and the pathways to leveraging those opportunities through effective reskilling.
- *Design coherent and portable certifications.* This requires a broader shift away from the traditional delineation between government-funded education and employer-funded education to a model of greater collaboration between government and business on agile training systems that strike a better balance between public and private responsibility for financing and provide ongoing learning and certifications to workers. Closer collaboration and stronger agreement on cross-applicable certification—and on the measures of proficiency across educational institutions—can be incentivized through: clearly defined skills that are taught in each course mapped to a shared skills taxonomy, efforts at recognizing prior learning and new methods of logging qualifications such as a distributed ledger (blockchain).
- *Rethink organization and talent management processes.* A common definition of skills and process for logging them will create transparency and allow individuals and businesses to articulate priorities and organizational structure on that basis. Smart software and data analytics can support this shift in workforce planning through performance monitoring and prediction of resource requirements.

Enabling environment strategies

- *Drive momentum around the concept of skills.* Across education and training systems, as well as among employers, there is an urgent need to move beyond the practice of learning bodies of fact and refocus on building the behaviours and skills to apply knowledge to tasks, including cross-functional and specialized skills, and cognitive skills.
- *Align skills taxonomies.* It is becoming increasingly evident that the labour market must establish skills as a common currency to support collaboration between employers and educationalists. Such a shift has the potential to establish a foundation for a more effective marketplace for upskilling and reskilling. Potential design principles include an open-source architecture that would allow various stakeholders to ‘plug in’ and align their taxonomies, and embedding of those new taxonomies across talent firms, employment and career agencies.
- *Shape culture, mindsets and mechanisms for lifelong learning.* As the labour market shifts from a mindset of ‘learn, do, retire’ to ‘learn, do, learn, do, rest, learn...repeat’, disrupting job security, the need to continually add to one’s skillset and the imperative of lifelong learning will become increasingly important levers for success. A more even distribution of funding will incentivize lifelong learning and the notion of continuously shaping one’s skillsets, benefiting both employers and employees.

defined skills can create a shared framework for educators, employers, and learners.

The Business Roundtable is advancing a Workforce Partnership Initiative, in which participating CEOs work with local colleges and universities in nine U.S. regions to fill high-demand jobs in STEM-related fields, such as cybersecurity and data analytics.¹⁰

1B

Expand work-learning models to advance quality learning experiences

Embedding experiential and applied learning opportunities as part of a student's learning experience has been understood to have a significant positive impact on student learning outcomes. The American Association of Colleges and Universities (AACU) identifies experiential learning experiences, including internships and community-based learning, as high impact practices for their ability to provide significant educational benefit, especially for students from underserved student populations.¹¹

Applied and experiential learning is important because in order to master a complex subject, learners must acquire skills, practice integrating those skills in one context, and then apply what they have learned to a new context. According to Joseph Aoun, president of Northeastern University, "The result of this sequence—acquisition, integration, application—is expertise. Experiential learning is effective because it completes the three-part learning sequence, giving learners the opportunity to take the components they have integrated and apply them to complex, living contexts."¹²

More recently, there has been increasing attention on the importance of work-based learning models for all students, regardless of major, that provide opportunities for students to apply their classroom learning in work situations. In a recent study, Strada Education Foundation found that students who engaged in work-based learning experiences, such as internships, had increased earning power, more confidence in themselves, and recognized the value of their education. They also found that work-based learning experiences were not available to all students.¹³ Their research revealed that less than one-third of recent graduates participated in paid internships and disparities exist for women, people of color, first-generation, and low-income graduates, even when taking into account their fields of study.

Jobs for the Future (JFF) is a national non-profit committed to developing innovative career and educational programs and public policies that increase college readiness and career success and build a more highly skilled workforce. JFF has studied effective work-based learning experiences and identified seven principles that define effective models.¹⁴ They are:

¹⁰ <https://www.businessroundtable.org/about-us/corporate-initiatives>

¹¹ <https://www.aacu.org/trending-topics/high-impact>

¹² Joseph Aoun, *Robot-proof: Higher education in the age of artificial intelligence* (Cambridge, MA, The MIT Press 2017).

¹³ <https://cci.stradaeducation.org/pv-release-march-16-2022/#>

¹⁴ <https://archive.jff.org/resources/making-work-based-learning-work/>

The Power of Work-Based Learning Strada Education Foundation

1. Paid internships are linked to getting paid more after graduation. College students who completed a paid internship during their undergraduate education have higher-paying first jobs a year after graduation — even when accounting for differences in pay based on field of study, gender, and race/ethnicity.

2. Work-based learning is tied to noneconomic post-graduation success. Bachelor's degree holders who had a work-based learning experience report greater career satisfaction and are more likely to say their education helped them to achieve their goals and was worth the cost.

3. Among current students, paid internships are linked with greater confidence they will be successful in the job market and confidence in the value of their education. Students who have a paid internship report higher levels of knowledge and confidence about their career, feel more supported by their college or university, are more likely to feel their education was worth the cost and helped them to achieve their goals, and are more likely to recommend their college or university to others.

4. Access to paid internships is uneven. Black and Latino students, women, low-income, and first-generation students are less likely to experience a paid internship. Even when controlling for variation across majors, these disparities remain.

Source: <https://cci.stradaeducation.org/pv-release-march-16-2022/#>

1. Support entry and advancement in a career track
2. Provide meaningful job tasks that build career skills
3. Offer compensation
4. Identify target skills and how gains will be validated
5. Reward skill development
6. Support college entry, persistence, and completion
7. Provide comprehensive student supports

As part of its **Raising the Bar: Unlocking Career Success initiative**, the U.S. Department of Education has identified work-based learning as “key to unlocking career success.” They defined work-based learning as “sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or simulated environments at an educational institution that foster in-depth, firsthand engagement with the tasks required in a given career field, that are aligned to curriculum and instruction.”¹⁵

The **Project on Workforce**, an interdisciplinary, collaborative project between the Harvard Kennedy School's Malcolm Wiener Center for Social Policy, the Harvard Business School Managing the Future of Work Project, and the Harvard Graduate School of Education, developed a comprehensive set of tools to better understand the intersection between higher education and the workforce. *Delivering on the Degree: The College-to-Jobs Playbook* provides a comprehensive analysis of college-to-jobs programs, identifies 13 interventions within the college ecosystem that could be used to ease the transition into good jobs in the workforce, and a set of recommendations for action for higher education institutions, employers, policymakers, and researchers to improve the college-to-jobs transition for students to ensure our postsecondary education system lives up to its economic mobility promise.¹⁶

The **Catalyze Challenge** is a collaborative funding initiative focused on advancing innovation in career-connected learning that is co-sponsored by American Student Assistance, Arnold Ventures, Beth and Ravenel Curry Foundation, Bill & Melinda Gates Foundation, Charles Koch Foundation, Charter School Growth Fund, Joyce

¹⁵ <https://cte.ed.gov/unlocking-career-success/our-keys>

¹⁶ <https://college-to-jobs-initiative.netlify.app/college-to-jobs-playbook.pdf>

Foundation, the Schultz Family Foundation and the Walton Family Foundation. In a recent analysis of their first two rounds of grants, they identified a series of observations about building innovations that advance career-connected learning. They are:¹⁷

- Engage employers in meaningful ways to ensure programs meet employers' needs, while expanding pathways to employment for young people.
- Develop innovative models in rural areas to provide local youth with high-quality opportunities typically found in metropolitan areas.
- Introduce career exploration and identity development in middle school, offering youth an opportunity to explore their passions early on while developing relevant skills and discovering potential careers.
- Design robust earn-to-learn models, allowing youth to pursue paid, hands-on work-based learning experiences that can expand career opportunity, as opposed to entry-level low-wage jobs with limited growth potential.

One area that is receiving increased attention within the work-learn framework is apprenticeships. The Federal and state governments are elevating apprenticeships as a viable approach to enhancing worker readiness and closing the skills gap. For example, the governor of Colorado issued an executive order to expand apprenticeships in state agencies. The order requires state agencies to increase their number of apprenticeship programs by 50% by June 30, 2024, and directs every department to implement at least two new work-based learning programs by Dec. 30, 2025, such as apprenticeships, internships or fellowships.¹⁸ The Federal Government has committed \$113 million in grant funding to increase enrollment in registered apprenticeship programs.¹⁹

The private sector and organizations also are advancing the role of apprenticeships. As one of its corporate initiatives, The Business Roundtable has developed the Apprenticeship Accelerator, which helps participating companies develop or scale registered apprenticeship programs to expand the pipeline of workers without a four-year college degree and support their development and advancement. Working closely with local community colleges, participating Business Roundtable member companies are creating or enhancing apprenticeship programs focused on inclusive hiring models and skills development. The Accelerator is helping companies address skills gaps while also advancing equity and economic mobility for historically excluded groups.²⁰ The Institute for Workplace Skills and Innovation America, in partnership with the Urban Institute, is engaged in a five-year national initiative to grow registered youth apprenticeships by building collaborations between K-12 schools, higher education and employers to develop career-focused apprenticeships that lead to a nationally-recognized industry-credentials.²¹

¹⁷ https://drive.google.com/file/d/11JGBoWY-uQq13469rwcxetd_a2twvUh9/view

¹⁸ https://www.coloradopolitics.com/business/polis-apprenticeship-executive-order/article_e163da9a-4d99-11ee-b657-0b185f834ee9.html#:~:text=The%20order%20requires%20state%20agencies,as%20apprenticeships%2C%20internships%20or%20fellowships.

¹⁹ <https://www.dol.gov/newsroom/releases/eta/eta20220223>

²⁰ <https://www.businessroundtable.org/about-us/corporate-initiatives>

²¹ <https://www.iwsiamerica.org/youth-apprenticeship>

The Project on Workforce Recommendations

Higher Education Institutions

1. Colleges must put access to good jobs at the center of their mission and integrate career-connected learning across their institutions. Career readiness should not be siloed in a career office; rather, it should be a core education component that is embedded throughout the student experience. That requires:
 - Integrating experiential learning into coursework.
 - Providing for-credit and paid career readiness opportunities.
 - Mapping courses and majors to in-demand careers.
 - Combining academic, career, and financial advising.
2. Colleges should institutionalize engagement with employers and other partners to improve collaboration, including by:
 - Creating a “go-to place” for employers to engage with the institution and student body. Institutions should create hubs for employers to easily acquire information about partnering with the school and hiring students for career immersion experiences.
 - Participating in regional economic entities at the leadership level.
 - Leveraging national networks to learn and share best practices.
3. Institutions must design career interventions with equity and diversity in mind.

Employers

4. Engage with community colleges, HBCUs, and MSIs to diversify their workforce.
5. Develop structured, paid career immersion experiences.
6. Provide human, physical, and financial resources to support job-aligned programs.

Policymakers

7. Policymakers should increase college accountability and transparency around student economic outcomes, including by:
 - Requiring institutions to track and report student economic outcomes.
 - Building statewide longitudinal data systems (SLDSs).
8. Provide federal support for programs that improve employment prospects. Federal policymakers should direct funds to programs and services that improve student economic outcomes, instead of rewarding “seat time”—especially in the case of programs that have little value to students or society. Federal resources should be tied to performance, which will require rethinking what is fundable under Title IV of the Higher Education Act. Federal policymakers should consider:
 - Expanding student aid to include high-quality credentialing programs, paired with strong reporting requirements (e.g., Pell grants for short-term programs).
 - Funding work-based learning opportunities (e.g., subsidized youth employment programs) or providing incentives to businesses to develop earn-and-learn programs (e.g., the apprenticeship levy in the United Kingdom²¹⁶).
 - Opening funding for non-traditional actors, such as intermediaries and high-quality non- and for-profit providers, to partner with colleges, accompanied by strong safeguards, which may enable promising models to scale (e.g., the Educational Quality through Innovative Partnerships (EQUIP) model²¹⁷).
 - Providing additional capacity-building funds for HBCUs and other MSIs (e.g., increasing federal appropriations).
 - Funding sector partnerships between industry, education, and community organizations (a similar economic development model as the Trade Adjustment Assistance Community College and Career Training grants).
9. Provide state resources for career services and industry-education partnerships, tied to student outcomes. State policymakers should support career advancement initiatives at state four-year and two-year institutions, including by:
 - Providing appropriations for student support services, like career counseling, which have seen declining state funds over the past ten years, while holding schools accountable for student economic and education outcomes.²¹⁸
 - Providing grants for students to attend community college tuition- and fee-free, including through “promise” programs, which have been shown to increase college access.²¹⁹
 - Developing subsidy programs for businesses to develop structured, paid work-based learning opportunities that lead to high-quality jobs.
 - Supporting employer-education-community partnerships through competitive regional grants to incentivize collaboration and sector alignment.

Researchers

10. Researchers should conduct longitudinal studies focused on labor market outcomes.
11. Build research-practice partnerships with postsecondary institutions.



Develop better approaches to provide guidance and information about career pathways

Navigating postsecondary education and the evolving labor market can be extremely complicated. Whether its young people in high school or adults looking to change careers, individuals need better support in developing clear career goals and understanding what educational pathways and resources are available to them.

For students in high school, the U.S. Department of Education, through its effort, **Raising the Bar: Unlocking Career Success**, identifies career advising and navigation as one of four system-wide strategies to expand pathways to student success.²²

Launch: Equitable & Accelerated Pathways for All²³ is a national college and career pathways initiative with a goal that every learner will have access to and succeed in high-quality and equitable career pathways. Launch includes leaders from across 11 states, including state education and workforce agencies, K-12 districts, postsecondary institutions, policymakers, and other intermediary partners to elevate the levers that drive systems change — data, policy, funding, partnerships, and equity — and help state and local sites create equitable, sustainable approaches to career pathways.

Career Launchpad²⁴ offers online career exploration tools and personalized job exploration counseling, tailored workplace readiness training, and placement assistance for California high school juniors and seniors. It is supported by the Institute for Workplace Skills and Innovation America.

Through the **Multiple Pathways Initiative**²⁵, participating Business Roundtable companies embark on a multi-year, targeted effort to reform companies' hiring and talent management practices to emphasize the value of skills, rather than degrees, and to improve equity, diversity and workplace culture. Companies are implementing new recruitment and assessment strategies to better recognize and evaluate skills of all job seekers, identifying upward career paths for employees who acquire new skills along their career journey, and developing training programs to help employees gain different skills needed to advance.

²² <https://cte.ed.gov/unlocking-career-success/our-keys>

²³ <https://launchpathways.org>

²⁴ <https://www.careerlaunchpad.org>

²⁵ <https://www.businessroundtable.org/business-roundtable-launches-initiative-to-place-greater-emphasis-on-skills-in-hiring-and-advancement-improve-equity-and-diversity-in-employment>



Standardizing and integrating credentialing systems across states, institutions, third-party providers, and employers

Discussions of closing skills gaps and providing opportunities for reskilling and upskilling often turn to the role of alternative and non-degree credentials in meeting the needs of both employers and learners. Recent research by Strada Education Foundation indicates that this trend is projected to increase because of the flexibility for the learner and responsiveness to employers needs. The challenge is that as an emerging area of learning recognition, non-degree credentials currently lack clear standards and definitions. In addition, research suggests that long-term career mobility is limited for individuals who only complete short-term credentials, and individuals must go on to longer-term credentials to see substantial earnings gains.

True stackability of multiple credentials is not yet a reality. According to Strada, “Students are often left facing a complex system of potential dead ends to navigate where the students are mobile but the credentials are not.... There are many disconnects between credit and non-credit educational offerings that make credential stacking challenging, often inequitable, and limiting of the possible on- and off-ramps for students into jobs or continuing education.”²⁶

The Education Strategy Group developed the **Credential Stackability Guide**²⁷ to support institutions in developing stackable credentials for their learners. They identified four key pillars to guide institutions as they develop non-degree credentials.

- *Data Infrastructure and Systems.* A well-designed data infrastructure can aid in identifying issues in the stackable credential pipeline as well as help an institution better understand who makes use of stackable credentials.
- *Mapping and Alignment of Curriculum.* In a stackable credential pathway, the goal is to build pathways such that two or more credentials share course requirements, allowing for progression towards several credentials. Ensuring alignment in requirements means that students can return and build upon what they already have without losing credits or time while securing meaningful credentials with labor market value along the way.
- *Credential Pathway Communication.* To ensure that students are aware of their full range of opportunities, including on and off-ramps, institutions should begin to move towards more systematic processes of making sure learners receive high-quality advising as they come near the end of one credential and consider beginning another.
- *Student Centered Supports.* A large proportion of the individuals who enroll in stackable credential programs are adult learners and working individuals. These individuals bring valuable assets (e.g., work experience, clear vision for purpose of seeking a credential). These individuals can also benefit from supports such as financial and basic need support to ensure they have the resources necessary for success.

Credential Engine is a non-profit organization whose mission is to map the credential landscape with clear and consistent information, fueling the creation of resources that empower people to

²⁶ https://edstrategy.org/wp-content/uploads/2023/02/Stackability_Guide_FINAL.pdf

²⁷ https://edstrategy.org/wp-content/uploads/2023/02/Stackability_Guide_FINAL.pdf

find the pathways that are best for them. Credential Engine provides a suite of web-based services that creates a centralized Credential Registry to house up-to-date information about all credentials, the Credential Transparency Description Language (CTDL) a common description language to enable credential comparability, and a platform to support customized applications to search and retrieve information about credentials.²⁸

Credential As You Go²⁹ is a national movement focused on building an incremental credentialing system that captures and validates all learning. Such a system recognizes that many types of quality credentials (degrees, certificates, industry certifications, licenses, badges, microcredentials) exist to document an individual’s learning. It also recognizes that credentials are awarded by many types of providers (e.g., community and technical colleges, four-year colleges and universities, third-party organizations, employers, the military, and state licensing boards). To inform the field about initiatives/alliances underway and to facilitate partnerships, Credential as You Go is currently engaged in two key efforts. Launched in December 2022, the web-based Learn & Work Ecosystem Library collects, curates, and coordinates resources to support the learn-and-work ecosystem. With more than 600 articles and artifacts, the Library contains information on more than 160 initiatives and more than 240 alliances and intermediaries that are working to strengthen the learn-and-work ecosystem. It also features a Knowledge section that includes information on the 12 building blocks of the ecosystem, more than 75 related subcomponent topics, and a glossary of more than 110 terms.

ACE Learning Evaluations³⁰ is an effort by the American Council on Education to validate learning and skills developed outside of the classroom and help students apply what they know toward a degree or other opportunity. ACE has developed a wide range of programs and initiatives that support adult learners in attaining high-quality credentials, including evaluation of military and workforce training, tools to help practitioners and learners navigate credit for prior learning, GED Testing, and innovative solutions for learners to signal their competency attainment.

²⁸ <https://credentialengine.org>

²⁹ <https://credentialasyougo.org/wp-content/uploads/2023/08/CAYG-Mapping-Key-Report-FINAL.pdf>

³⁰ <https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/Credit-Transcripts.aspx>

Topic 1: Possible Recommendations for Further Exploration at Convening 2

The following ideas emerged during Convening 1 or were proposed through the Convening 2 survey.

Increasing collaboration in the design of degrees and credentials by:

- creating career verticals (high school to graduate education) that create clear pathways for entry and advancement in high-demand fields.
- better utilizing workforce tracking data systems to inform the development of new credentials and revisions to existing credential programs.
- updating curricula and creating new credentials (badges, concentrations, minors, graduate certificates) using industry-validated knowledge, skills, and abilities maps (KSAs).
- Hosting national meetings with leading employers to learn what skills they expect to be seeking in the next 5-10 years to inform how to help K-12 prepare students with those skills and help universities design programs/majors in those areas of high need, recognizing different geographies might need somewhat different skills.

Recognizing and documenting skills by:

- supplementing the traditional transcript with (a) high-impact practices and (b) value-added training, skills, and certifications that align with workforce demands.
- building professional certifications into academic curriculums.
- making skills transparent by placing additional focus on competencies as currency in the marketplace
- creating a national common language for framework to categorize skills and credentials.
- building a national incremental credentialing system, recognizing that many types of quality credentials (degrees, certificates, industry certifications, licenses, badges, microcredentials) document an individual's learning, and credentials are awarded by many types of providers including community and technical colleges, four-year colleges and universities, third-party organizations, employers, military, and state licensing boards.

Advancing work-learning models by:

- creating tax incentives for businesses and organizations to provide paid internships.
- creating a system modeled after the German and Swiss programs where students work for part of a week or month and go to school the balance of the time with educational outcomes linked to job responsibilities. Students are compensated with a "training wage," which is paid by employer. At the end of the training, the student is eligible to earn a "qualification" in the chosen occupation.
- addressing the role of businesses in ensuring recruitment and hiring practices from access institutions.
- developing innovative partnerships where companies underwrite the cost for degree completion, provide workforce training, and guarantee a job.

Increasing transparency to support enhanced communication between K-12, higher ed and industry by:

- designing better approaches to counseling for new and continuing students on career options and paths to careers.
- raising awareness of the critical need for professions with high social value but historically lower economic value (e.g., social work, teaching).
- raising the visibility and priority of critical trade skills.
- better preparing K-12 teachers/administrators to facilitate these pathways and partnerships.
- conducting research on college/dual enrollment programs to ensure quality graduate outcomes and equity.

TOPIC 2: Designing a national approach to outcomes-based reporting that incentivizes achievement of national priorities and supports transparency

Topic 2 focuses on redefining how student learning and academic achievement are measured and recognized, how the value of higher education is tracked and communicated, and on creating a national approach to recognizing and rewarding institutions that have demonstrated their commitment to delivering on national outcomes.

The value of a college degree is a topic of widespread discussion. Significant research supports that a college education is, in fact, worth it on multiple levels. It transforms individuals by providing a wage premium. It buffers them against unemployment, it improves health outcomes, and it inspires them to be more engaged in their communities and their democracies.

In “Education for What?”³¹ a study recently released study by the Lumina Foundation and Gallup to understand the individual and societal benefits of postsecondary education, key findings include:

- Out of 52 economic and noneconomic outcomes tested in the study – such as higher income, greater job satisfaction, higher voting rates and greater volunteerism – educational attainment has a meaningful statistical relationship with 50 of them.
- Education is positively related to higher income, better health status, better wellbeing, increased likelihood to do work that fits with their natural talents and interests, voting participation, volunteerism, and charitable giving.
- The relationships between education and positive life outcomes are generally similar for people from different racial and ethnic backgrounds, but the link between education and labor force participation is slightly higher for Black adults.
- Most adults agree that higher education boosts innovation, incomes, and entrepreneurship. However, the public is more skeptical that higher education improves physical health, mental health, cooperation, or democratic representation.

At the same time, a recent poll by Gallup indicates that the general public’s overall confidence in higher education is at 36%, which is down 11 percentage points from 2015, with even sharper declines based on political party identification.³²

This growing questioning of the value of a college degree, even in the face of strong evidence that individual economic mobility and the strength of our economy and democracy are dependent the strength of our higher education ecosystem, speaks to the need for a better framework for demonstrating and communicating the critical role higher education plays in our society. But what are

³¹ <https://www.gallup.com/analytics/468986/state-of-higher-education.aspx#:~:text=The%20Education%20for%20What%3F%20report,believe%20education%20promotes%20these%20outcomes>

³² <https://news.gallup.com/poll/508352/americans-confidence-higher-education-down-sharply.aspx>

the key priorities and outcomes we must commitment to as a national ecosystem of higher education that will rebuild public confidence, drive innovation, and allow us to track progress toward achieving our national goals?

Retention and graduation rates, graduate placement rates, equity gaps, and wage premiums of degrees are all important metrics that demonstrate quality. Newer metrics, such as economic mobility³³ and regional economic and social impact, are providing additional insights into the impact colleges and universities are providing to students and stakeholders. While these data are important elements to a transparency framework, they may not be enough to impact the growing concern about the value of higher education.

New measurements, such as the wealth premium, are providing a fuller picture of about the return on investment for students, when the cost and total borrowing are taken into account. The Department of Education is currently inviting public comment on expanding the reporting currently required under Gainful Employment to include reporting on wage premiums for all degrees, not just non-degree credentials, and requiring that colleges and universities make that data available to the public through their web sites.

Beyond the economic returns of a degree, the quality of the educational experience and what students actually learn as a result of the study continues to be somewhat of a black box to employers and the public. Surveys of employers indicate that there are wide gaps between the skills needed for jobs and those that current graduates can demonstrate when they join the workforce. An emerging discussion about the need to document the skills and learning acquired as part of earning a degree or credential is creating a critical moment in which the higher education ecosystem may need to rethink how learning outcomes are demonstrated and communicated to employers and used to inform innovation and continuous improvement designed to drive sector-wide improvement and the achievement of national goals.

Shifting Confidence in Higher Education Among Demographic Groups, 2015-2023

% of U.S. adults with "a great deal" or "quite a lot" of confidence in higher education

	2015 %	2018 %	2023 %	2015- 2023 change pct. pts.
Party identification				
Republicans	56	39	19	-37
Independents	48	44	32	-16
Democrats	68	62	59	-9
Education				
No college degree	54	45	29	-25
College degree only	57	50	47	-10
Postgraduate degree	67	60	50	-17
Gender				
Men	52	45	33	-19
Women	61	51	39	-22
Age				
18 to 34	60	51	42	-18
35 to 54	55	49	39	-16
55 and older	55	46	31	-24

Source: Gallup News. <https://news.gallup.com/poll/508352/americans-confidence-higher-education-down-sharply.aspx>

³³<https://thirdway.imgix.net/pdfs/override/Out-with-the-Old-In-with-the-New.pdf>

Within the larger topic of designing a national approach to outcomes-based reporting and transparency are three areas of more detailed exploration:

- A. Identifying and tracking a set of national goals and outcomes to be addressed through a national strategy
- B. Adopting a shared framework for credential quality and skills transparency
- C. Developing a national data system and learning record system



Identifying and tracking a set of national goals and outcomes to be addressed through a national strategy

The decentralized U.S. higher education ecosystem includes more than 4000 institutions that have diverse missions and serve a diverse student populations and stakeholders. Most institutions, state systems, and state higher education organizations already have goals and accountability frameworks that drive their strategies and operations and inform innovation and funding decisions.

Should the U.S. also have a set of postsecondary goals and outcomes connected to our highest national priorities by which it would organize a national strategy, drive innovation, and track progress? Would the clear commitment to achieving these goals and the ability to track and communicate progress begin to rebuild public confidence in higher education and reposition our colleges and universities as a strategic asset of our nation?

One example of a state-level framework is the Kentucky Council on Postsecondary Education. Their Strategic Agenda for Postsecondary Education sets state-level goals and performance indicators in the areas of equity, affordability, transitions, success, talent, and value.³⁴

The **National Conference of State Legislatures (NCSL) Task Force on Higher Education Affordability and Student Outcomes** was created to explore state and federal strategies to make college more affordable for students and taxpayers, improve completion rates, and reduce rates of unrepayable student debt.

The **National Association of System Heads (NASH)** has identified a shared set of goals that member state systems have committed to work collaboratively to achieve.³⁵ They are:

- Increasing Degree Completion (increasing degree and credential completion by 35% by 2023)
- Improving Social Mobility (advancing 85% of students from families in the bottom 40% of the income distribution to the top 60% of the income distribution, and 65% of students in the bottom 40% to the top 40%)
- Reducing Student Debt – (decreasing the median debt borrowed by Pell students by 25% from 2020-21 baseline levels. In addition, the equity gap in three-year repayment rates between Pell recipients and non-Pell recipients will be reduced by 50% from 2019-20 baseline levels (19 points))

³⁴ <http://cpe.ky.gov/ourwork/strategicagenda.html>

³⁵ <https://nash.edu>

In an effort to move beyond access and completion as measures of postsecondary success, The Strada Education Foundation has identified three constructs that could be used to examine postsecondary success.³⁶

- Completion - defined as having completed a post-high school education or training program, credential, or experience, including both degree and workforce credentials or training.
- Economic outcomes - measured using an earnings threshold, defined as 20 percent more than the median for a high school graduate, which is equivalent to roughly 200 percent of the federal poverty threshold for a family of four.
- Fulfillment - refers to students' perspective on whether their education delivered the outcomes they sought and the influence that education had on multiple dimensions of their lives beyond their finances.

“Just as access without completion is insufficient, completion without the fulfillment of expectations for personal growth and improved opportunities leaves students, educators, taxpayers, policymakers, and employers alike less certain about the value of a degree or postsecondary credential. College completion is not an end in itself; it is the promise of progress and prosperity beyond completion that motivates students to enroll in education programs and inspires our citizens to invest public funding in them.” – Strada Education Foundation

Strada argues that establishing outcome standards beyond completing a degree or certificate helps us to identify programs, policies, and practices that deliver on education's promise to improve people's lives and the communities they live and work in. Examining economic success and personal fulfillment together, as well as identifying the most successful elements of their educational experience would help improve the return on all the investments that individuals, families, communities, employers, and governments make in postsecondary education and training.

The purpose of the **Postsecondary Value Commission**³⁷ was to propose a definition of postsecondary value, develop a way to measure that value, and urge action to improve value and make it more equitable. They argue that “students experience postsecondary value when provided equitable access and support to complete quality, affordable credentials that offer economic mobility and prepare them to advance racial and economic justice in our society.” They developed a recommended approach to measuring how and how much students are better off because of their education.

- *Minimum Economic Return*: A student meets this threshold if they earn at least as much as a high school graduate plus enough to recoup their total net price within ten years.
- *Earnings Premium*: A student meets this threshold if they reach at least the median earnings in their field of study, which accounts for expected variation in pay across fields.
- *Earnings Parity*: Informed by The University of Texas System's research on in-field pay inequities, this threshold measures whether students of color, students from low-income backgrounds, and women meet the median earnings of their more advantaged peers (White students, high-income students, or men).
- *Economic Mobility*: Informed by Opportunity Insights' measurement of economic mobility across institutions, this threshold measures whether students earn enough to enter the fourth (upper middle) income quintile regardless of field of study.

³⁶ <https://stradaeducation.org/report/pv-release-july-20-2022/>

³⁷ <https://postsecondaryvalue.org>

- *Economic Security*: While sufficient earnings can create a stable life, wealth is key to building the type of security needed to withstand life’s financial shocks, so this threshold measures whether students reach median levels of wealth.
- *Wealth Parity*: Mirroring the earnings parity threshold, this threshold measures whether students of color, students from low-income backgrounds, and women reach the level of wealth attained by their more privileged White, high-income, or male peers.

Another approach to framing national priorities and outcomes could be connected to responding to high demand fields and creating career pathways for those most at risk from displacement resulting from AI and automation.

In its report “Generative AI and the future of work in American,” McKinsey cites the following trends:³⁸

- During the pandemic (2019–22), the US labor market saw 8.6 million occupational shifts, 50 percent more than in the previous three-year period. Most involved people leaving food services, in-person sales, and office support for different occupations.
- By 2030, activities that account for up to 30 percent of hours currently worked across the US economy could be automated—a trend accelerated by generative AI. However, we see generative AI enhancing the way STEM, creative, and business and legal professionals work rather than eliminating a significant number of jobs outright. Automation’s biggest effects are likely to hit other job categories. Office support, customer service, and food service employment could continue to decline.
- Federal investment to address climate and infrastructure, as well as structural shifts, will also alter labor demand. The net-zero transition will shift employment away from oil, gas, and automotive manufacturing and into green industries for a modest net gain in employment. Infrastructure projects will increase demand in construction, which is already short almost 400,000 workers today. We also see increased demand for healthcare workers as the population ages, plus gains in transportation services due to e-commerce.
- An additional 12 million occupational transitions may be needed by 2030. As people leave shrinking occupations, the economy could reweight toward higher-wage jobs. Workers in lower-wage jobs are up to 14 times more likely to need to change occupations than those in highest-wage positions, and most will need additional skills to do so successfully. Women are 1.5 times more likely to need to move into new occupations than men.
- The United States will need workforce development on a far larger scale as well as more expansive hiring approaches from employers. Employers will need to hire for skills and competencies rather than credentials, recruit from overlooked populations (such as rural workers and people with disabilities) and deliver training that keeps pace with their evolving needs.

McKinsey predicts that the U.S. economy will continue to grow to 2030 but the occupational mix will evolve. Some employment categories will decline while others, such as healthcare, STEM occupations, creative and arts management, and business services will grow, especially if they involve new technology.³⁹

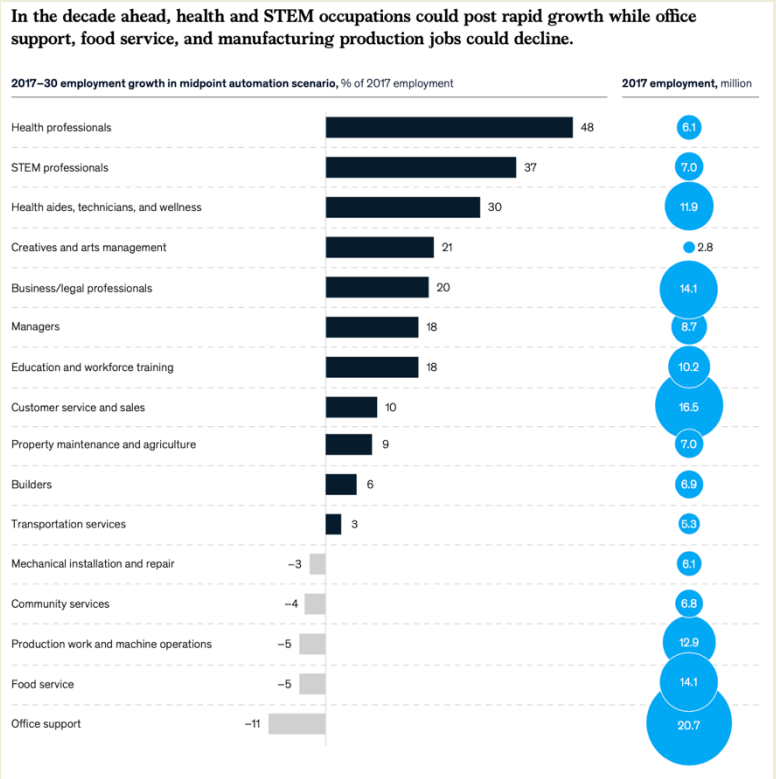
³⁸ <https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america#/>

³⁹ <https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-in-america-people-and-places-today-and-tomorrow>

Similarly, the Bureau of Labor Statistics projects that the top 10 fastest growing occupations (highest percentage change of employment between 2022-2032) will be in:⁴⁰

1. Wind turbine service technicians (45%)
2. Nurse practitioners (45%)
3. Data scientists (35%)
4. Statisticians (32%)
5. Information security analysts (32%)
6. Medical and health service managers (28%)
7. Epidemiologists (27%)
8. Physician assistants (27%)
9. Software developers (26%)
10. Occupational therapy assistants (24%)

The Future of Work in America: Projected changes in jobs by 2030



Jobs involving new technologies, personal services for affluent customers, healthcare for an aging population, creativity, and empathy are expected to grow rapidly.

Illustrative examples of fast-growing occupations, 2017-30

		% growth			% growth
Frontier tech	Software developers	79	Creatives	Dancers	54
	Solar photovoltaic installers	70		Interior designers	42
	Wind turbine service technicians	54		Multimedia artists and animators	41
	Nuclear engineers	47		Merchandise displays and window trimmers	37
	Aerospace engineers	43		Musicians and singers	34
	Electrical engineering technicians	33		Actors	33
			Curators	30	
Wealth workers	Massage therapists	88	Socioemotional support	Social and community service managers	43
	Exercise physiologists	67		Occupational therapy aides	41
	Agents of artists and athletes	49		Training and development specialists	40
	Dietitians and nutritionists	48		Clinical, counseling, and school psychologists	27
	Landscape architects	34		Residential advisers	26
	Animal caretakers	29		Psychologists	21
Healthcare	Physical therapist aides	69			
	Nurse practitioners	65			
	Physician assistants	63			
	Physicians and surgeons	62			
	Hearing aid specialists	53			
	Personal care aides	39			

Source: McKinsey Global Institute analysis

Source: McKinsey & Company

<https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-in-america-people-and-places-today-and-tomorrow>

⁴⁰ <https://www.bls.gov/ooh/fastest-growing.htm>

Adopting a shared framework for credential quality and skills transparency

Stakeholders in the U.S. post-secondary education ecosystem are increasingly seeking mechanisms to move beyond the degree or credential to understand the types of skills and competencies an individual actually possesses as a result of their education. A number of organizations have begun to explore what standards for credential quality might look like and what national frameworks might include.

*“When it comes to using frameworks to define knowledge and skills, the United States is the outlier. America never bothered to develop a national skills framework, probably because our systems are so decentralized that no one could really take the lead. Our decentralized systems offer a lot of advantages, but we should acknowledge that it slows our ability to respond to pressing national needs. This is a good example of where a concerted effort to bring the various players together—universities, community colleges, employers, workforce development systems, unions, industry groups—would really pay off.” -Jamie Merisotis, President & CEO, Lumina Foundation, *Human Work in the Age of Smart Machines*. RosettaBooks, 2020.*

Through its Quality Credentials Task Force, the Lumina Foundation developed a broad, conceptual model of credential quality that could lead to greater equity and quality learning, even as credentialing grows more complex. The **Conceptual Model of Credential Quality** includes three dimensions with associated indicators:

- **Outcomes:** Quality Credentials Produce Positive Outcomes for Society and Individuals. Indicators include: employment, mobility rates, civic engagement, workforce alignment, debt repayment, regional economic development, student completion, and learning outcomes assessment
- **Design:** Quality Credentials Require Intentional Design Leading to Demonstrated Competencies. Indicators include: clear program and institutional learning outcomes, third-party validation of competency, applied and theoretical learning, competency assessment used for improvement
- **Policy and Practices:** Expanding Quality Credentials Requires Student-Centered Institutions, Policies, and Practices. Indicators include: institutional financial health, sound governance, responsible recruitment, equity-minded hiring, advising and student success strategies, policies for recognizing prior learning, educator professional development, equitable participation rates in high-impact practices

There is growing interest in national qualifications or skills frameworks as a mechanism to better identify, align, and document skills. The development and use of national qualifications frameworks have become an established practice internationally. For example, the **European Qualifications Framework (EQF)** is an 8-level, learning outcomes-based framework for all types of qualifications that serves as a translation tool between different national qualifications frameworks. This framework helps improve transparency, comparability and portability of people’s qualifications and makes it possible to compare qualifications from different countries and institutions.⁴¹ While efforts have been made to develop standard frameworks to translate learning, the U.S. does not currently have universally adopted qualifications

⁴¹ <https://europa.eu/europass/en/europass-tools/european-qualifications-framework>

framework. Current efforts include the **Degree Qualifications Profile**⁴² developed by the Lumina Foundation to serve as a learning-centered framework for what college graduates should know and be able to do to earn the associate, bachelor's or master's degree. The DQP was developed in collaboration with a diversity of higher education institutions and faculty who used the framework in the field to improve programs and learning outcomes.

Another effort is the **Educator to Workforce Indicator Framework**⁴³ which was developed by Mathematica, Mirror Group and members of the Gates Foundation's education data team. Developed with input from leading experts from over 15 national and community organizations, it highlights key connections needed between systems to support students as they progress from early education through their career. The E-W Framework offers guidance for using data to promote equitable outcomes and economic security for all.

Multi-State Collaborative to Advance Learning Outcomes Assessment (MSC) was a multi-state initiative sponsored by the State Higher Education Executive Officers (SHEEO) and the American Association of Colleges and Universities (AAC&U). The MSC was an initiative designed to provide meaningful evidence about how well students are achieving important learning outcomes by conducting third-party evaluation of authentic student work using AACU's VALUE rubrics. After the demonstration project was completed, the MSC evolved to become the VALUE Scoring Collaborative⁴⁴ where certified faculty members and educators evaluate student work using widely accepted standards for each learning outcome represented in the VALUE rubrics. Any higher education institution, department, program, consortium, or provider may upload samples of student work to a digital repository for assessment. To better gauge student learning and institutional teaching, the VALUE Scoring Collaborative examines

Lumina's Degree Qualifications Profile

The DQP organizes the learning outcomes (proficiencies) of degrees according to five broad interrelated categories:

- **Specialized Knowledge.** This category addresses what students in any specialization should demonstrate with respect to the specialization beyond the vocabularies, theories and skills of particular fields of study.
- **Broad and Integrative Knowledge.** This category asks students at all three degree levels to consolidate learning from different broad fields of study (e.g., the humanities, arts, sciences and social sciences) and to discover and explore concepts and questions that bridge these essential areas of learning.
- **Intellectual Skills.** This category includes both traditional and nontraditional cognitive skills: analytic inquiry, use of information resources, engagement with diverse perspectives, ethical reasoning, quantitative fluency and communicative fluency. Throughout, the DQP emphasizes the importance of students making, confronting and interpreting ideas and arguments from different points of reference (e.g., cultural, technological, political).
- **Applied and Collaborative Learning.** This category emphasizes what students can do with what they know. Students are asked to demonstrate their learning by addressing unscripted problems in scholarly inquiry, at work and in other settings outside the classroom. This category includes research and creative activities involving both individual and group effort and may include practical skills crucial to the application of expertise.
- **Civic and Global Learning.** This category recognizes higher education's responsibilities both to democracy and the global community. Students must demonstrate integration of their knowledge and skills by engaging with and responding to civic, social, environmental and economic challenges at

Source: Lumina Foundation

<https://www.luminafoundation.org/files/resources/dqp.pdf>

⁴² <https://www.luminafoundation.org/files/resources/dqp.pdf>

⁴³ <https://www.educationtoworkforce.org>

⁴⁴ <https://www.aacu.org/initiatives/value-initiative/value-scoring-collaborative>

achievement across student population groups, such as first-generation students, racial and ethnic groups, and their year in school. The Collaborative uses this data to construct a national macro-view of the quality of student learning in higher education based on AAC&U's Essential Learning Outcomes.

The **Quality Assurance Commons**⁴⁵ is a new organization developing an approach to program review that prioritizes the development of qualities essential to employability. QA Commons' work is centered on an Employability Framework that consists of eight Essential Employability Qualities (EEQs), as well as five standards of care for educational programs seeking to ensure their completers are prepared to succeed in the workplace and advance through a career. The work helps education and training leaders and their faculty and instructors more clearly understand the rapidly changing needs of employers by building a culture that supports employability as a priority outcome. Services include assessment, technical assistance, professional development, programmatic certification, and student badging. One of its current projects involves the Kentucky Council on Postsecondary Education and 19 programs at institutions across the system. The project examines five areas: demonstrated employability proficiencies in work-related settings; integration of career services throughout programs; substantive engagement of employers; involvement of students and alumni; and public information about employability. Ultimately, the QA Commons will provide public ratings of program performance while promoting improvement.

Efforts are also underway to provide clearer, more transparent ways to categorize and recognize different types of institutions to support better collaboration, improvement, and recognition.

The Carnegie Foundation for the Advancement of Teaching and the American Council on Education joined forces to create a more inclusive **Carnegie Classification System**, including Social and Economic Mobility Classification⁴⁶. The goal is for the new system to better reflect the diversity of higher-education institutions and create incentives for colleges to fill equity gaps. This revised classification system will organize and recognize institutions based on a variety of characteristics, including those that focus on student access and outcomes. The reimagined classifications will be more transparent and provide more appropriate peer groupings for collaboration and study. They will provide data and methodology in clear ways that give institutional researchers more tools to help them analyze the diverse and multi-dimensional landscape of American higher education. Funders—federal and state governments as well as private philanthropies—will be better equipped to account for and reward student-centric activity.⁴⁷

The **Excellence in Assessment (EIA)** program – the first national initiative of its kind – recognizes institutions that successfully integrate assessment practices across campus, provide evidence of student learning outcomes, and use assessment results to guide institutional decision-making and improve student performance. VSA Analytics, the Association of American Colleges and Universities (AAC&U), and the National Institute for Learning Outcomes Assessment Transparency Framework (NILOA) collectively support a national designation program for colleges and universities that demonstrate excellence in student learning outcomes assessment to drive internal improvement and further student success.⁴⁸

Additional ideas are emerging to develop completely new institutional designations that reflect the changing needs of our country in the future.

⁴⁵ <https://thegacommons.org>

⁴⁶ <https://carnegieclassifications.acenet.edu>

⁴⁷ <https://www.airweb.org/resources/news/recentnews/2023/08/14/reimagining-the-carnegie-classifications>

⁴⁸ <https://www.learningoutcomesassessment.org/eia/>

A nationwide **Digital-Cyber Land Grant University System**⁴⁹ would form a network using advanced technology to deliver both technical and general education on campuses located in underserved areas of the country. Key features of this proposed system include:

- A hybrid campus, manifesting the best of both online and brick-and-mortar education, and offering technical curricula such as computer science and coding, artificial intelligence theory, data analytics, computer and network security, and human hacking, as well as fields of cyber business, humanities, social sciences, and cyber law.
- An accelerated approach to tenure and promotion for younger cyber-computer science faculty, including those in the humanities, who focus on these new knowledge areas.
- Innovative funding mechanisms that do not place further burden on hard-pressed states and students, but rather draw from the coffers of the social media giants.
- Modification of federal tax incentives for contributions to university endowments to provide support to the Digital-Cyber Land Grant universities and colleges.
- Incentives for technology companies and leading high-tech universities to help staff and partner with the new universities' faculties and programs.

The **National Service University**⁵⁰ concept imagines a network of public and private institutions with sufficient capacity to offer broad accessibility to world-class learning environments and committed to achieving societal outcomes. Institutions designated National Service Universities would commit to addressing many of the core educational challenges faced by American higher education in the twenty-first century. Design Elements of a National Service University are:

- Scale. Operates with a commitment to maximizing the scale of public benefit
- Technology. Integrates technology into the operational core of the institution
- Social Impact. Advances teaching and research with direct social impact
- Knowledge driven. Commits to the highest quality production of usable knowledge



Developing national data tools and learning record systems

Undergirding many of these efforts at developing standard outcomes, definitions of quality, and skill frameworks are the need to develop a set of national data tools and a standardized, integrated learning record systems.

VSA Analytics⁵¹ is a robust, interactive, custom tool designed to support college and university leaders' use of data in strategic planning and decision making. VSA Analytics allows users to create and save multiple peer groups and build graphical benchmarking reports in minutes. The custom platform offers more than 25 benchmarking reports based on a national dataset containing about 400 variables from roughly 4,400 institutions. VSA Analytics, co-sponsored by the American Association of State Colleges and Universities (AASCU) and the Association of Public and Land-grant Universities (APLU), is a program, designed to support the data needs of higher education institutions and the use of national data to improve institutional outcomes.

⁴⁹ <https://issues.org/time-for-a-digital-cyber-land-grant-system/>

⁵⁰ https://president.asu.edu/sites/default/files/national_service_universities_2018.pdf

⁵¹ <https://www.vsaanalytics.org>

The **College to Jobs Map**⁵² is an effort of the Project on Workforce, an interdisciplinary, collaborative project between the Harvard Kennedy School's Malcolm Wiener Center for Social Policy, the Harvard Business School, and the Harvard Graduate School of Education. The College-to-Jobs Map visualizes how local employment trends align with college graduate growth in regions around the country. Users can dive into regional labor markets and discover college, demographic, and occupation information. The Map connects education, economic mobility, employment, and job postings from Lightcast and provides the information that regional stakeholders need to start examining their workforce pipelines.

Learning and Employment Record (LER) system⁵³ is an effort to establish and grow a system to support skills-based learning, hiring, and advancement. Learning and employment records (LERs) are the most comprehensive iteration of digital credentials. They are a collection of digital records contained in a digital wallet that allow worker-learners to navigate the education and employment talent ecosystem based on skills. LERs document and validate learning across postsecondary education, industry training, military service, and employment history. They expand digital transcripts to provide supporting metadata about the skills, competencies, and capabilities associated with each accomplishment and the institutions and entities that assessed them.

The National Governors Association Center for Best Practices, in partnership with Jobs for the Future (JFF), has launched the **Skills-Driven State Community of Practice**⁵⁴ to help Governors' offices and other senior state officials better connect skills-based training to skills-based hiring practices and to consider promising design elements of Learning and Employment Record (LER) systems. This peer learning opportunity will support states in preparing their employers, education and workforce systems, data systems and policies to design and implement digital wallet and LER projects as an equitable economic mobility tool. States engaged are at varying stages of preparation to execute this work with the intention of moving forward in their efforts build and strengthen state/regional LER systems.

⁵² <https://collegetojobs.hks.harvard.edu>

⁵³ <https://www.acenet.edu/Documents/Rethinking-Campuses-Systems.pdf>

⁵⁴ <https://www.nga.org/projects/skills-driven-state-community-of-practice/>

Topic 2: Possible Recommendations for Further Exploration at Convening 2

The following ideas emerged during Convening 1 or were proposed through the Convening 2 survey.

- Creating a process for establishing national goals and system for tracking outcomes that would allow for the measurement and reporting of effective educational models and practices, including clear definition and characteristics for "high demand fields" and the manner in which national priorities are developed.
- Creating a new designation, such as the National Service University or College designation, for institutions that have committed to serving national priorities through participation in innovation clusters and adopting evidence-based educational practices that deliver on national outcomes.
- Designing a federal performance funding model that creates financial incentives for degrees in high demand fields by:
 - establishing standard criteria for outcomes-based performance that can be measured and tracked over time.
 - creating opportunities for institutions that achieve national service designation to potentially have access to new federal and state funding models that support national priorities and reward continuing outcomes achievement.
- Defining the educational unit as the skill or competency, the definitions of which are transparent and understood by employers, providers of higher education credentials and learners.
- Creating a secure, high-quality unified learner record system that could support transparent transfer, credential stacking and continuing education.
- Expanding the College Transparency Act law so that all higher education programs, not just title IV, provide data for setting and evaluating progress toward national priorities and outcomes.

TOPIC 3: Reimagining teaching and learning for an AI world

Topic 3 focuses on developing new approaches to educational design and delivery that respond to the impact of artificial intelligence on the types of knowledge, skills, and competencies that will be required for success in major career fields and how learners will acquire those knowledge, skills, and competencies in the future.

Within the larger topic of proactively responding to the impact of artificial or augmented intelligence are two areas for more detailed exploration.

- A. Transforming teaching, learning, and student support using artificial intelligence and immersive learning
- B. Rethinking core outcomes and skills in response to the changing nature of work

3A

Transforming teaching, learning, and student support using artificial and immersive learning

The potential power of artificial intelligence, augmented reality, and other technological advances on the future of education has been a topic of discussion for nearly 20 years -- well before the public excitement that was caused by ChatGPT. The Horizon Report, an annual report on educational technology trends produced by Educause, listed educational gaming and augmented reality as trends to watch in 2005.⁵⁵ Nearly 20 years later, the *2023 Horizon Report: Teaching and Learning Edition*, is focused on the impact of AI-enabled applications for predictive and personal learning, generative AI, the continuing blurring of lines between learning modalities, and the growing trend of HyFlex experiences, where students enrolled in a course can participate on site, synchronously online, or asynchronously online, *as preferred by the student*.⁵⁶

A team of researchers conducted a meta-analysis of articles about the application of artificial intelligence (AI) and deep learning (DL) techniques in teaching and learning and identified 11 areas in which AI and DL are impacting pedagogical approaches.⁵⁷

1. *AI computer-assisted instruction*: an interactive instructional technique involving a variety of programmed instructional materials, such as drill-and-practice, tutorial, or simulation activities
2. *Virtual reality*: a simulated experience that enhances learning and engagement by allowing users to view and interact with virtual features or items
3. *Intelligent tutoring system*: a computer system that aims to provide immediate and customized instruction or feedback to learners, usually without requiring intervention from a human teacher
4. *Augmented reality*: bringing an interactive experience of a real-world environment into the classroom, where the objects that reside in the real world are enhanced by computer-generated perceptual and sensory information

⁵⁵ <https://library.educause.edu/-/media/files/library/2005/1/csd3737-pdf.pdf>

⁵⁶ <https://library.educause.edu/-/media/files/library/2023/4/2023hrteachinglearning.pdf>

⁵⁷ Chong, G., Mou, J. and Jiang, Z. Artificial intelligence innovation in education: A twenty-year data-driven historical analysis. *International Journal of Innovation Studies*. 4 (2020) 134-147.

Examples of AI-Enabled Applications from Educause Horizon Report

Purdue’s “Charlie”: An AI-Enabled Writing Assistant

Purdue has developed “Charlie,” an AI assistant for providing instant, “preflight” feedback to students submitting essays for writing-intensive courses. Trained on large, instructor-graded corpuses of essays, Charlie provides instant feedback, predicting outcomes according to an assignment’s rubric criteria. Students can revise and resubmit repeatedly, giving them an opportunity to reflect and get assistance as needed before the assignment deadline. Charlie also points them to helpful resources.

AI for Personalized Adult Learning and Online Education at Scale

Funded by the National Science Foundation, the National AI Institute for Adult Learning and Online Education (AI-ALOE) aims to lead the development of AI theories and techniques for enhancing and transforming online learning for adult learners in effectiveness, efficiency, access, scale, and personalization. The institute has developed and deployed a collection of five AI technologies in classes to create engaging and personalized learning experiences and improve learning outcomes at scale.

Data-Driven Personalized Feedback at Scale

OnTask uses data insights and artificial intelligence to drive the provision of personalized feedback. The project, led by the Centre for Change and Complexity in Learning at the University of South Australia, was developed to support instructors’ use of learner datasets to create personalized feedback support. Several institutions have since adopted the open-source tool, with studies showing the significant impact OnTask has on student learning through personalized feedback.

Career Highways: An AI Approach to Student Career Mapping

The Minnesota State IT Center of Excellence, with STEM Fuse, launched Career Highways throughout the state in fall 2022. This service allows students to attach work products, learnings, and credentials. These are mapped through AI to current job openings and career “highways” they can explore. The service also allows hiring managers to see students/participants who fit their career description and reach out to those who have a Career Highway profile.

Source: <https://library.educause.edu/-/media/files/library/2023/4/2023hrteachinglearning.pdf>

5. *Educational games*: a game designed for a primary purpose other than pure entertainment, rather learning or practicing a skill
6. *Predictive modeling*: implementing predictive analytics of student performance, satisfaction, mood, or course selection
7. *Adaptive learning/adaptive teaching*: an educational method which uses computer algorithms to orchestrate the interaction with the learner and deliver customized resources and learning activities to address the unique needs of each learner
8. *Assessment design*: the formulation of assessment instruments using machine learning, neural network, automatic scoring, or other AI techniques that could provide more conducive and diagnostic outcomes than what conventional tests were capable of offering
9. *Learning analytics*: Using sophisticated machine learning (ML) algorithms and rich data about learners and their contexts, facilitates inference-making about several behavioral aspects (including effortful behavior) for purposes of understanding and optimizing learning and the environments in which it occurs
10. *Educational agents*: a learning companion system that assumes two roles, one as an intelligent tutor and another as a learning companion
11. *Teaching evaluation*: a teaching quality evaluation model build based on advanced techniques

Advocates for the expanded use of educational technology to deliver and support learning see one of the major benefits of educational technology is the ability to personalize learning and provide immersive learning experiences that allow for the adaptation of content and delivery methods to individual needs

and learning styles. It also could automate repetitive tasks for faculty so they can spend more time on high impact functions, such as student mentorship. Virtual reality can be used to simulate real-world scenarios and break down barriers of time and space, allowing students to learn from anywhere in the world and explore environments they might not otherwise have access to. Exposing students to AI and VR technology can help them develop technology skills that will be needed in their future workplaces and can expand access to applied learning experiences through virtual apprenticeships and internships. With all the potential benefits of AI, VR and other educational technologies, a careful consideration of the ethical and equity issues is important, as is recognition that they are best used in conjunction with traditional teaching methods to be truly effective.⁵⁸

The important role of faculty in the design, development, and use of emerging technologies, such as AI and VR, was the focus of a recent report by the U.S. Department of Education’s Office of Educational Technology. *Artificial Intelligence and the Future of Teaching and Learning* provides seven recommendations for policy action regarding the future use of AI (see page 34).⁵⁹



Rethinking core outcomes and skills in response to the changing nature of work

It is now widely understood that artificial and augmented intelligence, machine learning, and automation is fundamentally shifting the nature of work. What was once thought to be challenges limited to blue collar jobs are increasingly impacting professions that were once thought to be protected from automation, including those that currently require a college degree. McKinsey & Company completed an analysis of how AI could impact demand and work activities of major occupations. They predict that a number of professions, including STEM professions, creative and arts management, business and legal professions, and education and workforce training, will experience major disruption in both demand and change in workforce activities as a result of generative AI.⁶⁰

The technical skills required by occupational categories continue to change rapidly as new technology is being introduced or work is being automated because machines are increasingly able to complete repetitive tasks faster and more accurately than humans. The speed of change is challenging traditional curriculum development processes to move quickly enough to adapt. At the same time there is a growing sense that the future of education will need to focus on developing those more durable skills and capacities that are uniquely human.

Jamie Merisotis, President & CEO, Lumina Foundation, argues that “human work is the work only humans can do. It blends our human traits, such as compassion, empathy, ethics, and personal communication, with our developed human capabilities, such as critical analysis, judgment of quality, and anticipation of what others might do. It requires knowledge and skill. And human work brings together the things that give us meaning and allow us to continue to flourish over time, including learning, earning money, and serving others.”⁶¹

⁵⁸ <https://elearningindustry.com/evolving-education-the-impact-of-ai-and-vr-technology-on-the-future-of-learning>

⁵⁹ <https://www2.ed.gov/documents/ai-report/ai-report.pdf>

⁶⁰ <https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america#/>

⁶¹ Jaime Merisotis, *Human Work in the Age of Smart Machines* (New York: RosettaBooks, 2020).

U.S. Department of Education's Office of Educational Technology

Artificial Intelligence and the Future of Teaching and Learning Recommendations

1: Emphasize Humans in the Loop. Rather than suggesting that AI-enabled systems and tools should replace teachers, this term instead solidifies the central role of educators as instructors and instructional decision makers, while reinforcing the responsibility of teachers to exercise judgement and control over the use of AI in education.

2: Align AI Models to a Shared Vision for Education. Here we call upon educational policy and decision makers at the local, state, and federal level to use their power to align priorities, educational strategies, and technology adoption decisions to place the educational needs of students ahead of the excitement about emerging AI capabilities. Equity, of course, is one of those priorities that requires constant attention, especially given the worrisome consequences of potentially biased AI models.

3: Design Using Modern Learning Principles. We call for the R&D sector to ensure that product designs are based on best and most current principles of teaching and learning. We must harness AI's ability to sense and build upon learner strengths; build on AI capabilities that connect with principles of collaborative and social learning and which respect the student not just for their cognition but also for the whole human skill set; and seek to create AI systems that are culturally responsive and culturally sustaining, leveraging the growth of published techniques for doing so. Further, most early AI systems had few specific supports for students with disabilities and English learners. Going forward, we must ensure that AI-enabled learning resources are intentionally inclusive of these students.

4: Prioritize Strengthening Trust. The Department firmly takes the stance that constituents want AI that supports teachers and rejects AI visions that replace teachers. And yet, teachers, students, and their families/caregivers need support to build appropriate levels of trust in systems that affect their work. In the broader ecosystem, trustworthy AI is recognized as a multidimensional problem. If every step forward does not include strong elements of trust building, we worry that distrust will distract from innovation serving the public good that AI could help realize.

5: Inform and Involve Educators. The influence of educators in the future of AI-enabled products cannot be assumed; instead, constituents need policies that put muscle behind it. Could we create a national corps of leading educators representing every state and region to provide leadership? Could we commit to developing necessary professional development supports? Can we find ways to compensate educators so they can be at the forefront of designing the future of education? Our policies should enable educators to be closely involved in design of AI-enabled educational systems.

6: Focus R&D on Addressing Context and Enhancing Trust and Safety. We call upon innovators in R&D to focus their efforts to advance AI on the long tail of learning variability, where large populations of students would benefit from customization of learning. We also call on R&D to lead by establishing how trust can be strengthened in AI-enabled systems, building on the Blueprint's call for safe and effective systems yet also including education-specific requirements, such as how teachers can be meaningfully involved in design phases, not only in implementation and evaluation. R&D must take the lead in making AI models more context-sensitive and ensuring that they are effective, safe, and trustworthy for use with varied learners in diverse settings.

7: Develop Education-Specific Guidelines and Guardrails

Regulations related to key student and family data privacy laws like the Family Educational Rights & Privacy Act (FERPA), the Children's Internet Privacy Act (CIPA), and the Children's Online Privacy Protection Act (COPPA) warrant review and further consideration in light of new and emerging technologies in schools. Laws such as the Individuals with Disabilities Education Act (IDEA) may likewise be considered as new situations arise in the use of AI-enabled learning technologies. As discussed throughout this document, the Blueprint for an AI Bill of Rights is an important framework throughout this work.

Joseph Aoun, President of Northeastern University, has introduced the idea of “humanics” as the new trivium and quadrivium for the future of education. Humanics develops the advanced skills and literacies necessary for work in the future, regardless of occupation.⁶² It consists of:

- *Three Literacies*: technological, or the knowledge of mathematics, coding, and basic engineering principles; data literacy, or the capacity to understand and utilize big data through analysis; and human, or skills developed through study of the humanities, art, and design.
- *Four Cognitive Capacities*: critical thinking, or the ability to analyze and apply ideas; systems thinking, or the ability to understand and command complex systems; entrepreneurship, or the ability to create value in original ways; and cultural agility, or the ability to operate deftly in a global milieu and to appreciate the varying understandings and values that people from different cultures bring to an issue or situation

“Thus, when we rebalance the objective of a college education away from its current overemphasis on content delivery and toward teaching the new literacies and cognitive capacities, we likewise need to expand our pedagogical toolbox. This involves thematic study across disciplines, project-based learning, and real-world connections. The key is to enable students to understand how, exactly, their acquisition of the new literacies and development of the cognitive capacities will serve them in their life goals—not simply as scores on a transcript. These tools—explicit learning across disciplines, project-based learning, and real-world connections—are imperative in teaching the robot-proof model of higher education.”
–Joseph Aoun, President of Northeastern University

A recent study commissioned by Business-Higher Education Forum and completed by Burning Glass Technologies of more than 150 million unique U.S. job postings identified 14 skills that have become foundational in the new economy and revealed that the “foundational human, digital, and business skills that will be needed in the digitally intensive economy of the future are already in high demand today.”⁶³ The report outlines the foundational skills as:

- **Human Skills** to apply social, creative and critical intelligence. These skills – critical thinking, creativity, communication, analytical skills, collaboration, and relationship building – appear on many lists of sought-after “soft skills,” and are still in high demand across the digitally intensive economy.
- **Digital Building Block Skills** are critical to many vocations, and increasingly useful outside traditional digitally intense job families. These skills are especially useful to current or aspiring functional analysts and data-driven decision makers. These skills include analyzing data, managing data, software development, computer programming, and digital security and privacy.
- **Business Enabler Skills** play a synthesizing, integrative role in the workplace. These skills allow the other skills to be put to work in practical situations, and include project management, business process, communicating data, and digital design.

A recent report by Georgetown University Center on Education and the Workforce reinforced that advanced professional skills, including communication, teamwork, leadership, problem solving and complex thinking, perception and attentiveness, and teaching and learning are six of the top seven competencies in demand across the labor market.⁶⁴

⁶² Joseph Aoun, *Robot-proof: Higher education in the age of artificial intelligence* (Cambridge, MA, The MIT Press 2017).

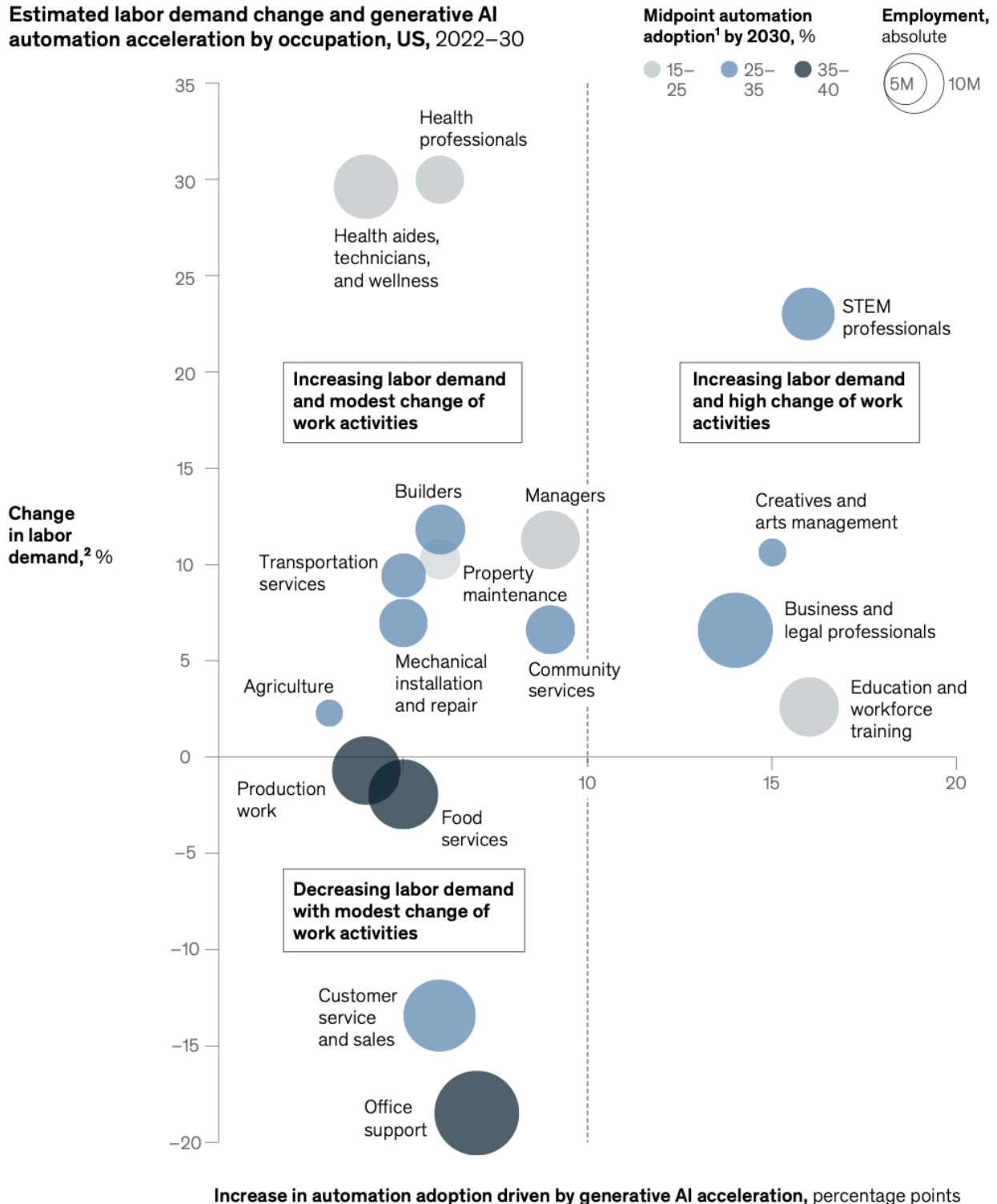
⁶³ https://www.burning-glass.com/wp-content/uploads/New_Foundational_Skills.pdf

⁶⁴ <https://cew.georgetown.edu/cew-reports/competencies/>

Impact of Generative AI on Occupations by 2030

While STEM, healthcare, builders, and professional fields continue to add jobs, generative AI could change work activities significantly for many occupations.

Estimated labor demand change and generative AI automation acceleration by occupation, US, 2022–30



Source: McKinsey & Company

<https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america/>

Topic 3: Possible Recommendations for Further Exploration at Convening 2

The following ideas emerged during Convening 1 or were proposed through the Convening 2 survey.

Re-engineering program design and delivery models and leveraging educational technologies and artificial intelligence to support more efficient and effective teaching and learning models by:

- establishing AI-related core competencies as requirements for all degrees, including equipping students to understand the parameters of the technologies, including the opportunities and the risks.
- creating an X prize for collaborative redesign of scalable teaching and learning models that centers the needs of students in an AI world.
- expanding partnerships with technology sector to explore opportunities, joint strategy and funding.

Reconceptualizing general education to reflect the universal, durable skills necessary to compete in emerging fields and the needs of our society by:

- focusing on developing universal skills and competencies needed regardless of career.
- developing a new general education framework organized around the necessary knowledge for our modern workplace and society.
- making digital literacy a core requirement in general education.
- building a framework for the most important learning outcomes to prepare graduates to contribute to strengthening democratic institutions and advancing equity.
- ensuring more students can engage in public discourse/debate (civics certificate).

Developing the next generation of faculty and reskilling current faculty so they are prepared to design and deliver new models and approaches to postsecondary education by:

- requiring applied learning experiences with industry, government or the public sector as part of doctoral programs.
- creating faculty designations that recognize the value of non-PhD faculty in designing and delivering new models of education.
- building faculty capacity to embed employability skills into degree programs and ways to assess and support students in demonstrating their attainment of those skills.
- holding a national summit elevating best practices and distilling the lessons and insights for application across the higher education ecosystem.
- creating long term incentives that elevate and celebrate the continued evolution of these practices and measure their outcomes.

TOPIC 4: Creating a national infrastructure to advance post-secondary innovation

Topic 4 focuses on developing a national approach to advancing strategic innovation within our nation's post-secondary ecosystem. The effort could define a shared commitment between higher education systems and institutions, federal and state governments, business and industry, and the philanthropic community to work together to champion a national innovation strategy that advances our country's national priorities at speed and scale.

Innovation has become widely recognized as both a major goal of economic activity and one of the most important instruments through which organizations and countries gain and sustain competitive advantage in globally competitive marketplaces.

Innovation is not a new concept but the rapidly changing environment that has become the hallmark of the 21st century has made a capacity for deliberate innovation critical for success. An innovation strategy – or a coherent set of interdependent processes and structures that lays out how the organization or community searches for novel problems and solutions, synthesizes ideas into concepts and designs, and selects which concepts get funded.

A post-secondary education innovation strategy could support the establishment of national goals or imperatives, seek out local innovations that are working at an institutional level or within existing collaboratives, support additional testing in new contexts, coordinate the broader dissemination across the national ecosystem, and track and publish results. It also could support investigation of more cutting edge or breakthrough innovations that would be difficult or costly for institutions or existing collaboratives to complete on their own.

The U.S. already has this in the arena of scientific research, where federal funding and federal institutes set the agenda with most of the work being done at the level of individual institutions. Creating an analogous system for education could be a new approach to achieving progress on national priorities.

Frameworks, such as Improvement Science Networks and Collective Impact, demonstrate how multi-institutional, multi-sector collaboratives can work effectively together to achieve shared outcomes in a disciplined, research-informed, and structured manner.

The Carnegie Foundation for the Advancement of Teaching Improvement Science Networks is advocating for the rigorous application of Improvement Science to K-12 and post-secondary education to drive improvement and innovation. Improvement Science, which has a strong track record in other industries, could be a pathway for improving key outcomes in a researched-based, collaborative model. They believe the benefits of Improvement Science are that it:

- Brings scientific discipline to social learning
- Leverages the social intelligence of a group to accelerate a whole professions or communities with the capacity to learn and improve
- Represents a new organizational form, deliberately designed to enable effective collective action on solving complex problems and for developing complex products

- Accumulates practical knowledge generated from multiple tests, making reform work reliable across various contexts

A key element of improvement science networks is the “Hub,” which plays a critical role in structuring and supporting improvement science networks in achieving their goals. The Hub provides support services, such as:

- Detailing the problem and maintaining the framework
- Establishing processes and norms
- Establishing evidentiary standards for warranting claims
- Providing technical resources
- Supporting the communication mechanisms to accelerate learning

Collective Impact is an approach that is used increasingly by communities and regions to create a platform for multiple independent organizations and institutions to work together to solve large-scale and difficult community challenges. There are five conditions of a successful Collective Impact initiative. All organizations involved agree to: a common agenda; a shared measurement system; a set of mutually reinforcing activities to achieve their goals; continuous communication; and support for a backbone organization.

The backbone organization plays a critical role for the Collective in that it supports the partner organizations by: guiding vision and strategy; supporting aligned activities; establishing shared measurement practices; building public will; advancing public policy; and mobilizing funding.

AGB Board of Directors’ Statement on Innovation in Higher Education (2017)

In response to the calls for greater innovation, the Association of Governing Boards produced a Statement on Innovation in Higher Education in 2017.

A culture of innovation at a college or university begins with an understanding that the status quo is not sufficient for continued success or viability. While the institution’s mission may still have value, the new environment for higher education requires fresh approaches for delivering that mission.

In this new setting, a culture of innovation prizes and rewards creative thinking. It empowers constituents—staff, faculty, administration, students, and community members—to think creatively about solutions and to implement them. It also embraces risk and failure as integral aspects of innovation. It even rewards failures following good attempts to motivate the continued effort to develop new ideas. Many institutional innovations begin at the grassroots level as compelling ideas that gain traction and are then scaled to create sustainable innovation throughout the institution. In a culture of innovation, governing boards and presidents recognize the power of these grassroots ideas and seek to support the good work on innovation that is occurring in all areas of the campus community. They also look externally for connections in the local community or region to leverage these institutions.

A culture of innovation requires boards and chief executives to work and think together about opportunities and risks. The governing board, as the ultimate fiduciary in any institution or system, must demonstrate leadership by conveying trust in its institution’s leaders in spite of the inherent risks associated with innovation. The board should show a willingness to be nimble, add value to both strategy and supportive policies, offer recognition, and ensure appropriate investments—both large and small—in support of change.

The Collective Impact approach is built upon the work of Peter Senge and includes a set of “Principles of Practice” that should undergird all Collective Impact initiatives.

- Design and implement the initiative with a priority placed on equity
- Include community members in the collaborative
- Recruit and co-create with cross-sector partners
- Use data to continuously learn, adapt, and improve
- Build a culture that fosters relationships, trust, and respect across participants
- Customize for local context
- Cultivate leaders with unique system leadership skills

Institute for Health Care Improvement⁶⁵

IHI is a leading innovator in health and health care improvement worldwide. For more than 30 years, IHI has convened the best and the brightest to find solutions to widespread health care problems that seem intractable. The IHI community is made up of leaders, faculty, and caregivers at all levels of life and work and from every corner of the globe. IHI collaborates with the improvement community to invent and popularize ideas that dramatically improve patient care. Together they remove improvement roadblocks and realize improvement possibilities through innovations of all kinds — from small shifts to society-changing transformations.

Examples of Post-secondary Education Innovation Collaboratives

Several organizations and associations are already engaged in collaborative innovation that is targeted at moving the dial on key educational outcomes, especially as they relate to student completion and success. A national infrastructure could partner with these existing efforts to advance wide-spread adoption of effective practices.

The mission of the **League for Innovation in the Community College** is to cultivate innovation in the community college environment and serve as a catalyst for introducing and sustaining deep, transformational innovation within and across colleges and international borders to increase student success and institutional excellence.⁶⁶

⁶⁵ <https://www.ihl.org/about/Pages/innovationscontributions.aspx>

⁶⁶ <https://www.league.org/about>

Institute for Healthcare Improvement Innovation Structure

- **IHI 90-Day Learning Cycle:** A process for producing innovation that transforms quality improvement ideas into action.
- **Rapid Cycle Testing:** A model — the Model for Improvement — that implements small tests of change to accelerate improvement.
- **The Breakthrough Series Collaborative:** A methodology that helps organizations work together to close the gap between “what we know” and “what we do.”
- **Bundles:** A bundle is a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes.
- **Hospital Standardized Mortality Ratio (HSMR):** An adjusted measure of hospital mortality developed by IHI Senior Fellow Sir Brian Jarman that is now widely deployed as a way of exposing unexpected variation and identifying opportunities for improvement within systems.
- **IHI Triple Aim:** A framework to optimize health system performance by simultaneously focusing on three care dimensions: improving the patient experience of care, improving the health of populations, and reducing the per capita cost of health care.
- **IHI Open School:** An online educational curriculum and community that provides students and health care professionals with the skills to become change agents in health care improvement.
- **100,000 Lives Campaign:** A pivotal 18-month national initiative to drive widespread adoption of six patient safety practices in US hospitals.
- **5 Million Lives Campaign:** A two-year endeavor that engaged more than 4,000 US hospitals to prevent five million incidents of medical harm

Complete College America (CCA)⁶⁷ is focused on dramatically increasing college completion rates and closing institutional performance gaps by working with states, systems, institutions, and partners to scale highly effective structural reforms and promote policies that improve student success. A current area of focus is CCA Transforming Institutions, which brings together leaders together to redesign systems. There work is organized around four areas of student success: purpose, structure, momentum, and support.⁶⁸

The **Taskforce on Higher Education and Opportunity**⁶⁹ is a collective of 37 organizations representing 2.4 million students across the United States, including 4-year, 2-year, public, private, and Historically Black Colleges & Universities. Its purpose is to accelerate existing efforts and recommit to supporting students entering the workforce, partnering with communities, and delivering accessible, applicable, and high-quality education. Each taskforce member commits to take action through three initiatives aligned with each taskforce goal:

- Prepare our most vulnerable students and graduates of 2020-2023 for security and success in the post-pandemic economy.
- Support and partner with our communities and government in an inclusive recovery through and after COVID-19, focusing on displaced workers, adult learners, PK-12 systems, economic development, community health, and COVID-19 support.
- Re-imagine the Future of Higher Education in terms of how we deliver quality and accessible education, and how we evolve our programs to prepare for the future of work and for a post-pandemic world.

Strive Together⁷⁰ is a national movement with a clear purpose: helping every child succeed in school and in life. In partnership with nearly 70 communities across the country, Strive Together provide resources, best practices, and tools to create opportunities and close gaps in education. They support a network of improvement communities to advance equity in education from cradle to career. They work with cross-sector members of a community using collaborative improvement methodology to transform systems and achieve shared outcomes. Their framework includes four elements:

- Shared community vision
- Evidence-based decision making
- Collaborative action
- Investment and sustainability

The **National Institute for Student Success**⁷¹ helps colleges and universities identify and resolve institutional barriers to equity and college completion by increasing their capacity to implement proven student-success systems. The NISS helps universities identify and remove barriers to student success through three core services: the Accelerator, the Diagnostic, and Implementation Support. In addition to these direct client services, the NISS Incubator supports continued research and the development of innovative best practices in student success. The focus on three key steps:

- Identify problems
- Implement evidence-based solutions
- Scale what works to maximize efficiencies and impacts

⁶⁷ <https://completecollege.org/college-purpose/>

⁶⁸ <https://completecollege.org/college-purpose/>

⁶⁹ <https://taskforceonhighered.org>

⁷⁰ www.strivetogether.org

⁷¹ <https://niss.gsu.edu>

The **University Innovation Alliance**⁷² is a national coalition of public research universities committed to increasing the number and diversity of college graduates in the United States. They advance collaborative innovation by setting ambitious goals and sharing data and results. They offer resources and support to institutions in developing and implementing proven practices for advancing college success and completion. These include innovations in areas of chatbots, completion grants, predictive analytics, proactive advising, college to career, and doctoral research fellows.

Achieving the Dream⁷³ was founded to close achievement gaps and accelerate student success nationwide by guiding institutional change, influencing public policy, generating knowledge, and engaging the public. They advance innovative, evidence-based community college programs and interventions that produce and sustain improved student success. They focus on four areas: whole college transformation, innovation and advocacy, network building, and sharing data informed insights.

Formed in 1979 for the purpose of seeking improvement in the organization and governance of public higher education systems, the **National Association of System Heads**⁷⁴ serves as a forum for the exchange of views and information among its members and on leveraging the power of systems to advance innovation and change in public higher education. Their newest initiative, The Power of Systems calls for a network of higher education systems working collaboratively to deliver real progress for student success while tackling systemic inequities. From the outset, participating college and university systems have agreed to hold themselves accountable to three overarching metrics prescribed by The Power of Systems. These include credential completion, social mobility, and student loan debt reduction.

⁷² <https://theuia.org>

⁷³ <https://achievingthedream.org>

⁷⁴ <https://nash.edu/about-power-of-systems/>

Topic 4: Possible Recommendations for Further Exploration at Convening 2

The following ideas emerged during Convening 1 or were proposed through the Convening 2 survey.

- Create a national council, perhaps advisory to the President of the United States, that would identify key industries (e.g., defense, cybersecurity, healthcare) and priorities to be addressed at the national level and establish national workforce development goals for the future.
 - Separate higher education from the US Department of Education. Let the Department of Education focus on K-12 and administrative/compliance issues for higher ed and create a national higher education coordinating council, reporting to POTUS, that focuses on strategy, innovation, and accessibility/affordability.
 - Host a National Summit creating public accountability and advancing any strategy changes needed to meet national goals every other year, teeing up key issues for election decision making.
- Convene national industry councils to engage in strategic conversations on the emerging skills and competencies required within specific industries. The councils would be active partners with higher education institutions in the design and development of industry credentials and career pathways that are of strategic importance to the country and would provide financial support to fund the research and development process.
- Establish a national learning foundation, similar to the National Science Foundation, to advance a higher education innovation agenda tied to the needs of society and the workforce of the future.
- Create an advanced research and development center focused on innovation and learning. The entity would serve as a national laboratory to advance innovations that align with national higher education priorities and conduct proof of concepts that can be brought to scale by:
 - Establishing robust research centers, fostering collaboration between universities and industries, offering funding opportunities and facilitating knowledge sharing among institutions.
 - Creating innovation clusters that are organized around addressing specific outcomes or national workforce priorities. Innovation clusters would consist of postsecondary institutions and industry partners who would work together to design, test, and scale educational models that outperform current approaches. Positive results would be disseminated to additional institutions for further testing and refinement.
 - Creating a learning/innovation “extension service” by documenting the results from the innovation clusters and disseminating emerging practices for implementation at additional institutions through publications, trainings, and certifications for boards, presidents, senior leaders, faculty, and staff. The goal would be eventual widespread adoption of proven effective practices across the U.S. higher education ecosystem. This work could be done in collaboration between the advanced research and development center and existing higher education associations.
- Create a new land grant model focused on key national priorities
 - Create a 21st Century version of the National Defense Education Act (NDEA) of 1958 and the Higher Education Act (HEA) of 1965.
 - Develop a Digital Cyber Land Grant Act to address opportunities and challenges of AI in a thoughtful, measured, and data driven way, by linking the awarding of a designation as a Digital-Cyber Land Grant (DCLG) institution under the conditions that:
 - Create a STEM Education Act, a national agenda setting national legislation that lays out a plan for supporting STEM education and innovation in STEM teaching and learning.
- Expand and integrate existing innovation collaboratives into a national strategy:
 - Form a strategic alliance of all 50 states and engage in a collective impact strategy, benchmarked against HESA national goals announced in the final report and establish state by state goals
 - Encourage SHEEO, ECS, NGA, NCSL, UIA, ATD and others to join the strategic alliance to advance policy, strategy & changes aligned to HESA goals
 - Establish a consistent measurement framework with reporting every 2 years with an array of aligned new incentives (i.e.: national x of the year award, White House Summit, congressional hearings, X prize for states that make significant changes/gains toward taking fundamental responsibility for the long-term outcomes of their citizens, etc.)

Section 4: Historic Research

Innovation in Higher Education: FIPSE, a Federally Funded Incubator for Change

Prepared by Dr. Merrill Schwartz, Strategic Advisor, HESA

As the HESA commissioners consider policy recommendations to fulfill its mission to develop a national strategy for effective support and utilization of the nation's higher education strategic assets, are there lessons to be learned from past efforts at the federal level to cultivate innovation? This brief review of the Fund for the Improvement of Postsecondary Education (FIPSE) offers a few insights and may stimulate ideas among commissioners who have had first-hand experience with the program.

Several iconic leaders in higher education had an idea in the late 1960s for an independent federal program "to fund initiatives that promised innovative approaches to reforming higher education" (Holub, 2003). The charge was led by Clark Kerr, chair of the Carnegie Commission's Commission of the Future of Higher Education, to offer recommendations to Congress to address "how postsecondary institutions might create more inclusive learning environments that foster success for a newly-diverse college student body," (McCambly and Mulroy, 2022).

Kerr explained the problem to a special congressional committee in 1969, in terms familiar today: "As institutions move increasingly toward providing an excellent education to a diverse student population, the campus discovers how great a distance is yet to be covered. Too many campuses in the United States have started out with the assumption that the only problem was one of admissions. For many campuses, not just a new policy for admissions is involved," (McCambly, Heather and Quinn Mulroy).

FIPSE was also seen as a valuable way to increase the return on investment of federal student financial aid dollars, and aimed to promote institutional change to meet the needs of a more diverse student population. "Founded on the tail end of the federal government's mid-20th Century civil rights policy agenda, FIPSE was created in 1973 and charged with funding and supporting structural reforms in institutions of higher education to create more inclusive learning environments for the newly diverse student body entering colleges and universities," (McCambly and Mulroy, 2022). FIPSE started with an appropriation of \$10 million administered through the secretary of HEW and the first grants were awarded in 1973, with priorities of expanding access to a more diverse student population including adults, people of color, first generation students, and low income and rural populations. Proposals were accepted from less traditional sources— untenured professors, unaccredited institutions, tribal colleges—as well as typical applicants—tenured faculty at research universities.

The initial appropriation of \$10 million dollars was much smaller than that proposed for similar programs considered at that time, attributed by some to less interest in increasing equitable student success than supporting elite institutions. "Interviews with early FIPSE administrators indicate that FIPSE wore this modest funding budget as a badge of honor, making the most of the funds by making many, small grants as a sort of venture capital fund. They further reasoned that given the goal of institutional change, these small grants promoted legitimacy without making institutions dependent on federal grant funds to make permanent change. In response to the innovative work quickly produced by FIPSE, the agency developed a positive reputation in Washington and in the field of higher education more broadly. This recognition was reflected in the field of grantees, for which there were 2,000-3,000

applications per year for 50-100 grant slots; interview subjects reported that receiving a FIPSE grant was widely understood to be a coveted endorsement of a program,” (McCambly and Mulroy, 2022).

FIPSE spurred innovation and its successful grant recipients included many adult-serving institutions that were founding members of CAEL, the Council for Adult and Experiential Learning (interview with Peter Smith, founding board member of FIPSE and board member of CAEL).

According to Amy Rose (Rose, 2010), FIPSE went through four phases from its beginning through 1999:

1. 1973 to 1979—500 projects, model federal program, many grants focused on extending the reach of the campus to underserved populations by teaching in new locations and packaging educational modules for ease of instruction.
2. 1980s—focus on technology for televised, video, and other remote instruction, and expanding access, including adult learners.
3. Late 1980s to early 1990s—changes in structures including collaboration among institutions and organizations, focus on new students, developing curricula responsive to changing students, and use of online education.
4. Late 1990s—Use of technology for “just in time learning” and shift from expanding access and equity to assessing quality of education.

The politics of the time and new leadership in the 1980s at the U.S. Department of Education (William Bennett, Secretary; Chester Finn, Assistant Secretary, Office of Educational Research and Improvement) and in of the head of FIPSE (Charles Karelis), led to a change in 1986 in grant criteria and priorities from equity to “quality,” a change in focus that endured for the remaining years. Much like the tensions today between changing higher education institutions to be more responsive and welcoming to new student populations and preserving Western traditions and culture in the curriculum, FIPSE changed its grant guidelines to emphasize assessment of “quality” instead of increasing access and equity for students. Grant criteria that had put equity goals first were replaced with “renewal of the undergraduate curriculum based on a clearly articulated vision of the knowledge and skills an educated person should possess, and on intellectual heritage of Western civilization,” (Congressional testimony cited in McCambly and Mulroy, 2022).

While FIPSE continues as a unit of the US Department of Education, Office of Postsecondary Education, it is different from the early days when it operated with an independent advisory board and director. I had the impression that FIPSE had ended operations from the interviews I conducted; I think it is more that the change in operations to a regular unit of a federal department marked an end to its innovative independent nature. In fact, FIPSE continues to offer competitive grants. According to an announcement January 20, 2023, Secretary Cardona announced “38 awards totaling more than \$30 million to colleges and universities from five competitive grant programs of the Fund for the Improvement of Postsecondary Education.” These five programs are: Postsecondary Student Success, Basic Needs for Postsecondary Students, Open Textbooks Pilot, Centers for Excellence for Veteran Student Success, and Transitioning Gang-Involved Youth to Higher Education. The largest of these grants was \$1.5 million for open textbooks to Loyola Marymount University. <https://www.ed.gov/news/press-releases/department-awards-grants-improve-opportunities-and-outcomes-nations-postsecondary-students>

Lessons from FIPSE:

1. Small targeted federal grants can foster innovation and serve as a model.
2. Independence of a federal grant entity may insulate it from politics, but can't protect it.
3. Access and equity remain political in higher education today. Is higher education a right or a privilege, a public benefit or private good? Who should pay? Should institutions be expected to change?
4. To increase attainment and equitable student success will require changes in attitudes underlying federal policies and funding priorities as well as changes in higher education institutions.
5. The specific focus of current FIPSE grants, availability of philanthropic grants for postsecondary education from other sources, and support for higher education from other federal agencies may have diminished FIPSE's influence.

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FIPSE <https://www2.ed.gov/about/offices/list/ope/fipse/welcome.html>