

Overview of the Scaling Apprenticeship through Sector-Based Strategies Grant Program and Project Descriptions

The U.S. Department of Labor Employment and Training Administration (ETA) awarded approximately \$184 million in grants to 23 grantees for the Scaling Apprenticeship through Sector-Based Strategies grant program in June 2019. The primary goal of this grant program is to accelerate the expansion of apprenticeships to new industry sectors reliant on H-1B visas, such as information technology (IT) and IT-related industries, advanced manufacturing, and health care. In addition, the grant program will increase the level of apprenticeship activity among employers within these industry sectors that have not traditionally implemented apprenticeship programs, particularly small- and medium-sized businesses.

Scaling Apprenticeship will promote the large-scale expansion of apprenticeships across the nation by supporting the training of thousands of apprentices in new or expanded programs and by assisting partners in their efforts to create and scale the new or expanded apprenticeship programs. This grant program will also increase apprenticeship opportunities for all Americans, particularly veterans, military spouses and those individuals currently underrepresented in existing apprenticeship programs.

Program Activities: This grant program will expand apprenticeship opportunities within H-1B industry sectors, particularly those that have not deployed apprenticeships on a large scale previously, and increase the number and types of workers participating as apprentices. To achieve these goals, projects will undertake activities within each of the following categories:

- Deploying apprenticeship training. Grant funds will be used primarily to support the training of thousands of apprentices in new or expanded programs. Training and training-related activities will include the academic and work-based training itself, as well as supportive services, such as childcare and transportation, designed to assist apprentices to participate and remain in an apprenticeship program.
- Taking apprenticeships to scale. Assisting partners in their efforts to create and scale the new or expanded apprenticeship programs is another critical component of the work under this grant program. Projects will establish new apprenticeship programs, create the training infrastructure/network necessary to deploy these programs, expand existing apprenticeships, and promote all grant-funded apprenticeship programs on a national scale.

Grants totaling \$183,883,271 were awarded to 23 partnerships in local and state service areas across the country, and will ultimately expand to reach a national scale. Descriptions of these projects are included below:

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Alabama Community College System - Montgomery, AL

Award Amount: \$12,000,000

Project Name: ALAMAP Project (Alabama Advanced Manufacturing Apprenticeship Program)

Projected Apprentices to Be Served: 5,000

Industry Focus: Advanced Manufacturing

Private Sector Partners include the Manufacturing Institute (MI) at the National Association of Manufacturers (NAM) and employers such as Toyota, Mazda-Toyota Manufacturing USA, Snap-On Tools, Vanity Fair/Wrangler, and Packaging Corporation of American.

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Programs (IRAP), Pre-apprenticeship

The ALAMAP Project (Alabama Advanced Manufacturing Apprenticeship Program) seeks to narrow the manufacturing skill gap by expanding industry-recognized apprenticeships through a three-tiered approach, involving: (1) Quick-Start pre-apprenticeships that lead to nationally recognized Manufacturing Skill Standards Council certifications and prepare individuals for in-depth apprenticeships or entry-level employment as a certified production or logistics technician; (2) Short-term apprenticeship programs (referred to as ALAMAPs), which are embedded in a variety of traditional career and technical education programs supporting advanced manufacturing, and which result in a short-term certificate, long certificate, or associate's degree; and (3) Comprehensive FAME apprenticeships, which are 21-month advanced manufacturing technician (AMT) programs that lead to an associate's degree and a career as a multi-skilled advanced maintenance technician in advanced manufacturing. Developed originally by Toyota, the FAME AMT apprenticeship is a nationally awarded, earn-and-learn model currently in use by more than 300 companies in 10 states, across 24 chapters comprising the FAME network. The ALAMAP Project is building on this work by creating four new, short-term ALAMAPs and 22 new, comprehensive FAME AMT apprenticeships.

To scale the project nationally, the ALAMAP Project is first expanding the FAME AMT apprenticeship model and short-term ALAMAPs to other colleges and companies statewide. For instance, it is implementing ALAMAPs at 22 colleges covering the entire state, embedding for-credit, paid apprenticeships of one-to-two semesters in all career and technical programs that train for occupations supporting advanced manufacturing. The project will then modify the curriculum for use in other manufacturing sectors statewide, such as aerospace/aviation, oil refining, chemical processing, ship building, and forestry product manufacturing. It also will create a modular curriculum and training framework that can be adapted for use in training for any occupation in any industry. National industry association partner MI-NAM will scale this curriculum and the new apprenticeship models through its partner network nationwide.

The Alabama Community College System consists of Beville State CC, Bishop State CC, Calhoun CC, Central Alabama CC, Chattahoochee Valley CC, Coastal Alabama CC, Drake State CTC, Enterprise State CC, Gadsden State CC, Ingram State TC, Jefferson State CC, Lawson State CC, Northeast Alabama CC, Northwest-Shoals CC, Reid State TC, Shelton State CC, Snead State CC, Southern Union State CC, Trenholm State CC, Wallace CC-Dothan, Wallace State CC, Wallace CC-Selma, Lurleen B. Wallace CC, and Marion Military Institute.

Bergen Community College - Paramus, NJ

Award Amount: \$12,000,000

Project Name: New Jersey Scaling Apprenticeships in Health Professions (NJ HealthWorks)

Projected Apprentices to Be Served: 5,000

Industry focus: Healthcare

Private Sector Partners include a business consortium composed of CVS Health, Trinitas Regional Medical Center, East Orange Medical Practice, LLC, Advanced Subacute Rehabilitation Center, RWJ Barnabas Health System, and Roosevelt Care Center.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Programs (RAPs), potentially other types (such as Industry-Recognized Apprenticeship Programs (IRAPs))

The New Jersey Scaling Apprenticeships in Health Professions (NJ HealthWorks) project is developing and expanding competency-based apprenticeships in 14 high-growth, health care sector occupations. Building on a Certified Nursing Assistant (CAN) apprenticeship program operated by partners RWJ Barnabas Health System and District Council Local 11099J/Training and Education Fund, NJ HealthWorks is expanding both that apprenticeship and eight additional RAPs across the state. These include programs in Pharmacy Technician (developed in partnership with CVS Health), Certified Alcohol and Drug Counselor (CADC), Central Sterile Technician, Community Health Worker (CHW), Medical Assistant, Dental Assistant, Medical Lab Technician, and Licensed Practical Nurse. All such occupations are new to New Jersey, except for CNA, CHW, and CADC. NJ HealthWorks is also creating five new RAPs, including Sonography and Patient Care Technician. Among other key project partners, the State of New Jersey Department of Labor and Workforce Development is supporting NJ HealthWorks through an investment of over \$1.5 million and other resources.

In addition to implementing competency-based instructional methods, the project is engaging Bergen Community College's Interdisciplinary Center for Simulation to offer employer partners a variety of instructional methodologies supporting health education. These include simulation using computerized adult and pediatric manikins, role-playing faculty-assisted instruction, standardized patients (trained actors), state-of-the-art multimedia, and structured debriefing.

NJ HealthWorks plans to scale nationally by: 1) Initially deploying the programs in all 21 New Jersey counties; 2) expanding the local programs to employers with multiple facilities across New Jersey and the New York metropolitan area, and then eventually into the New England/Northeast region; 3) working with CVS Health and L11099J affiliates representing employers to expand the PT and CNA apprenticeships (respectively) on a national scale; and 4) working with other national employer partners to promote the programs to new employers in all regions of the country.

IHE consortium members include Atlantic Cape CC, Brookdale CC, Camden County College, County College of Morris, Essex County College, Hudson County CC, Mercer County CC, Middlesex County College, Ocean County College, Passaic County CC, Rowan College at Burlington, Rowan College of Gloucester County, and Union County College.

Colorado Department of Higher Education (CDHE) - Denver, CO

Award Amount: \$12,000,000

Project Name: Colorado Healthcare Experiential Learning Pathways to Success

Projected Apprentices to Be Served: 5,000

Industry Focus: Healthcare

Private Sector Partners include a business consortium composed of Kaiser Permanente, Centura Health, HealthOne/HCA, UCHealth, and Colorado Rural Health Center.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Industry-Recognized Apprenticeship Program (IRAP), and others.

The Colorado Healthcare Experiential Learning Pathways to Success (CO HELPS) project seeks to make high-wage, high-demand occupations in the healthcare industry accessible to everyone, regardless of previous education. The project is targeting 23 healthcare industry occupations, most of which exist within career clusters in the diagnostic services, health informatics, nursing, and occupational/physical therapy fields. By partnering with the Colorado Rural Health Center, composed of rural health clinic members, the project also aims to increase participation among rural employers, while scaling the project to the state's rural and frontier communities.

CO HELPS's design allows apprentices to stack their learning to move into higher-skilled jobs within an occupational cluster. By awarding credit for prior learning and coupling paid OJT with non-credit (and thus less expensive), industry-vetted Related Technical Instruction (RTI), apprentices are receiving training in an accelerated format to pass national exams certifying their competencies. While all modularized and competency-based RTI is designed to be conducted online in order to facilitate national scaling, employer partners are committed to teaching all in-person labs. In turn, CO HELPS is training these employer staff members so that they can effectively convey their expertise to apprentices. Moreover, the project is ensuring that all programs of the Colorado partner colleges, which are providing the occupation-specific, online RTI, will articulate to Colorado State University, for the benefit of those students interested in completing a four-year health care degree.

To scale the project nationally, CO HELPS's employer partners have committed to expanding the apprenticeships to their company locations beyond Colorado—in particular, to Tennessee, Kansas, California, Hawaii, Oregon, Washington, Georgia, Virginia, Maryland, and the District of Columbia. In addition, lead applicant CDHE is developing partnerships with employers in states with similar licensing and regulatory structures. By the project's final year, CDHE, in partnership with the Colorado Community College System, plans to develop a curriculum package for each of the industry-vetted apprenticeship programs so that they can be licensed to other colleges across the country.

Lead applicant CDHE, Colorado's single-state higher educational board, represents every institution of higher education in the state, including 17 two-year and 14 four-year public colleges, and 103 private and 307 private occupational institutions. CO HELPS's nine higher education partners include Aims CC, Arapahoe CC, CC of Aurora, Emily Griffith TC, Lamar CC, Pikes Peak CC, Pueblo CC, Red Rocks CC, and Trinidad State JC.

Columbus State Community College – Columbus, OH

Award Amount: \$3,788,691

Project Name: Flexible Learning Expressway for Technology (FLEXTech) Apprenticeship Consortium

Projected Apprentices to Be Served: 1,600

Industry Focus: Information Technology

Private Sector Partners include a business consortium that includes Accenture, American Electric Power, Cisco Systems, DSW, Halcyon, Huntington Bancshares, JW Logistics, JP Morgan Chase, Nationwide, Ohio Health, State Auto, Redline Networks, and Le-Vel Brands.

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP), Pre-Apprenticeship, Other Apprenticeship

The Flexible Learning Expressway for Technology (FLEXTech) Apprenticeship Consortium seeks to create a national model for flexible apprenticeships in Information Technology and IT-related industries. The project is leveraging two prominent entities to create a combined Employer and Education Consortium charged with developing the new and expanded IT apprenticeship pathways: Columbus State Community College's (CSCC) Workforce Advisory Council, a group of national employers with IT talent needs, and Collin College's Business and Industry Leadership Team (BILT), which co-leads the National Convergence Technology Center (NCTC).

FLEXTech offers two tracks. One is an emerging workforce apprenticeship track that has adapted CSCC's Modern Manufacturing Work Study model (currently funded by the National Science Foundation's Advanced Technological Education program) and combines college curriculum with part-time paid employment in a five-semester program. The other is an incumbent apprenticeship track that builds on the model, which CSCC has piloted with employer partner Nationwide, in the data analytics, cyber security, and software development fields. This model features on-demand, stackable, IT learning modules collaboratively developed with employer partners to reskill current technicians for the changing IT environment. FLEXTech's awarded credentials include CompTIA Security+, A+, Linux+ or Network+, CCNA Cisco Certification, AWS Cloud Fundamentals, VMWare, Google IT, and other validated credentials as appropriate.

Consortium partners are pursuing national scaling using a three-pronged strategy. First, the project's expansion partners are adopting and adapting the model, with Florida State College at Jacksonville serving as the initial expansion partner (outside of Ohio and Texas). Second, national employer consortium partners, such as Chase and Nationwide, which have operations throughout the country, are scaling existing incumbent programs to new regions in Iowa, Pennsylvania, and Arizona. Finally, the Collin-College-led NCTC is leveraging its national member network of 69 partner and mentored colleges to scale the FLEXTech project nationwide.

FLEXTech's IHE consortium member is Collin College (McKinney, TX)

Community College of Baltimore County – Baltimore, MD

Award Amount: \$1,995,645

Project Name: Healthcare Apprenticeships: A Model for Maryland and the Nation

Projected Participants to Be Served: 800

Industry Focus: Healthcare

Required Private Industry Partners include a business consortium composed of Johns Hopkins Medicine and 11 of its subsidiaries, as well as national industry associations Health Career Advancement Program (H-CAP) and 1199 SEIU Training and Upgrading Fund.

Type(s) of Apprenticeship Program Proposed: Recognized Apprenticeship Program (RAP)

Healthcare Apprenticeships: A Model for Maryland and the Nation seeks to establish a formalized system of health care apprenticeships in an industry that traditionally has not participated in Registered Apprenticeship Programs. To that end, the project is developing three industry-recognized, pre-apprenticeship and apprenticeship models that will create a pipeline for entry-level employment for central service technicians and medical front office staff.

Simultaneously, it is upskilling existing entry-level staff and new hires to become medical assistants through a new state-registered apprenticeship program in medical assisting. By thus creating and expanding apprenticeships in a variety of health care occupations, the project also aims to counter the widespread notion that nursing is the primary or only entry-level degree or certification option for individuals wishing to enter the health care industry.

The project's two pre-apprenticeship programs—one in sterile processing and the other in medical front office assistant—qualify students to work immediately after exiting the program and/or to enroll in one of two apprenticeship programs. Specifically, the sterile processing pre-apprenticeship feeds into the surgical technician RAP, operated by project partner Baltimore Alliance for Careers in Healthcare (BACH); and the medical front office assistant pre-apprenticeship program feeds into the initiative's new medical assisting RAP, operated by lead applicant Community College of Baltimore County.

To scale the project nationally, CCBC is working with national partners, Health Career Advancement Program (H-CAP) and SEIU, to create a comprehensive package of apprenticeship materials and a how-to guide for community colleges seeking to implement apprenticeships at their school; among other material, the guide will include a “frequently asked questions” list specifically geared to small- and medium-sized business that may not have a large human resources department able to dedicate resources to apprenticeship programs. In addition, the national partners will disseminate and promote the model to H-CAP's network of 900 employer members, while also assisting national employers in developing apprenticeship programs based on the project.

The project's IHE consortium member is Anne Arundel Community College (Arnold, MD).

Connecticut State Colleges & Universities – Hartford, CT

Award Amount: \$8,000,000

Project Name: National Advanced Manufacturing Apprenticeship Project (NAMAP)

Projected Apprentices to Be Served: 3,500

Industry Focus: Advanced Manufacturing

Private Sector Partners include a business consortium composed of Lockheed Martin, General Dynamics, Electric Boat, IBM, Sound Manufacturing, and Pratt & Whitney; and four industry association partners: Aerospace Components Manufacturers, Small Manufacturers Association California Manufacturers & Technology Assn, and Eastern Advanced Manufacturing Alliance.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Industry-Recognized Apprenticeship Programs (IRAP), Pre-Apprenticeship

The National Advanced Manufacturing Apprenticeship Project (NAMAP) is building and scaling pre-apprenticeship programs, RAPs, and IRAPs in a broad range of occupations that support the advanced manufacturing (AM) sector. As four of NAMAP's employer partners (Lockheed Martin, IBM, Electric Boat, and Pratt & Whitney) anchor the nation's industrial defense complex, the project also seeks to de-risk significant, long-term Department of Defense investments and strengthen the defense complex over the next decade.

Specifically, NAMAP is expanding six evidence-based apprenticeship program models that train for multiple AM occupations and creating at least ten new such programs, with an emphasis on incorporating competency-based, contextualized learning, and hybrid instructional strategies into the programs. Employer partner Lockheed Martin (LM), for instance, is offering short-term, competency-based apprenticeships (converted with NAMAP support from USDOL-registered, time-based apprenticeships) in a variety of disciplines, such as Quality Assurance Test and Inspection, Craft Worker, Electrical Test Inspector, and Quality Control Inspector. IBM is expanding ten existing RAPs in occupations supporting the AM sector, such as cybersecurity analyst, software engineering, mainframe system administrator, and data scientist. In addition, with NAMAP support, IBM is developing additional apprenticeship standards in such areas as artificial intelligence and blockchain. NAMAP is also helping LM expand and reshape the company's Advanced Manufacturing Engineering Initiative (AMEI), which LM is currently piloting in Virginia, in order to build an IRAP in AM assembly, which the company plans to operate in at least four additional states (NJ, CA, FL, and TX).

The national scale of NAMAP's anchor companies – which employ over 200,000 workers in all 50 states – offers the project a platform for scaling apprenticeships nationwide. Initially, NAMAP is deploying the new and expanded apprenticeships in 13 states (CT, AL, AZ, CA, CO, FL, GA, NC, NJ, NY, RI, TX, and WV). It plans to further scale apprenticeship programs nationally by expanding current anchor employer programs, replicating those programs at other anchor employer locations nationwide, and promoting the adoption of these programs by a range of manufacturers nationwide, including smaller manufacturers, through its base of employer and industry association partners with regional and national networks.

The lead applicant is Connecticut's state system of higher education, which represents four state universities, Charter Oak State College, and 12 community colleges, including: Asnuntuck CC, Capital CC, Gateway CC, Housatonic CC, Manchester CC, Middlesex CC, Naugatuck Valley CC, Northwestern CT CC, Norwalk CC, Quinebaug Valley CC, Three Rivers CC, and Tunxis CC.

County College of Morris – Randolph, NJ

Award Amount: \$8,000,000

Project Name: CareerAdvance USA

Projected Apprentices to Be Served: 3,500

Industry Focus: Advanced Manufacturing

Private Sector Partners include the German American Chambers of Commerce and additional employer partners, such as Arconic, Kellogg, Eastern Millwork, Norwalt Design, and Puratos USA.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Other Apprenticeship, and Pre-Apprenticeship

CareerAdvance USA is building a comprehensive, advanced manufacturing (AM) apprenticeship support model, based on the AM Competency Model and incorporating evidence-based, earn-and-learn strategies, such as industry-driven curriculum and portable, industry-recognized credentials. The project is piloting three approaches to apprenticeship training, which it will assess for relative effectiveness and fit with different employment contexts: 1) Traditional RAP; 2) modified academic internship combining associate degree coursework with paid, supervised, on-the-job training; and 3) rigorous, boot camp, pre-apprenticeship training focused on entry-level skills. The boot camp approach is designed to bridge diverse populations to apprenticeship employment and permit articulation of non-credit to credit credentials upon progression. All three models incorporate paid apprentice training for incumbent workers. The project is scaling these pilot models simultaneously to allow for statistical analysis of effectiveness in diverse settings.

The project's national industry association partner, the German American Chambers of Commerce (GACC), is guiding development of these pilot models, providing critical training to employer mentors across all models and developing assessment tools, based on German apprenticeship testing criteria, which explore the relative strengths and weaknesses of the different models and apprenticeship program completers. GACC intends to use these measurement tools within a random sampling process to analyze the statistical relationship between apprenticeship model, employer context (e.g., size and skill needs), apprentice demographics, and training outcomes, with conclusions guiding individual model improvement and scale up. As such, GACC's third-party review of the training process will refine a heuristic for custom fitting the model to the setting, while supporting improvement of training strategies and apprentice outcomes across all models. In addition, GACC is guiding and monitoring program alignment with high-quality German apprenticeship standards for apprentice skills and program outcomes.

CareerAdvance USA is implementing its scaling strategy in two phases. During the pilot phase (Phase 1), the project is refining all three models through formative evaluation, and producing high quality curriculum and instructional strategies for dissemination with the aim of expanding apprenticeships statewide. During the national scale-up phase (Phase 2), the project will guide the use of improved models in diverse employer settings across the country. In addition, corporate partners will use human resource networks to share project information and organize CareerAdvance orientations and train-the-trainer workshops in other states in which they have a presence.

IHE consortium members include County College of Morris (lead), Bergen Community College, Hudson County College, Middlesex County College, Raritan Valley Community College, Camden County College, Mercer County Community College, and Rowan College at Gloucester.

Dallas County Community College District – Dallas, TX

Award Amount: \$12,000,000

Project Name: You're Hired!

Projected Apprentices to Be Served: 7,500

Industry Focus: Health Care

Private Sector Partners are the American Hospital Association and additional employer partners, including Acadian Ambulance Services, Capital Senior Living, Medical City Healthcare, JPS Health Network, Methodist Health System, Texas Health Resources, Children's Health, UT Southwestern Medical Center, and Parkland Health and Hospital System.

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP), Other Apprenticeship, Registered Apprenticeship Program (RAP)

The You're Hired! initiative is building new competency-based apprenticeships for major hospital systems and expanding apprenticeships nationally within more than 50 clinical and non-clinical occupations in the healthcare industry. Based on requests from its nine employer partners and national industry partner, the American Hospital Association (AHA) (itself comprised of 5,000 hospital members), the project is expanding existing apprenticeship programs in 21 occupations, including one Registered Nurse RAP; and creating 28 "new occupation apprenticeship" programs, in such occupations as Biomedical 3D Printing Technician, Cath Lab Technician, and Flight Medic. The project also is creating seven new IRAPs in the areas of Facilities, Supply Chain, Risk Management, Human Resources, Strategic Plan/Marketing, Environmental Services, and Volunteer Services.

To build a structure for national apprenticeship certifications and a credentialing system in healthcare apprenticeships that ensures their national portability, the project is leveraging the work of the Apprentice Champions of Excellence (ACE) team, which DCCCD formed in 2016 to serve as a centralized, intermediary apprentice sponsor for businesses in multiple sectors. For instance, early on in the project, the You're Hired! initiative facilitated the ACE team's multi-step engagement process with members of the Dallas-Fort Worth Hospital Council workforce committee to identify the apprenticeship training needs of the largest hospitals in the region. The initiative also is conducting its work through a partnership structure composed of a Deployment Team and a National Scaling Team, both of which work separately, but in a connected fashion through the efforts of a Virtual Bridge Team.

The project is launching initially in the Dallas-Fort Worth area, then moving throughout the state of Texas, with the DCCCD ACE team serving as a technical advisor to "stand up" other connected intermediaries in these regions and communities. The project's National Scaling Team also is designing a comprehensive strategy for national expansion in collaboration with the AHA's national membership and the initiative's existing employer partners, some of which are national in their ownership structure, with member hospitals located throughout the country.

The DCCCD is a community college district with seven college campuses throughout Dallas County: Brookhaven College, Cedar Valley College, Eastfield College, El Centro College, Mountain View College, North Lake College, and Richland College.

The Florida International University Board of Trustees (FIU) – Miami, FL

Award Amount: \$1,999,961

Project Name: Cyber-CAP: A Novel Cybersecurity Apprenticeship Program for IT-Related Industries (Cyber-CAP)

Projected Apprentices to Be Served: 800

Industry Focus: Information Technology, Cybersecurity

Private Sector Partners include the Society for Human Resource Management Foundation and additional employers, such as Cylance, ForeScout Technologies, and McAfee.

Type(s) of Apprenticeship Program Proposed: Other Apprenticeship; also, FIU will work with the Florida Department of Education to create a Registered Apprenticeship Program.

Cyber-CAP: A Novel Cybersecurity Apprenticeship Program for IT-Related Industries (Cyber-CAP) targets the high-demand occupation of cybersecurity within the IT industry, and specifically seeks to address the cybersecurity needs of employers in IT and IT-related industries, including the medical, healthcare, financial, construction, transportation, and hospitality sectors. Cyber-CAP is providing cybersecurity apprenticeship training targeted to such occupations as Information Security Analyst, Cybersecurity Specialist/Analyst, Vulnerability Analyst, and Threat Intelligence Analyst. In addition, the project is modeling its training curriculum on three industry standards: 1) CompTIA Security+, 2) CompTIA Cybersecurity Analyst (CySA+), and 3) CompTIA PenTest+, all of which are compliant with ISO 17024 standards and Federal Information Security Management Act regulations, and which are approved and officially recognized by the U.S. Department of Defense to fulfill various DoD Directives.

The Cyber-CAP curriculum is aligned with the national standards and frameworks for cybersecurity education outlined in the National Institute of Standards and Technology's National Initiative for Cybersecurity Education (NICE) - Cybersecurity Workforce Development Framework. In addition to earning the three industry-recognized credentials noted above, apprentices will receive digital badges. While apprentices with prior work experience in cybersecurity can earn credit for prior learning, the project also is developing a prior learning assessment for the program that will allow apprentices to translate their apprenticeship experience to college credits. Finally, lead grantee FIU is working with the Florida Department of Education to become a RAP sponsor; as designed, its programs offer 144 hours of related training and instruction over three semesters per year, and 2,000 hours of on-the-job training aligned with the concepts learned each semester.

Cyber-CAP is first launching in the South Florida Tri-County area (Miami-Dade, Broward, and Palm Beach). To scale the project, the SHRM Foundation will deploy its local chapters to market the apprenticeship programs to employers, while the project's consortium partner Coalition of Urban Serving Universities and its 37 member institutions will identify universities around the country that are capable of building local partnerships and rapidly scaling the program in their regions.

IHE consortium member is the Coalition of Urban Serving Universities (USU), a coalition of 37 urban, diverse universities.

Illinois Community College Board (ICCB) – Springfield, IL

Award Amount: \$3,999,649

Project Name: Customized Apprenticeship Program – Information Technology (CAP-IT)

Projected Apprentices to Be Served: 1,728

Industry Focus: Information Technology, including Cybersecurity

Private Sector Partners include Computing Technology Industry Association (CompTIA) and additional employers, such as Sntial Technologies and Accenture.

Type(s) of Apprenticeship Program Proposed: Apprenticeship (Other), Pre-Apprenticeship

The Customized Apprenticeship Program – Information Technology (CAP-IT) project seeks to develop innovative, flexible, and replicable models for IT apprenticeship pathways throughout Illinois and the country. It is targeting three, high-demand occupational pathways leading to occupations within the IT sector: IT Generalist/Network Systems, Programming and Software Development, and Information (Cyber) Security. The CAP-IT model includes the following elements or “steps”: 1) Pre-apprenticeship bridge programs, which serve as multiple on-ramps for various skill levels and incorporate contextualized instruction, career development, and support services; 2) Pre-apprenticeship programs, which incorporate approaches for acceleration and flexibility, such as competency-based education delivery, prior learning assessments, and shorter-term and accelerated programs; and 3) Apprenticeship programs, which can be time-based, competency-based, or a hybrid of time- and competency-based. All programs at each step incorporate the Essential Employability Skills Framework, which various Illinois stakeholders created to provide a statewide employability standard; and wrap-around supportive services.

To facilitate CAP-IT’s dissemination and scaling, a team of instructional and industry experts is mapping out competencies as common reference points along the CAP-IT pathway. Led by ICCB’s Professional Development Network and the project’s industry partner CompTIA, this team is creating connections across multiple occupational pathways for students and employers, with the aim of making standardized and centralized programming readily accessible through online channels. In addition, CompTIA is helping craft a highly customized IT apprenticeship model that includes portable, stackable industry-recognized credentials and national certifications, while leveraging its membership and partnership networks for business engagement and expansion efforts.

To promote CAP-IT’s national scaling efforts, key partner Jobs for the Future (JFF)’s Center for Apprenticeship and Work-Based Learning serves as a platform to amplify and promote project progress and to engage employers to facilitate replication of the apprenticeship model across the industry. Among other scaling activities, JFF is providing coaching for three replication sites in regions with multiple partners identified through grant activities.

IHE consortium members include: City Colleges of Chicago, Oakton Community College, Illinois Central College, Kishwaukee College, College of Lake County, Prairie State College, Richland Community College, Lincoln Land Community College, Rend Lake College, and Parkland Community College.

Lorain County Community College (LCCC) – Elyria, OH

Award Amount: \$12,000,000

Project Name: Ohio Manufacturing Workforce Partnership

Projected Apprentices to Be Served: 5,000

Industry Focus: Advanced Manufacturing

Private Sector Partners include Manufacturing Institute, National Association of Manufacturers (MI-NAM), Ohio Manufacturers Association (OMA), and National Institute of Metalworking Skills (NIMS), and employers including Thyssenkrupp Bilstein, Shepherd Color, MillerCoors, Meyer Tool, GE Aviation, Honda, Lincoln Electric, Vallourec, and First Solar.

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP)

The Ohio Manufacturing Workforce Partnership (OMWP) initiative is leveraging established and emerging regional sector partnerships to develop and expand IRAPs and other apprenticeship pathways in the advanced manufacturing industry throughout Ohio and the country. The 12 sector partnerships, which are leading on-the-ground implementation throughout the state, are prioritizing an employer engagement process that incorporates validation and third-party certification of IRAPs using the National Occupational Frameworks.

The OMWP is also facilitating a “Learning Community” that draws on the expertise of state and national partners to implement technical assistance, professional development, and evaluation to promote adoption of effective IRAP models within Ohio and nationally. Partner SkillsCommons is supporting this community by providing a customized technology platform for storing and sharing models and materials, including a professional development curriculum for training mentors. SkillsCommons is also leveraging its Women’s Outreach IMPACT *community* to support the project’s goals for serving women apprentices. In addition, building on the work of previous federal grant initiatives, the OMWP is incorporating employment readiness, manufacturing foundations, and acceleration strategies into its training approach.

At the project’s start, partner companies are hosting more than 2,300 apprentices through the 12 regional sector partnerships. National industry association partner MI-NAM (Manufacturing Institute, National Association of Manufacturers) is leading the project’s national scaling process, which includes the following components: Identifying Ohio models for expansion, such as LCCC’s TRAIN OH Columbus State Community College’s Modern Manufacturing Work Study Program, recipients of a recent NSF grant to support statewide expansion; leveraging national networks to identify expansion destinations; and facilitating program expansion.

IHE consortium members include: Belmont College, Central Ohio TC, Cincinnati State CTC, Clark State CC, Cleveland State University, Columbus State CC, Cuyahoga CC, Eastern Gateway CC, Edison State CC, Hocking College, Lakeland CC, Marion TC, North Central State College, Northwest State CC, Owens CC, Rhodes State College, Rio Grande CC, Shawnee State, Sinclair CC, Southern State CC, Stark State College, Terra State CC, U of Akron, Washington State CC, and Zane State College.

Miami Dade College – Miami, FL

Award Amount: \$1,987,204

Project Name: Miami Dade Apprenticeship Partnership in Information Technology (MAP IT)

Projected Apprentices to Be Served: 800

Industry Focus: Information Technology

Private Sector Partners include the Computing Technology Industry Association (CompTIA), and additional employers, such as Kaseya

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP), Registered Apprenticeship Program (RAP), Pre-Apprenticeship

The Miami Dade Apprenticeship Partnership in Information Technology (MAP IT) is developing and implementing new and expanded IRAPs to fill hiring gaps within Florida's growing technology hub. It also aims to expand the existing RAP model to include nontraditional apprenticeship occupations in the IT industry. (Currently, the state-registered apprenticeship program includes five traditional apprenticeships, none of which exist in IT or IT-related industries.) In particular, MAP IT is designing three models of apprenticeship programs: (1) Front-Loaded, which assists participants who have received related technical instruction (RTI), but no on-the-job training (OJT), and are extensions of previous USDOL grants (including H-1B TechHire); (2) Hybrid-Based, in which both RTI and OJT run concurrently for a specified period of time and result in an industry-recognized credential; and (3) Competency-Based, in which RTI and OJT run concurrently for a shortened period of time and result in an industry-recognized credential, with advancement through the program based on certification attainment and demonstration of technical skill mastery.

In particular, the project is adapting O3E (Open-Entry/Early Exit) – a competency-based, non-term, rolling enrollment, self-paced, and faculty-mentored model – for IT apprenticeship programs. O3E offers credit courses in one-credit, competency-aligned modules and builds in competency assessments and multiple entry and exit points to accommodate employer skill needs. The O3E cybersecurity credit-bearing certificate program, which is aligned with four industry certifications, is intended for students with work experience in IT who need advanced, specialized preparation to fill cybersecurity jobs across industry sectors.

To scale the project, partners Jobs for the Future and the American Association of Community Colleges will promote MAP IT programs to a broad network of associated partners, industry groups, and local employers by leveraging their existing relationships, current and prior work, and national workforce and economic development networks. The initiative will also leverage its relationship with CompTIA to scale the project nationally.

The IHE consortium member is Polk State College.

Pennsylvania College of Technology – Williamsport, PA

Award Amount: \$7,996,530

Project Name: MIDAS – Modular, Industry-Driven Apprenticeship Strategies

Projected Apprentices to Be Served: 3,231

Industry Focus: Advanced Manufacturing

Private Sector Partners include PMMI (Packaging Machinery Manufacturers Institute), SPE Foundation (Plastics), NIIMBL (National Institute for Innovation in Manufacturing Biopharmaceuticals), and LIFT (Lightweight Innovations for Tomorrow).

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP), Registered Apprenticeship Program (RAP), Pre-Apprenticeship

The MIDAS (Modular, Industry-Driven Apprenticeship Strategies) project is working to reinvent apprenticeship models to meet employer demand for advanced manufacturing occupations in Pennsylvania, New Jersey, New York, and nationwide. Specifically, the project aims to reconfigure existing structures to incorporate smaller core competency modules that are flexible, customizable and stackable, thus meeting employer needs for multiple occupations. These modules are designed to include seamless options for registered programs and academic credit for prior learning. MIDAS is developing these highly customizable modules using a shared tuition model that allows multiple companies to share in the cost of a class, thereby encouraging companies to increase their apprentice enrollment.

The project is also retrofitting and expanding existing RAPs in Mechatronics, Computer Numerical Control (CNC), and Industrial Manufacturing, as well as establishing new RAPs in specialty advanced manufacturing industries, such as Plastics Process Technician, Biological Technician, and Light Metals Machinists and Welders. In addition, MIDAS is developing complementary IRAPs that are applicable across advanced manufacturing. These programs, which can be completed in less than one year and stacked onto and alongside of the RAPs, are designed to stand alone for apprentices who are not in a registered program. In addition, MIDAS is creating IRAP modules for critical business skills that are needed in advanced manufacturing occupations, such as project management, frontline supervisor, lean/six sigma, and business skills, including communication and team building.

To scale the project nationally, MIDAS will leverage the networks of its four national industry association partners to promote and enroll employers across the country.

The IHE consortium consists of the Pennsylvania College of Technology (lead) and the New Jersey Institute of Technology.

Pima County Community College District – Tucson, AZ

Award Amount: \$4,233,317

Project Name: Industry-Recognized Apprenticeship Model in Manufacturing (i-RAMM)

Projected Apprentices to Be Served: 3,236

Industry Focus: Advanced Manufacturing

Private Sector Partners include National Association of Manufacturers/Manufacturing Institute (NAM/Mi), National Tooling & Machining Association (NTMA), and NIMS (National Institute of Metalworking Skills), as well as additional employer partners, including Abbott Nutrition, Boeing Co., and Raytheon Missile Systems (Tucson)

Type(s) of Apprenticeship Program Proposed: Apprenticeship, Pre-apprenticeship

The i-RAMM project is developing and piloting a competency-based apprenticeship program model in the two advanced manufacturing career pathways of mechatronics and machining. The project's five consortium colleges are members of the Arizona Advanced Technologies Corridor (AZ-ATC), a partnership of state government, higher education, industry, and nonprofit stakeholders that was formed in 2017 to grow the manufacturing labor supply along the I-10 corridor between Tucson and Phoenix. i-RAMM is deploying initially in the AZ-ATC corridor, and then scaling to locations nationwide.

i-RAMM laid the initial groundwork for project expansion by collaborating with national industry partner NIMS to align the college members' mechatronics programs with NIMS competencies. It also obtained employer partner Raytheon's buy-in for testing the model in Arizona and then expanding to other sites nationally. NIMS is collaborating with employers and faculty to modularize the curriculum, transforming portions of classroom instruction into on-the-job training tied to competencies, which then map to college credit. To launch the second i-RAMM pathway, the colleges will complete the process of aligning their machining programs to additional NIMS credentials.

As part of its scaling strategy, i-RAMM has enlisted national industry partners NIMS and NAM (National Association of Manufacturers) to help develop a replication toolkit, which will provide tools and practices that help interested employers and colleges across the county to adopt and adapt the competency-based model quickly. To assist with national scaling, the project is also working with its employer partners that have multiple locations nationwide, such as Sargent Controls, Raytheon, and DMG Mori. Such partners have committed to replicating the programs at their additional company sites, as well as to encouraging their suppliers and vendors around the country to adopt the model.

IHE consortium members include: Pima CC (lead), Central Arizona College, Estrella Mountain CC, GateWay College, and Mesa CC.

Purdue University – West Lafayette, IN

Award Amount: \$11,999,996

Project Name: P-CAP: Purdue Cybersecurity Apprenticeship Program (P-CAP)

Projected Apprentices to Be Served: 5,000

Industry Focus: Information Technology (Cybersecurity)

Private Sector Partners include a business consortium composed of such employers as Raytheon, ClearanceJobs, ManTech, Military Talent Group, SAIC, TCC, and NSWC Crane Division, as well as national industry associations, including Centurion Military Alliance, Cyber Leadership Alliance, North American Strategy for Competitiveness, NextFlex, and the International Consortium of Minority Cybersecurity.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Apprenticeship (other)

The P-CAP: Purdue Cybersecurity Apprenticeship Program (P-CAP) project is a competency-based apprenticeship program that builds on an already-approved, USDOL National Standard for Apprenticeship for Cybersecurity, which partner Purdue Global (PG), an online university, developed. P-CAP provides a two-level curriculum, mapped to the NICE Cybersecurity Workforce Framework and the ACM/IEEE/AIS SIGSEC/IFIP Cybersecurity Guidelines, which PG is delivering via its existing online platform. The curriculum gives apprentices the opportunity to receive an associate's degree in IT, a bachelor's degree in Cybersecurity or Cloud Computing/Solutions, and a range of certifications in both cybersecurity and cloud computing. These certifications include Network+, Cloud+, Linux+, Security+, System Security Certified Practitioner, CCNA Routing & Switching, Certified Ethical Hacker, Certified Network Defender, Global Information Assurance, Certified Incident Handler, Certified Information Security Professional, Global Information, and Certified Information System Security Pro.

P-CAP is also developing the PG Cybercenter/CyberRange, which provides a venue for practical application of cybersecurity concepts, allowing apprentices to use their learned skills in mock scenarios, including apprentice competitions. The CyberRange in particular is a virtual learning community that enables students to engage in peer mentoring. In addition, the project is creating a P-CAP Apprenticeship Leadership Academy to help apprentices develop social skills by immersing them in online, self-paced cybersecurity workplace cases. Academy completion will lead to micro-credentialing and badging.

P-CAP aims to quickly reach national scale through its partnership with PG (a virtual campus), which is delivering the online program. The project is further developing PG's existing National Standard for Cybersecurity Support Technician apprenticeship as an immediately-scalable curriculum and apprenticeship model that can be adapted to specific company needs in other industry sectors. Finally, the project is collaborating with Fastport, Inc. a DOL-recognized employer intermediary, to reach employers nationwide.

IHE consortium members are Purdue University (lead) and Purdue Global.

The Research Foundation for the State University of New York - Albany, NY

Award Amount: \$7,999,226

Project Name: SUNY New York College Apprenticeship Network (NYCAN)

Projected Apprentices to Be Served: 3,500

Industry Focus: Advanced Manufacturing

Private Sector Partners include a business consortium of 58 employer partners, including Ford, Chobani, Unison/GE, All Seasons Ingredients, and Beech-Nut Nutrition.

Type(s) of Apprenticeship Program Proposed: Apprenticeship, Pre-Apprenticeship

The NYCAN project seeks to make apprenticeship the industry standard for training manufacturing workers anywhere in New York State through its development of a standardized online curriculum for pre-apprenticeships and apprenticeships, which employers may then adapt to their local region's needs. To assist this effort, NYCAN is creating a statewide training network designed to help employers and community colleges form sustained partnerships. The project also features strong partnerships with the public workforce system, building on the experience of several partner Workforce Development Boards that have pioneered apprenticeship expansion throughout the state.

The project's flagship pre-apprenticeship program will be New York State's first online pre-apprenticeship program, which NYCAN designed to ensure that all apprentices have foundational competencies. NYCAN is offering this online curriculum through Open SUNY, the education system's online learning network, which allows the project to connect with potential apprentices statewide. The project also is deploying its vast corps of college professors in a "train-the-trainer" role to help manufacturers (particularly smaller employers) develop lesson plans, and to help technically competent staff cultivate effective teaching methods.

NYCAN will achieve national replication by building on the success that multi-state employers are currently experiencing in New York. Partner employers with manufacturing operations in the state have operations in 25 additional states; these employers will serve as the first wave of replication sites for NYCAN. In addition, New York has a thriving network of Manufacturing Extension Partner (MEP) partnerships through partner NYSTAR, which will serve as a link to adjacent states, facilitating the project's recruitment of additional employers to its apprenticeship model.

The IHE consortium consists of SUNY's 30 community colleges.

San Jacinto Community College District – Pasadena, TX

Award Amount: \$12,000,000

Project Name: Texas Is IT! (TXIT)

Projected Apprentices to Be Served: 5,000

Industry Focus: Information Technology

Private Sector Partners include a business consortium consisting of IBM, Lockheed Martin, Cerner Corporation, Cisco Systems, and Rackspace.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Apprenticeship, Pre-Apprenticeship

Finding that rapid advancements in digital technologies are dissolving industry boundaries and rendering information technology a “cross-industry,” the TXIT project is partnering with employers in the advanced manufacturing, healthcare, and IT sectors to build new apprenticeships within the IT industry. The project also is designing its apprenticeships for “new collar adults”—workers without bachelor’s degrees—to address a key challenge facing the IT industry, in which many technology companies require a bachelor’s degree for jobs that can be performed without one.

TXIT is offering both registered and non-registered apprenticeships, all of which are connected to college credit and/or industry-recognized certificates. In addition, the apprenticeships are portable, stackable, and tailored for online and/or virtual applications to meet the needs of apprentices who must juggle class instruction with on-the-job learning, while also meeting family responsibilities.

A key project focus is building pre-apprenticeships that achieve a steady stream of well-qualified applicants for the newly created apprenticeships. TXIT is developing these pre-apprenticeships based on several models, including the Pre-Apprentice Academy pioneered by partner IBM in Great Britain, which combines coding-camp-style digital learning with hands-on work experience, including soft skills. Another model is a digital literacy pre-apprenticeship, which instructs apprentices in the types of data appropriate for specific uses, the use of data analysis and visual analytics tools, and the effective communication of results through storytelling, among other topics.

TXIT’s initial service areas are Houston, San Antonio, Dallas, and Austin—home to the four consortium colleges, as well as urban centers of the state where technology industries are clustered. The project will then move to California through existing industry partners that have company locations in that state, as well as with the support of the California Division of Apprenticeship Standards, which has committed to helping the project scale nationally. Assisting this effort are TXIT’s employer partners, all of which are national companies with locations throughout the country, as well as the American Association of Community Colleges, which will work through its member networks to expand the project’s national scope.

IHE consortium members include Alamo Community College District, Austin Community College, and Dallas County Community College District.

St. Louis Community College – Bridgeton, MO

Award Amount: \$11,990,952

Project Name: Missouri Apprenticeships in Manufacturing Programs (MoAMP)

Projected Apprentices to Be Served: 5,000

Industry Focus: Advanced Manufacturing

Private Sector Partners include national industry association partner, the National Institute of Metalworking Skills (NIMS), as well as employer partners, including UAW/Ford Motor Company (Kansas City), Gund Company, Inc., True Manufacturing, and the Boeing Company.

Type(s) of Apprenticeship Program Proposed: Industry-Recognized Apprenticeship Program (IRAP), Pre-Apprenticeship

The MoAMP project is working to expand apprenticeship opportunities across 37 occupations—and three pathways—within the advanced manufacturing sector, including 28 occupations in the Production and Maintenance pathway, four in the Logistics pathway, and five in the Automation and Systems pathway. MoAMP is building these pathway programs based on the industry-recognized and competency-based apprenticeship model of its primary industry association partner, NIMS. Key components of the new, NIMS-certified model include: 1) building competency ladders with employer partners through a focus on aligning training to employee competencies within a company, as opposed to registering an occupation in a company; 2) identifying and aligning employee performance measures with the competencies in the competency ladder; and (3) validating that the programs' curriculum, credentials, and competencies crosswalk and are aligned for the benefit of apprentices and employees.

To deploy its apprenticeship programs on a national scale, MoAMP's Consortium Communication Council Task Force, composed of NIMS, ACT, the Missouri Department of Workforce Development (MODWD), the Missouri Department of Corrections (MODOC), and individual employers, is developing a national outreach and marketing plan complete with tools to support program implementation and sustainability. Specific national scaling strategies include creating and promoting the NIMS expansion model; promoting the grantee's train-the-trainer curriculum designed to improve apprentice mentor oversight; creating a standardized advanced manufacturing pre-apprenticeship model based on MODWD's and St. Louis Community College's Manufacturing Job Skills Pre-Apprenticeship model; and creating a common, statewide apprenticeship data collection and review process, in coordination with MODWD. This process includes co-collection of data with MODWD and the co-enrollment of MODWD registered manufacturing apprenticeship program participants in the grantee's new and expanded apprenticeship programs.

The IHE consortium consists of St. Louis Community College (lead), East Central College, Jefferson College, Metropolitan Community College, Mineral Area College, Moberly Area Community College, St. Charles Community College, State Fair Community College, and the State Technical College of Missouri.

Trustees of Clark University – Worcester, MA

Award Amount: \$11,999,771

Project Name: Tech Quest Apprenticeship Expansion Consortium (TQ Consortium or Tech Quest)

Projected Apprentices to Be Served: 5,000

Industry Focus: Information Technology (IT) and IT-Related

Private Sector Partners include a business consortium consisting of such employers as Public Consulting Group, Inc., InfoTech, Mako USA, Altavian, Admiral, Antibiotic Adjuvant, and Tera Insights.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Industry-Recognized Apprenticeship Program (IRAP), Pre-Apprenticeship

The Tech Quest Apprenticeship Expansion Consortium (TQ Consortium) seeks to significantly expand the availability of IT and IT-related industry apprenticeships within multiple occupations, and to expand IT and IT-related industry apprenticeship training to a national level within at least seven states (FL, MA, NV, MO, OR, PA, and TX). The project is providing training in 13 IT-related occupations—eight with existing RAP standards and five with new apprenticeship standards, which the project is working to register. The new occupations are Business Analyst, Business Intelligence, Data Science Analyst & Manager, User Support Specialist, General and Operations Managers. The current approved standards include IT Project Manager, E-Communications-Computer Systems Planning and Implementation, Public Health Information, Database Technician, Network Support Technician, IT Specialist, Computer Programmer, and Information Assurance Specialist.

To provide apprentices who face severe barriers with a more navigable path into high-skilled jobs and careers, the TQ Consortium is focusing its training design on the teaching of technology skills within a business context—that is, at the nexus of IT industries with business analytics, business intelligence and data science occupations within those IT industries. By combining “pure” IT training with concepts grounded in business, enterprise, and entrepreneurship, the project aims to help all apprentices (along with future independent contractors and other company staff) to better understand how business works and thereby gain the skills to become more adept employees.

The IHE consortium consists of Clark University (lead), University of Florida, University of California-Merced, Rancho Santiago Community College (CA), Santa Fe Community College (FL), and Florida Vocational Institute.

University of Cincinnati – Cincinnati, OH

Award Amount: \$11,893,184

Project Name: “NEXT” Apprenticeship Program

Projected Apprentices to Be Served: 10, 476

Industry Focus: Information Technology

Private Sector Partners include a business consortium consisting of Curvature, Northrop Grumman, Kinetic Vision, Pepulab, GE Aviation, IBM, and Lubrizol.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP)

The NEXT project seeks to build robust pathways enabling unemployed and underemployed underrepresented minority populations (URMs), as well as women, veterans, ex-offenders, nontraditional learners and others underrepresented in the IT field, to secure middle- and high-skilled jobs in the high-paying IT sector. The project incorporates flexible educational and experiential (i.e., work-integrated) opportunities tailored to a wide variety of individuals, and incorporates 22 nationally portable, industry-recognized credentials from Cisco, CompTIA, and the IBM Skills Academy.

The project is leveraging the University of Cincinnati’s (UC) experience leading the Cooperative Education Model, which UC founded in 1906, to take the NEXT apprenticeship model to a national scale. Strategies include incorporating multiple education pathways with experiential learning components, expanding regional campus programs to provide industry certifications, and redefining the co-op model to fit the new, competency-based apprenticeship models. For instance, the project is convening industry and education partners at UC’s Remote Work and Employer Learning Center to create new virtual, contract-based, part- and full-time apprenticeships in an experimental setting. Alongside the well-established co-op model, the project is building a framework based on European Union models of skills development, as well as occupation-based training models, boot camps, and workshops in such fields as Cognitive & Artificial Intelligence, Block Chain, and Quantum Computing.

The NEXT project selected 10 MSAs around the country in which to scale the project, based on the concentration of IT jobs in the region and a determination of the areas where entry-level wages afford individuals the greatest purchasing power. The project intends to expand rapidly by leveraging its partner relationships, offering academic programs via distance learning, and using the scalable, articulation-agreement model to expand the program to community colleges in the target MSAs across the United States.

The IHE consortium consists of University of Cincinnati (lead), Johnson C. Smith University, Wentworth Institute of Technology, Xavier University, Cincinnati State Technical and Community College, and Northern Kentucky University.

Weber State University – Ogden, UT

Award Amount: \$2,000,000

Project Name: Utah Computing Apprenticeship (UCAC) Project

Projected Apprentices to Be Served: 800

Industry Focus: Information Technology (IT)

Private Sector Partners include a business consortium consisting of such employers as O.C. Tanner, Bridge Investment Group, Smith Johnson, HealthEquity, doTerra, Larry H. Miller Sports & Entertainment, Dyno Nobel, and WCF Insurance, among others.

Type(s) of Apprenticeship Program Proposed: Apprenticeship, Pre-Apprenticeship

The Utah Computing Apprenticeship (UCAC) project seeks to establish Utah’s first comprehensive apprenticeship model in Information Technology (IT). The project is building on several current initiatives, including a pilot apprenticeship program designed to address the IT workforce shortage in Utah, which the state funded through a Talent Ready Utah grant; and a separate, but aligned IT Pathways project, which is formalizing articulation from secondary schools to technical colleges to higher education institutions. UCAC also received state funding to create a pilot program for pre-apprenticeships and apprenticeships for high school students and adults using the U.S. Department of Labor-approved Apprenti model; the model includes policies, procedures, and a guidebook for mentoring that can be implemented by any industry in any geographic area, as well as a platform for analyzing outcomes to assist in scaling the model on a national level. UCAC is using Apprenti’s Occupational Apprenticeship Standards (approved by the Office of Apprenticeship) to further support its ability to scale.

To meet the needs of rural apprentices nationwide, UCAC is tailoring Utah’s nationally recognized AM STEM (Automated Manufacturing STEM) program, a virtual model that has proven effective in providing training opportunities to rural students, especially in areas facing teacher shortages.

The UCAC project, in partnership with Apprenti, is scaling its IT industry apprenticeship model in three phases. In the first phase, UCAC is deploying apprenticeships in the Salt Lake Metro and Ogden-Clearfield Metro areas in Utah. In phase two, the project will expand implementation to rural counties statewide through virtual and online training. Finally, in phase three, UCAC will collaborate with Apprenti to create a replication guide for implementing apprenticeships, which is designed to result in a scalable, IT industry apprenticeship model that will successfully train participants and serve rural areas, including a focus on supporting small businesses.

IHE consortium members include Weber State University (lead), Salt Lake Community College, and Davis Technical College.

West Los Angeles College – Culver City, CA

Award Amount: \$12,000,000

Project Name: Growing Advanced Manufacturing Apprenticeships Across America (GAMAA)

Projected Apprentices to Be Served: 5,000

Industry Focus: Advanced Manufacturing

Private Sector Partners include national industry associations, Aerospace Industries Association (AIA), Society of Manufacturing Engineers (SME), and Institute for American Apprenticeships (IAA), and employer partners including IBM, Aerojet, Rocketdyne, Aerospace Dynamics, Ampaire, Bachem, Husky Injection, Hypertherm, and Impresa Aerospace.

Type(s) of Apprenticeship Program Proposed: Registered Apprenticeship Program (RAP), Industry-Recognized Apprenticeship Program (IRAP), Apprenticeship (Other), Pre-Apprenticeship

The Growing Advanced Manufacturing Apprenticeships Across America’s (GAMAAA) project is building pre-apprenticeships and apprenticeships in the advanced manufacturing industry by encouraging collaboration on a national level using the tested and flexible Aero-Flex model. Lead applicant West Los Angeles College was part of the team in 2016 that formed Aero-Flex, an employer-driven methodology and framework in engineering, designed to meet the needs of the aerospace industry, while also working across all advanced manufacturing subsectors. The framework creates a career pathway for individuals interested in engineering that is based on a three-track training model, incorporating work readiness, technical skills, and work experience/internship. The framework also provides for a customized layer that allows each employer to design or “flex” its own program by selecting curriculum aligned to its specific needs. The Aero-Flex partnership has created the first-in-the-nation, USDOL-approved, Aerospace Engineering Registered Apprenticeship program, as well as the first bachelor-degreed engineering apprenticeship ever registered with USDOL. The partnership is planning to create a RAP in Avionics Technician and a Bio-Flex pre-apprenticeship/apprenticeship program, among other programs.

With its national focus, GAMAA is building on the Aero-Flex design by bringing together that model and other partner apprenticeship development models into a joint effort that aims to expand and extend apprenticeship. The result will be a mixture of current apprenticeships, new and emerging apprenticeships, and hybrid- and competency-based apprenticeship approaches, all based on the Aero-Flex methodology. For instance, among the multiple pathways that it is incorporating into the Aero-Flex model, GAMAA is converting existing internships or work experience to new IRAPs or RAPs, and creating new IRAPs or RAPs where no internship, work, experience, IRAPs, or RAPs currently exist.

GAMAA is launching initially in several service areas, including Southern California, Reno/Sparks (NV), Brevard and Palm Beach Counties (FL), Kentucky, New Hampshire, Vermont, and New York. To reach a national scale, GAMAA’s national industry association partners will promote the project to their national memberships, while assisting the project’s national employer partners, such as Northrup Grumman, who joined the partnership with the aim of expanding their apprenticeship activity within several states.

IHE consortium members include West Los Angeles College (lead), College of the Canyon, El Camino College, Truckee Meadows Community College, Columbia College, and Onondaga Community College.

West Virginia Council for Community and Technical College Education - Charleston, WV

Award Amount: \$3,999,571

Project Name: Apprenticeships in Motion (AIM)

Projected Apprentices to Be Served: 1,600

Industry Focus: Information Technology (IT)

Private Sector Partners include a business consortium consisting of IBM, BDC, ATS, Bluestone Analytics, Core 10, Dyna-Mix, E&H Manufacturing, Lester Square Pharmacy, Niche Polymer, Real Alloy, TMC Technologies, Wheeling Hospital, Williamson Health Wellness Center, WV Rural Water Association, Allegheny Wood Products, Childers Enterprises, and Innovative Solutions Technology.

Type(s) of Apprenticeship Program Proposed: Apprenticeship (Other)

Apprenticeships in Motion (AIM) seeks to grow a workforce to fill West Virginia's and the nation's information technology industry skills gap by replicating and nationally scaling the apprenticeship model that West Virginia Council for Community and Technical College Education (WVCCTCE) developed for its Learn and Earn (L&E) program. Created by the West Virginia legislature to link postsecondary programs with industry and business needs, L&E funds 50 percent of apprentices' wages in any industry. WVCCTCE's colleges have developed 172 IT training programs through L&E, on which AIM will based creation of its programs. AIM is maintaining the L&E program hallmark, in which businesses contribute input and investments in co-designing training programs with system's Community and Technical Colleges (CTCs). AIM is also leveraging match funding from the state-funded Governor's Guaranteed Workforce (GGWF) program, which pays incumbent workers' tuition for related technical instruction. Under an arrangement, the GGWF will inform businesses participating in the GGWF program about the AIM project if they have incumbent IT workers whom they refer to a CTC.

To scale the program nationally, AIM is working with its partner businesses, 21 percent of which have a national reach, as well as engaging its scaling partner the American Association of Community Colleges, which is disseminating information on AIM to its 1,100 members, helping WVCCTCS recruit other CTCs nationwide to adopt its approach, provide technical assistance about scaling AIM and mentoring apprentices, and write a white paper to assist other states in adopting WV's funding model to make their model financially sustainable. In addition, in Year 2, partner Cuyahoga Community College will be the first college outside WV to scale the L&E model, replicating the AIM initiative.

Awarded certifications include CompTIA A+, Network+, Security+, Linux+; CISCO CCDA certification, Certified Network Associate (CNA), CNA Cyber Operations; EC Council Certified Ethical Hacker/Networks Defender.

Lead applicant WVCCTCE is the state's system of higher education (for the community college system).