ARIZONA STATE UNIVERSITY

Michael M. Crow

At-Risk Assessment

FY 2022

Arizona State University

July 25, 2022

TO: Lyndel Manson
Chairman, Arizona Board of Regents

FROM: Michael M. Crow
President, Arizona State University

CC: Arizona Board of Regents
John Arnold
Jennifer Pollock

RE: FY2022 At-Risk Compensation

Once again, I am pleased to provide my At-Risk goals report for FY2022. This report is a part of the ongoing assessment process associated with the At-Risk compensation model put in place by the Board of Regents many years ago. As you will recall from my last communication from July 26, 2021, when I reported FY2021 At-Risk Compensation, there was no report required in FY2020, although I prepared and submitted a report on August 10, 2020.

This report includes the summation of efforts associated with the one-year FY22 goals and a progress report on the three-year goals. This report reflects substantial progress against these goals and the other goals that I have been focused on during FY2022, which was a pandemic under management year as opposed to FY2021, which reflected more a pandemic under evolving management year, just to contextualize.

During FY2022, ASU was fully operational with extensive management energy and scientific support energy going into pandemic management, resulting in the university being fully functional. Ongoing COVID testing for all staff and students and their families was fully available. We were continuing the operations of statewide testing facilities and, during this timeframe, also continuing statewide vaccinations, offering almost a million vaccines during this fiscal year. Throughout this fiscal year, we followed CDC guidelines and educated staff, students, associates, families and community members within the sphere of operations of the university relative to all things COVID, and it seemed to have net positive outcomes. In addition, we continue to provide assistance to the Arizona Department of Education with teacher training, technical support, course support, classroom support, etc. We also assisted the Office of the Governor, the State Department of Health Services and the Helios Foundation, as well as

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a range of other institutions in which educational assets and technical assets were valuable during the enhanced management requirements for COVID.

In all of this, our faculty and staff were able to continue advancing ASU in numerous ways, including:

- Maximum enrollment ever achieved
- Maximum diversity ever achieved
- Maximum research expenditures
- Maximum number of graduates
- Expansion of all diversity indexes.

In addition, the university made substantial progress on expanding its research enterprise through the full acquisition of the Bermuda Institute for Ocean Sciences as well as completion of a range of new facilities, including the opening of the Thunderbird School of Global Management Headquarters and the Rob and Melani Walton Center for Planetary Health (the headquarters for the Global Futures Laboratory). In fact, the new facilities accelerated at the fastest rate that we have been evolving in the last 20 years.

In addition, we continue the evolution of the ASU Public Enterprise model by the establishment of the Office of the Executive Vice President and Chief Operating Officer of the ASU Public Enterprise with the appointment of Dr. Chris Howard, the outgoing president of Robert Morris University in Pittsburgh, Pennsylvania, in that role.

The one-year goals and the three-year goals are detailed in the attached. Substantial progress has been made against each of these goals, and I will comment briefly in summary form for each of them below:

One-year At-Risk Goals:

1) 2021-2022 At-Risk Goal #1: Submit a report reflecting a detailed strategy for addressing educational gaps within Arizona by accelerating the diffusion of teaching, learning and student engagement innovations to community colleges and other universities. Strategies should identify specific innovations and propose ways to further distribute them, with a focus on the needs of Arizona.

   Goal Status: ACCOMPLISHED

   This goal is very important from the perspective of advancing ASU as an asset to the broader to the community. Towards this end, we have launched, with support from ABOR, the Arizona Innovation Alliance, which is up and running and advancing. Plans are detailed in the attached. In addition, ASU Preparatory Academy and its evolution was accelerated with substantial enhancements to its outcomes as a way of further driving advancement on this goal in terms of gaps in Arizona. ASU Prep Digital and the ASU Prep

Academy are substantial exemplars in terms of shaping the future of K-12 outcomes in Arizona. Also, related to this goal, EdPlus as the university's technology-based platform associated with educational attainment, has done a great job expanding access to ASU and other learning assets.

2) 2021-2022 Individual At-Risk Goal #2: Submit a planning document for the launch of at least one of the five future Science & Technology Centers in the Fulton Schools of Engineering, as a part of the New Economy Initiative.

   Goal Status: ACCOMPLISHED

   Here we outlined how we are getting the Science & Technology Centers up and running. At the end of the day, we won't be launching 5 centers, we will be launching 7 of them, and our ultimate goal here is the laying down of trans-sector (university and industry) research and development centers that help establish the foundation for the evolution of new technologies and new economic activity through new development. In the presentation, we outline what is involved in the planning, etc., and then specifically focus on the status of the new Center in Advanced Materials, Processes and Energy Devices. This center is now moving forward, operational, and the planning process is outlined.

3) 2021-2022 Individual At-Risk Goal #3: Clarify and document the expectations for communication, collaboration and working relationship among ASU's teaching, learning and knowledge enterprise to include: 1) public facing delineations of areas of primary responsibilities and expectations regarding collaboration; 2) strategies for financial planning; and 3) a regular process to evaluate collaborations and communication for effectiveness and efficiency.

   Goal Status: ACCOMPLISHED

In the materials, the new overall Public Enterprise structure is detailed with specific goals and objectives identified for each of the enterprises and are delineated; the role of the Public Enterprise office managing various aspects is also delineated, and the collaboration matrix is detailed specifically down to the planning profiles.

Multiple-year At-Risk Goals:

1) 2021-2024 Multiple-year At-Risk Goal #1: Demonstrate increased enrollment and student success in adaptive learning courses through offering more than 15 courses, with an increase in overall course completion, grade C or better, to more than 80% from a base of less than 50%.

Goal Status: Underway...Substantial progress being made.

You will see from the attached materials, we are making huge progress at transforming the underlying capability of the university in all things related to adaptive learning activities.

2) 2021-2024 Multiple-year At-Risk Goal #2: For Arizona Students: Increase enrollment and number of graduates by more than 10%.

   Goal status: Progress Underway

   This is a challenging goal because we have been accelerating at such a rapid rate. To continue accelerating by the fall of 2024 will be a goal that is doable but challenging. We outline the strategic importance of the goal to ASU's strategic plan but more importantly to the individuals who are able to take advantage of the teaching and learning activities that we have put in place for Arizona students. Data indicates that we are making progress, and we outline strategies to help in goal attainment.

3) 2021-2024 Multiple-year At-Risk Goal #3: Complete the design of the Global Futures Laboratory with anticipated engagement of more than 700 faculty. Successfully merge the three schools of the College of Global Futures into a unique college with thousands of students, majors and minors.

   Goal Status: Progress Underway

   This is ASU's most significant research arena. This is our effort to build the "national laboratory" that we never got, like University of California, University of Chicago, Iowa State University, University of Tennessee, etc. Of the 800 federally established laboratories, none are in Arizona. This is our building, not of a federally financed laboratory, but a laboratory we think will be very powerful in laying down the future. We outline the progress that we are making, which is substantial. And we note potential challenges to success, and we are working on all.

4) 2021-2024 Multiple-year At-Risk Goal #4: Build and document enhanced regional collaboration research, with a focus on increased collaboration with Arizona higher education.

   Goal Status: Substantial Progress

   As ASU has emerged as a world-class research university, its further partnering with the University of Arizona and Northern Arizona University will bear much fruit for Arizona. You will see that remarkable, if not substantial, progress given where we started, has been made as we are going forward here. And we are focusing on additional progress with specific projects, specific programs and specific activities.

5) 2021-2024 Multiple-year At-Risk Goal #5: Submit a report that demonstrates substantial expansion of ASU Prep within Arizona to at least 150 schools.

Goal status: ACCOMPLISHED.

The goal has already been achieved here in that we are now collaborating with 158 school partners. When we set this goal, we were working with less than 10. The staff here has been fantastic; the efforts have been fantastic. We have trained over 17,000 teachers from 452 school districts as a part of the ASU Prep Digital Arizona Virtual Teaching Institute. We've detailed all the things that we have done, and what we found is that ASU Prep Digital for coursework, student preparation, student enhancement, teacher training, teacher preparation, etc., is probably the most powerful tool that we've ever had.

All in all, the At-Risk assignments are going well. All At-Risk assignments are challenging. None of them have been easily met, and many in the past have not been met. And so, I am happy to report substantial achievement on the one-year goals and substantial progress on the three-year goals.

I look forward to discussing this with you at my review session.

2021-2022 Individual At-Risk Goal 1

Submit a report reflecting a detailed strategy for addressing educational gaps within Arizona by accelerating the diffusion of teaching, learning, and student engagement innovations to community colleges and other universities. The strategy should identify specific innovations and propose ways to further distribute them, with a focus on the needs of Arizona.

Goal Accomplished

Report Follows

2021-2022 Individual At-Risk Goal 1 Summary

ASU has taken on a comprehensive and multi-pronged approach to addressing educational gaps within Arizona. The strategies cut across multiple areas strategically and focus on innovative approaches that can be scaled and distributed to large audiences of students. This section includes reports from:

Arizona Innovation Alliance milestones and progress to date

ASU Prep Academy Math Momentum and Arizona Virtual Teaching Institute description and achievement

ASU Community College Strategies

ASU EdPlus technological foundation in collaboration with the other units to attack the educational gaps in multiple ways.

ASU University Technology Office developing and implementing technologies that support the numerous initiatives relative to addressing the educational gaps.

Overview

Established in the Fall 2021 with support from the Arizona Board of Regents, the Arizona Innovation Alliance (AIA) is a tri-university partnership between Arizona State University, Northern Arizona University, and the University of Arizona with the mission of increasing degree attainment among Arizona residents through enhanced collaboration. The AIA serves as a tri-university hub to accelerate cross-institutional learning and deployment of high impact practices, scale innovative solutions, and create spaces to test and verify new methods for student success to meet the following goals:

Goals

1. Improve overall student success with particular attention on traditionally under-served populations

2. Deploy educational practices and programs which combine high standards of student outcomes with cost effective teaching and student supports

3. Optimize resource allocations between student tuition and state appropriations for affordable and accessible education among Arizona residents

The document below provides an overview of operational milestones and AIA strategic initiatives to-date.

Operational Milestones

- Appointment of AIA Liaisons
- Hiring and onboarding of AIA Fellows
- Establishment of institutional student success teams
- Development of AIA logo, branding materials, and AIA webpage
- Executive campus kick-offs and student success team launch

Identified Priority areas of Engagement

As part of initial engagement efforts, each AIA institution established a Student Success Team. The teams are comprised of key leadership across institutional departments and serve to support the exchange of promising practices, engage in AIA strategic planning, and identify and support AIA-affiliated initiatives.

In Fall 2021, each campus hosted their inaugural SST kick-off events to reflect on their own aspirations for higher education in the state. The teams participated in a series of exercises, resulting in an initial set of focus areas for shared learning and tri-university engagement. Summarized below are the collective priority focus areas identified for deepened collaboration.

1. Increased support for Equity Deserving Populations
2. Early College Awareness and Preparation
3. Addressing Financial Barriers to Education
4. Supporting Online Students and Leveraging Online Education for Access
5. Retention and Persistence to Graduation

The focus areas identified informed the development of the working groups, communities of practices, and scale projects summarized on subsequent pages. Please see appendix for additional information.

Arizona Innovation Alliance and Arizona Western College Partnership

In February of 2021, the AIA announced a formal partnership with Arizona Western College (AWC) to increase bachelor's degree attainment in Yuma and La Paz counties. Students in Yuma and surrounding service regions are excelling in many areas of education. Yuma high schools, with high levels of at-risk students, are significantly outperforming Arizona averages in high school graduation rates, high school 2-year college going rates, and six-year graduation rates. However, the region trails behind state averages for 4-year degree completion. The partnership serves to enhance the long-standing collaborations between AWC and AIA institutions. Together, the work will serve to advance the following goals:

- Increase enrollment and retention in postsecondary education among residents of Yuma and La Paz counties
- Increase awareness, access, and visibility of academic and student support services among AIA-AWC
- Enhance collaboration for student support services, operational resources, and staffing, to support a seamless educational journey for those who pursue a bachelor's degree
- Align course availability of 100 and 200 level courses (including critical path courses and pre-requisites) needed for bachelor's pathways to accommodate pipeline support for transfer

Current AIA-AWC Initiatives

Establishment of AIA-AWC Collaborative Recruitment and Outreach Committee

The AIA established a committee comprised of recruitment and admissions leaders from across the Tri-university system and AWC. The committee serves to develop collaborative initiatives to increase awareness of postsecondary educational offerings and student support services for current AWC students and Yuma residents.

Tri-University +AWC Annual Communications Plan

Development of a collaborative annual outreach campaign for all AWC students and prospective transfer students. The purpose of the annual campaign is to increase awareness of transfer pathway options and student support resources, enable early transfer pathway sign-up, and increase student use of transfer advising.

- Campaign outreach targeted Spring 22 AWC first-year students who indicated "intent to transfer" on the AWC admissions application (2800+). Campaign is ongoing.
- Campaign outreach targeted all currently enrolled AWC students (7,143+ students). Campaign is ongoing.
- Both campaigns led to increases in AWC transfer advising appointments for new pathway sign-ups.

Redesign of AWC Transfer Services Landing Page
AWC's transfer website serves as the primary hub of information for transfer pathway programs and transitional services offered by AIA institutions and AWC. The committee collectively updated the site to improve student navigation, enable students to easily enroll in pathway programs, engage with advisors and recruitment staff, and increase awareness of current local degree program offerings for place-bound students.

Enhanced Data-Sharing
Development of a new data-sharing agreement template, inclusive of new data sources, that will enable early outreach to AWC students who intend to transfer.

Outreach to AWC-AA holders who did not continue postsecondary education
Close to half of AWC students who graduated in the last five years and intended to transfer to complete their bachelor's degree, did not continue their education. The AIA-AWC committee is developing a reengagement initiative to support AWC AA holders in mapping a clear and successful pathway to bachelor's degree completion.

High School District Forum
Development of a tri-university+ AWC forum with high school administrators and counselors to identify enhanced regional strategies for parent and family engagement, early student outreach, and increased participation in dual enrollment/other early college programs.

Working Group: Course Access Bottlenecks
AIA and AWC established a collective working group to evaluate AIA-AWC 2+2 transfer pathway degree plans and alleviate course access "bottlenecks" that impede 100-200 level academic progression, increase time to completion, and progression

towards bachelor's degree completion. The working group will develop and implement recommendations and collaborative solutions to ensure future course section availability/capacity (including classroom space) for projected student growth in bachelor's degree programs offered by AIA institutions.

Tri-University Community of Practice: Communication and Retention

The AIA established a community of practice established for retention and communication practitioners in the Tri- University system to serve the following goals:

- Enable collaborative discourse and sharing of information that could positively impact the student experience
- Deepen understanding of current practices for university messaging as interventions for retention
- Share promising practices, technology-based solutions, and analytic tools for personalized engagement.

To-date, the Community of Practice has engaged 13 practitioners and executive leaders across the Tri-University system. Members have participations in 6 sessions developed to enable the exchange of cross-institutional practices, programs, innovations, and lessons learned from the following areas:

- Optimizing operational and staffing models for student messaging for retention
- Centralizing best practices and communication standards for retention through the use of an annual playbook (University of Arizona)
- Optimizing technology for scaled communication and retention initiatives (use of chatbots and automated systems)
- Enrollment Messaging for Continuing Students
- Refocusing Messaging for Student Financial Obligation

Pilot: ASU Work+ and NAU Collaborative

ASU's Work + is a program focused on modifying how working learners are managed, enhancing how they perceive the professional development contribution of student employment experiences. Through the program, students are able to complete a series of modules, led predominantly by their supervisor, to support students in reflecting, articulating, and aligning skills they've gained as student employees to their academic and career aspirations. ASU was recently awarded a Strada Education Network "Beyond Completion" grant to develop, expand, and scale ASU's Work+ program further and pilot at other institutions.

As a result of channeled networking and support from the AIA, NAU is partnering with ASU work+ to pilot and test the model on its campus.

FAFSA Inventory

The AIA is supporting the development of a report highlighting national promising practices and programs that serve to improve FAFSA completion. The report will inform institutional and statewide strategies to increase FAFSA completion among Arizona residents.

ASU Site Visit Focused on Persistence and Retention

Leadership from NAU and UA took part in a series of presentations that showcased how ASU is leveraging technologies, curricular innovations, and partnerships to increase persistence and retention for both campus immersion and online students. Presentations focused on ASU's use

of adaptive courseware, predictive analytics, and technology-enhanced advising practices and student success interventions. Collaborative engagement opportunities surfaced for potential tri-university collaboration include the following:

- Utilize tri-university leverage power for shared vendor agreements and negotiations
- Reduce need for full RFP release and approval process by Tri-University RFP "piggy backing".
- Share learning and resources for online faculty/instructional design onboarding and ongoing professional development activities
- Pilot and scaling adaptive math courseware across the tri-university system
- Pilot and scaling the use of chatbots and technology-enabled tools for tiered student support and outreach

AIA-sponsored site visits are scheduled for Northern Arizona University and University of Arizona in September.

Partnership: Arizona Hispanic-Serving Institutions (HSI) Consortium

Established in early 2021, the AZ HSI consortium serves as a community of practice for the 23-designated HSIs in Arizona. The consortium seeks to strengthen institutional and collective capacity to support intentionally conditions necessary for advancing Latinx student success. The AIA signed a scope of collaboration to support tri-university engagement and the following activities:

- **Catalogue and Disseminate Evidence-Based Practices:** support efforts to design a process for cataloguing and disseminating evidence-based practices and policies within an HSI context known to move the needle effectively towards greater college access, persistence, retention, transfer, and degree attainment for Latinx students in Arizona.

- **AZ HSI Consortium Summit:** a one-day convening focused on partnership development across HSIs, professional development, and activities to support Latinx students' workforce and/or graduate school readiness.

Tri-University Exploratory Working Group: Transcript Policies

The AIA established a tri-university working group of leaders from the registrar and finance divisions to review the use of transcript and diploma release policies among our state institutions as a tool for debt collection. The working group was established to serve the following goals:

- Evaluate impact of transcript and diploma release policies on educational attainment, access, and retention in the state
- Explore state and national level approaches and best practices for use of transcript and

diploma withholding policies

- Develop a set of institutional and cross-institutional recommendations that serve to minimize the impact of transcript and diploma withholding policies on degree completion and economic mobility in the state

Tri-University Exploratory Working Group: Value of Higher Education

The AIA has convened executive leadership in marketing and communications across the tri-University system to develop a strategic messaging and outreach efforts to improve perceptions of the value of higher education and an in-state degree. The executive group will leverage statewide and institutional data sources to inform messaging strategies, target audiences, and outreach planning.

Appendix

1. INCREASED SUPPORT FOR EQUITY DESERVING POPULATIONS

Including Latinx & Hispanic, Native American, First Generation, and Pell Eligible students

- Shared learning and innovative programs improving enrollment, retention and graduation rates for equity deserving populations
- Shared strategies in advancing sense of belonging for underserved populations on main campuses, at statewide campuses, and online
- Shared resources and strategies for recruiting diverse faculty and staff
- Faculty and student affairs cultural competency training

2. EARLY COLLEGE AWARENESS & PREPARATION

- Help students identify "the best match, program, institution" for their needs
- Scale technological strategies to increase parent and family awareness and engagement
- Build collective messaging about the value of higher education: importance of college and resources
- Leverage scale to differentially support rural populations

3. ADDRESSING FINANCIAL BARRIERS TO EDUCATION

- Shift financial framing from tuition & fees to total cost of attendance
- Increase affordability for under-resourced populations (transfer, SCND, and middle-income students)
- Analysis and redesign of financial holds impeding student progression, transfer, and completion
- Evaluate financial aid parameters that identify who gets which aid
- Increase FAFSA completion, especially for under-resourced populations

4. SUPPORTING ONLINE STUDENTS AND LEVERAGING ONLINE EDUCATION

- Expansion of online programming that meets the needs of non-traditional learners
- Focus on equalizing online and in-person academic and career-focused programs and services

5. RETENTION AND PERSISTENCE TO GRADUATION

- Research collaborations on student persistence and retention
- Evaluate policy impacts on retention, persistence, graduation, and overall student success
- Advanced coordination of personal, real-time, and holistic student care
- Improve communication strategies to alleviate information overload

ASU Preparatory Academy
Arizona State University

In response to:
"Submit a report reflecting a detailed strategy for addressing educational gaps within Arizona by accelerating the diffusion of teaching, learning, and student engagement innovations to community colleges and other universities. The strategy should identify specific innovations and propose ways to further distribute them, with a focus on the needs of Arizona."

ASU Preparatory Academy

Two noteworthy initiatives that drove impact on K12 educational attainment, specifically in Arizona:

- Math Momentum
- Arizona Virtual Teaching Institute

Math Momentum
ASU Prep introduced Math Momentum prior to the pandemic as a short, intensive training cycle (two to four weeks) to address learning gaps or provide a rapid math growth and acceleration. While Math Momentum has been particularly helpful for COVID-related learning loss, we designed the program to address gaps without trapping students in an endless remediation cycle that blocks access to on-grade and advanced math concepts. We have served 4,036 students in Math Momentum as of April 2022.

A few highlights:

- Students who participated in an "Early Algebra" MM course demonstrated substantial gains.
- All students who tested at a National Percentile Rank (NPR) of 25% or above tested out at 75% or above.
- On average, students demonstrated growth that filled at least two years of learning gaps.
- Across the program, data shows a 11.6% growth in students who are considered "at or above grade level" based on their NPR. This is accompanied by a 9.5% reduction in students considered to be 2+ grade levels below.
- More than 50% of 7th and 8th grade students met their growth goals (as prescribed by Exact Path).
- Over the course of the program, there was a 16% increase in 5th grade students who are considered "at or above grade level" based on their NPR.
- Program data suggests a stronger impact with students in rural schools when comparing beginning and end of year NPR scores.

ADE finds the Momentum program's preliminary results promising and is entrusting us to iterate on the models that showed the most success in terms of student impact. Model 2, which demonstrated the highest levels of growth, included an onsite Math teacher or long-term sub, an ASUPD math teacher, and ALEKS online math content.

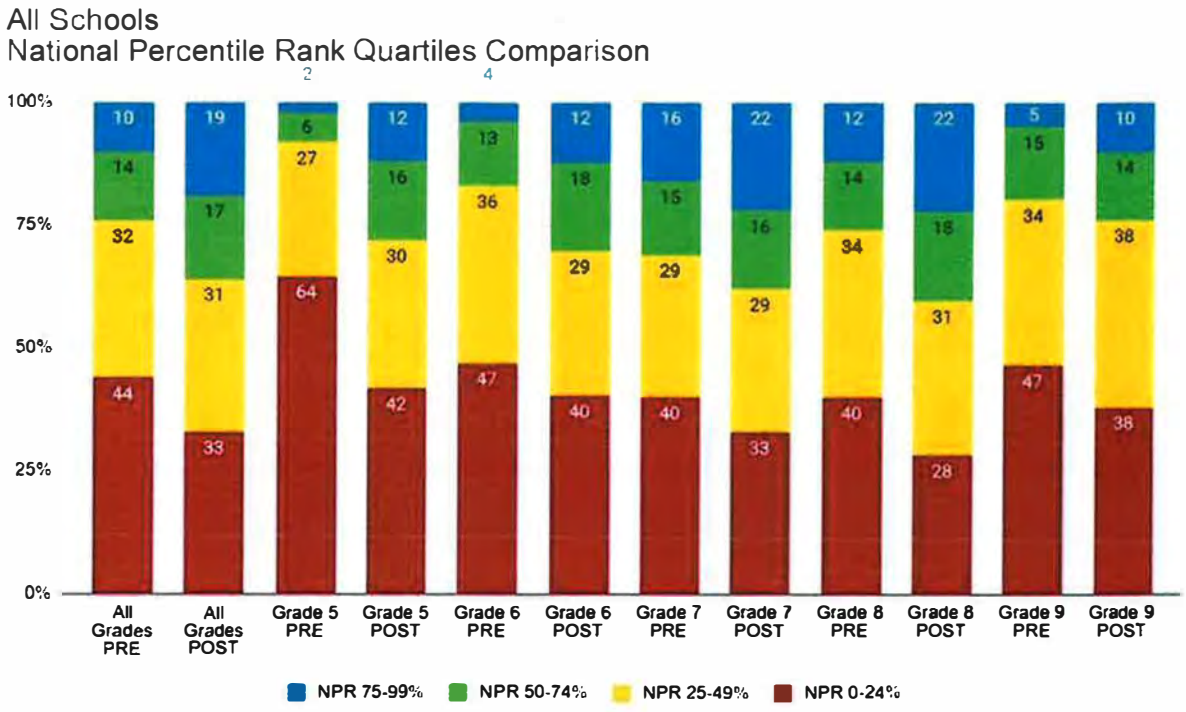
Over the course of the SY 21/22 Math Momentum program implementation, 11.6% or 329 Arizona students, were able to work their way up from "below grade level" to "at or above grade level" as measured by the Exact Path math diagnostic.

**For reference, the state of Arizona saw the following trends year over year as measured by the AASA Math:

ASU Preparatory Academy
Arizona State University

Grade	AZ cohort comparison '21 to '22 (AASA)	Math Momentum (BOY to EOY Exact Path)
5th	Increase of 3% passing	Increase of 19% at or above grade level
6th	No gain/loss	Increase of 13% at or above grade level
7th	Loss of 2% passing	Increase of 7% at or above grade level
8th	Loss of 3% passing	Increase of 14% at or above grade level

Note: The graph below show pre-post data across all Math Momentum models with the first showing National Percentile Rank Quartiles (through Exact Path).



Arizona Virtual Teaching Institute
Professional Development to All Educators in Arizona

In March of 2020 teachers (many for the first time) had to deliver instruction and manage students' progress entirely online. Today, while students are back in school buildings, it is clear that blended, hybrid, and online instruction will be part of every school's strategy going forward. To equip teachers for now and for the future, the Arizona Virtual Teacher Institute (AZVTI), powered by ASU Prep Digital, provides training in instructional strategies that have proven effective in digitally supported learning environments. AZVTI provides ongoing support as schools tackle the new realities of flexible learning environments and the future of learning.

ASU Preparatory Academy
Arizona State University

Impact to Date June 2022

Educators	Arizona Schools	Arizona Districts	Other Arizona Organizations
17,453	1,450	452	124

In its first year, AZVTI impacted more than 10,000 educators and leaders across Arizona. Last year, AZVTI continued to responsively evolve to meet the needs in the field, and soon the "virtual" in AZVTI came to mean "flexible." In this second year, focus has shifted to topics most relevant to a system in recovery.

We also launched an asynchronous professional learning portal, which allows teachers or schools to work even more flexibly with us. Topics include, *Thriving as a Digital, Blended, or Hybrid Teacher, Student Engagement Online, Working with Diverse Learning Needs Online, Learning Acceleration Strategies, Roadmap to Literacy*, and much more.

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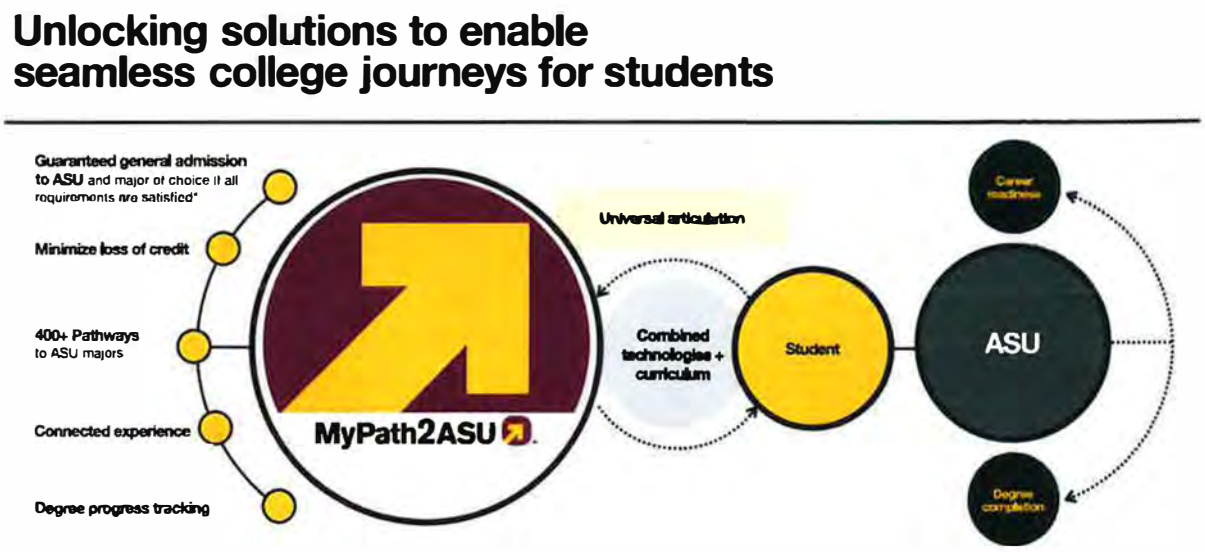
Community College Strategies

ASU's strategy to serve Arizona learners directly focuses on engaging learners by providing awareness of the tools and structures to support their progress tracking through the MyPath Progress Tracker, increase the mobility of their credits through clearly defined pathways and a robust Transfer Guide with over a million course evaluations, and increase degree attainment through integrated communication and support with the development of future technology, including the interactive degree planner.

ASU has a long-standing relationship with all of the community colleges in the state. Efforts to expand partnerships and integration focuses on identifying new opportunities for non-traditional leaners, and enhance our partners capacity by assisting them in addressing their own institutional needs through leveraging and integration of ASU's technology and tools. The ASU strategy to develop a national-scale infrastructure focuses on the development and enhancement of technologies and scaling reverse transfer through the Trusted Learner Network (TLN), and the development of credit mobility suite of tools, including the Credit Maximizer. These tools help learners to identify optimal pathways and maximize applicability of credits earned to support their journey towards obtaining their bachelor's degrees.



ASU has established partnerships with 21 local and 50 out-of-state community colleges to galvanize the transfer cultural at partner institutions through the integration of transfer tools and education of students on the benefits of pathways. With **over 28,000 active pathway** students from 48 states **and nearly 700 new students** signing a pathway to ASU each month, MyPath2ASU takes the guesswork out of transfer and provides a seamless plan for transfer to the university. MyPath2ASU provides access to 400+ online and immersion transfer pathways with guaranteed general admission to ASU and into the student's major of choice, if all requirements are satisfied. Pathways curate a course-by-course transfer map, saving students

time and financial resources, as a cost effective and time efficient solution to solving the national transfer problem. Students on a pathway take courses at their community college that apply to their bachelor's degree at ASU and enter the university as a "junior". Pathway students receive a helpful flow of communication personalized to their specific program of study to ensure academic preparedness and build a sense of connectedness.

MyPath2ASU

Serving Learners Directly In-State

- In Spring 2022, ASU and MCCCD deployed outreach communication to nearly 39,000 MCCCD students on MyPath2ASU.
- In collaboration with AccessASU, Academic Alliances shared goal to increase the number of Black, Latino, and Indigenous students from AcccessASU programs and partnering high school districts on a MyPath2ASU. The shared partnership goal is focused on ensuring high school graduates denied admissions to ASU have access to higher education and post-secondary planning through alternative options to gaining admissibility, including MyPath2ASU and Earned Admissions. As well, AccessASU alumni enrolled in a local community college are informed how their coursework at the community college could apply to a bachelor's degree at ASU, saving them time and money.
- Facilitation of transfers includes: triannual webinars for community college staff to provide MyPath2ASU training and best practices, weekly MyPath2ASU student facing webinars, ASU Transfer Student Ambassadors (TAS) virtual and in-person community college classroom visits and presentations, and social media campaigns. In addition, signature transfer student events, including Tri-University Week, Spring Training, ASU Day, and National Student Transfer Week are also offered.

Partnership Integration and Expansion

- In collaboration with Sova Solutions and the Aspen Institute, ASU and Mesa Community College (MCC) committed to increasing awareness of transfer pathway options and resources for students at the onset of their time at MCC in order to increase the number of students obtaining an associate's degree and transferring with minimal loss of credit, and ultimately receiving their bachelor's degree. An initial ASU Canvas module has been developed with plans to integrate into MCCCD "First Year Experience" Canvas course for all students.
- Expand offerings of online pathways to Rio Salado College incarcerated students in collaboration with CISA (Organizational Leadership and Project Management), Watts

College (Community Advocacy and Social Policy, and Public Service), CLAS (Justice Studies) and the Fulton School of Engineering (Information Technology).

- Enhance AAS to BAS pathway pairing with MCCCD to provide students enrolled into career and technical certificates and/or degrees a clear pathway to baccalaureate degree completion. ASU developed AAS to BAS pathway pairing with the East Valley Institute of Technology (EVIT), Western Maricopa Education Center (West-MEC), and Queen Creek Technical High School and currently working with Gateway Community College to develop additional AAS to BAS pathways for MCCCD's AAS in Environmental Science and Water Resource Technologies and explore options with ASU's College of Health Solutions.
- In collaboration with Deloitte and W.P. Carey School of Business, an initiative to increase the diverse talent entering the CPA field focused on targeting Maricopa community college students in pursuit of an Accountancy degree at ASU, including pathway learners to provide financial support for up to 10-Pell eligible third-and fourth-year students. As Deloitte plans to expand operations in the Phoenix metro area, Academic Alliances has facilitated the engagement with MCCCD and targeted outreach to Accountancy pathway learners as ASU leverages industry partnerships to foster high wage in-demand careers for students.
- In fall 2021, W.P. Carey School of Business launched its first program, the Bachelors of Art in Business Administration (BA), at Eastern Arizona College; ASU at The Gila Valley location.

Develop a National Scale Infrastructure

Credit Mobility Suite

ASU recognizes that students' journeys to obtaining their bachelor's degree are often complex as students transfer between multiple institutions. While students can transfer between institutions, and can nominally transfer their credits with them, many times their accumulated credits are not applicable. Powered by ASU, Credit Mobility is a comprehensive approach to solving the national transfer problem through the development of a new suite of technology tools to enable the concept of a learning marketplace, providing learners with full transparency on the applicability of credits across all U.S. institutions based on course equivalency and pathway planning tools prior to admissions.

Reverse Transfer

Through ASU's universal articulation agreement with partnering institutions, the institution is able to continue to scale reverse transfer work nationally using TLN. By signing one agreement partners will be able to achieve two different levels of partnership based on their level of engagement with ASU. ASU's reverse transfer system ensures that transfer students who do not complete their associate's degree prior to transfer complete it on the way to the bachelor's degree. Credits earned while the pathway student is at ASU are transferred back to the two-year institution, at no cost to the student, for evaluation and, if applicable, will be used for an

associate's degree conferral. Pathway students sign the FERPA consent to share transcripts when they sign up for a MyPath2ASU, which removes the onus of the students to remember to send their transcripts and does not require students to pay for the transcripts. With the Maricopa Community Colleges alone, ASU has helped 1,255 students achieve associate's degrees. In June 2021, an additional 275 students were eligible for an associate's degree.

Pathways for the Future

Through value alignment and commitment to making higher education available to those from all socioeconomic backgrounds at any point in their lives, ASU and State Farm partnered to create Pathways for the Future (PFF), which takes a personalized comprehensive approach to higher education. With the understanding that institutions need to evolve rapidly to meet the needs of students and be more responsive to where they are and help people navigate the complexities of higher education, PFF emerged. Informed by industry trends, PFF assists nontraditional learners by providing access to educational pathways to upskill and retool for the workforce. PFF scholars receive financial support and access to tailored career resources. PFF launched its inaugural cohort in 2020 offering academic tracks, certificates and degree programs in business, engineering and liberal arts and sciences.

me3 + MyPath2ASU

me3 is an image-based assessment that helps learners explore potential careers and associated educational programs based on their interest. To support transfer students with unclear career and/or educational goals, the me3 team will collaborate with Academic Transfer Credit Solutions to develop a seamless experience between me3 and MyPath2ASU.

EdPlus Update

Supporting ASU's strategy to address Arizona's educational gaps.

This document represents the EdPlus response to the request for updates on the **ways in which we support ASU's efforts to address educational gaps in Arizona.** This update focuses on the distribution and support of teaching, learning, and student engagement within the scope of the Arizona Innovation Alliance, Community Colleges, EOSS (including Digital Prep), and technology by EdPlus.

EOSS including Prep Digital

MACS Accelerator

Developed by EdPlus, the Math, Computer Science, and Statistics (MACS) Accelerator is an **adaptive self-paced societal-scale pathway** from middle school math competence to a STEM credential. It has a central core of **content, process, and leading-edge technology**. It works with local coaching and support to serve as a springboard into the present and future STEM jobs and better prepare learners for their academic journeys in STEM subject areas.

Arizona Innovation Alliance

In Addition to supporting other ASU efforts, and at the request of the Arizona Board of Regents and Dr. Crow, EdPlus at ASU is building a plan for the delivery of a **tri-University instance of me3**. This tool will aim to provide helpful guidance and relevant information to high school students and other learners looking to enter one of Arizona's four-year institutions, help them identify a meaningful program based on their unique interests, and deliver meaningful and campus-specific information related to each university's offerings.

Community Colleges

In alignment with the Academic Enterprise, EdPlus is **partnering with ASU Academic Alliances** to improve communication with community college learners seeking transfer opportunities to ASU digital immersion. Further, EdPlus and Learning Enterprise are **aligning** in early discussions on **Study Hall**, a series geared to **support learners transitioning from a community college to a four-year university**. EdPlus is also **identifying scholarship funding** to support these learners post-transition.

Technology in place and being developed by EdPlus

Orchard

A set of interconnected technologies that serve learners throughout their learning journey, enabling them to explore different learning experiences aligned with their interests, discover and form new interests and goals, and attain those goals through engaging and personalized learning experiences. Educators will be enabled to discover, reuse, reimagine, and share learning content that can be rapidly deployed in different configurations to create customized learning experiences and leverage data analytics to offer learners the right support at the right time.

Start-Ethiopia (LMS+SIS)

The development of an online education ecosystem that offers students a holistic and consistent experience that is critical to improving student and workforce development outcomes. Through this partnership, ASU will discover,

design, deploy, maintain, train, and transition Ethiopia's 50 national universities to a new LMS (OpenEdX) + SIS (Salesforce-based) and assist in developing the talent responsible for eLearning and the required technologies (instructors, IT staff, etc.).

Dreamscape Learn

Dreamscape Learn (DSL) is a collaborative venture between Dreamscape Immersive and Arizona State University, merging the most advanced pedagogy with the entertainment industry's best emotional storytelling. The DSL partnership delivers avatar-driven immersive experiences for campus-based and online courses, starting with introductory biology, and eventually expanding throughout the sciences and beyond. These learning labs are efficacious, scalable, and emotionally engaging and enable students to work beside leading-edge science, arts, and engineering faculty to solve problems, engage with virtual worlds, and dive deeper into their learning.

Air University Portal

Air University at ASU is an agile, adaptive learning environment originally designed for the Air Force online professional military education. The platform leverages ASU's managed Canvas LMS to track course completion, Salesforce as an "SIS Lite" configuration for simplified student information tracking, secure system-to-system data exchanges, and a portal to track credit and non-credit courses and programs. This environment also complies with the federal standard for nonfederal information systems, NIST 800 171, and follows DOD Security Technical Implementation Guides (STIGs) to make future DOD partnerships easy to execute.

Soft Profile - "Digital Assistant"

An exploratory tool for undecided ASU learners that provides prospective ASU students the opportunity to create a custom profile that aids in their exploration of choosing and applying to ASU. This tool is called the "soft profile" because the learners don't need to create an account to use this tool. Rather, they are asked a few short questions and are presented with a customized and easy-to-access dashboard. Through the Soft Profile, ASU Online currently delivers a curated set of program offerings, customized admission checklists, and other personalized content for the learner to assist them in their decision to enroll. Downstream benefits also include the ability to use this data for more personalized outreach and nurturing efforts that can help feed into deeper connections with our prospective students and reduce the complexity of a large University website through an enhanced navigation tool.

me3

me3 is a unique, online interactive tool that helps learners identify potential careers and provides insight on academic pathways to reach career goals. me3 was built to predict interests using the RIASEC model and utilizes a visual format that is quick and easy to use. Learners are presented with two images and click on the one that's most appealing to them. These visual choices reflect their interest levels in data, things, people, and ideas. Based on learners' choices during the game, me3 provides career matches that best fit their interests. Learners are presented with their top matches and details on those careers, including salary, demand, and more. me3 then lists majors and ASU degrees that could lead to those careers.

PASS (Personalized Academic Support at Scale)

PASS leverages analytic-powered communication technology for timely data-informed engagement that will provide 360 support for every part of the learner journey - from pre-enrollment through post-graduation - resulting in a product that can be licensed by other institutions. Initially focused on email and modal (Canvas pop-ups) communications, phase one of PASS leveraged Salesforce campaigns and collaboration with faculty and advisors to send personalized, just-in-time messaging to students. For example, PASS rollouts showed a correlation with a 30% increase in week one completion and in next-session stretch

enrollment for MAT117S, supporting an 8% point increase in pass rates in College Algebra. EdPlus has initiated conversations with InScribe to partner in the co-development of an AI-driven 360 support application integrated within the InScribe Community Learning platform currently being implemented at ASU.

ASU Online XR

The EdPlus Immersive Experience Design (IXD) team was formed to create immersive content that increases the social, cognitive, and emotional engagement of learners at scale. Current projects include Genetics, a web-based Dreamscape Learn (DSL) experience to augment the physical pod experiences in BIO182. This new genetics experience will help continue the success that was uncovered in the DSL pod throughout the entirety of their course.

Geodesign is a web-based experience intended to replicate an in-person geodesign workshop in which students assume the role of a stakeholder tasked with collaborating with others to reach a design decision that will benefit all stakeholders and their constituents. Geodesign will be the first of many new immersive experiences that bring high-quality, modular, scalable technology that can be replicated across multiple ASU courses in the future.

Polynesian Voyaging Society

Through a partnership between ASU and The Polynesian Voyaging Society (PVS), EdPlus has committed to building a number of educational XR experiences starting with a VR sailing simulation to support, amplify and enhance PVS's message. That message is: We all share one home — planet Earth. We will be working with PVS to create virtual experiences that will convene people, ignite a passion for being in better relations with the planet, inspire new navigators and leaders, and catalyze action.

Rocket Design

The Rocket Design System is a collection of repeatable digital components connected through a set of brand standards that can be assembled together into any number of digital applications. Rather than recreating code or designs for brand-centered projects, teams can leverage a design system to scale the speed and quality of their work while amplifying the creative contributions of team members. This type of system can be adapted to different partnerships and brands and be passed over to teams to take on long term, with detailed documentation and standardized processes that teams can be built around.

Active strategies for addressing Arizona's education gaps

ASU University Technology Office
Arizona State University

Addressing the evolving needs of Arizona means continually building upon our three-pronged university and enterprise technology strategy: enhancing **1) access, 2) outreach and 3) learning and career trajectories.**

1. Access

Ensuring all can engage with ASU's resources

Identity management. A new, flexible identity management system supports the breadth and scale of the ASU Public Enterprise. There is now seamless integration and federation as current and prospective learners and students – and alumni – traverse ASU's catalog of offerings over time.

24/7 support. Developing Call Center/ASU Experience Center capacity to support community [illegible]on needs 24/7, in partnership with ADE and several other stakeholder groups

Broadband connectivity. Working with the State and County on broadband connectivity efforts, including Arizona Commerce Authority and the Maricopa County Broadband Taskforce

2. Outreach

Making meaningful touchpoints to increase opportunity

Infrastructure. Advanced use of Salesforce for campaigns to prospective, current, and former students and learners at ASU.

Chatbot. Use of Sunny (chatbot) for outbound campaigns and inquiries

ASU Mobile App. Mobile App for students, learners and visitors

Digital equity. Collaboration with Digital Equity Institute to provide support and training to families with limited access to the Internet to learn about ASU offerings

Slack. Use of Slack for Devil to Devil

3. Learning and career trajectories

Supporting communities as they upskill and advance their goals

Digital wallet and mobile credit. Development of Pocket, ASU digital wallet to support broad learner offerings and learner agency **(pictured, right)**

[illegible]er and fluency. Supporting the deployment of middle mile fiber between Flagstaff, Phoenix and Tucson to Nogales to advance education and workforce development opportunities.

2021-2022 Individual At-Risk Goal 2

Submit a planning document for the launch of at least one of the 5 Future Science and Technology Centers in the Fulton Schools of Engineering (FSE), as part of the New Economy Initiative. The planning document should propose a strategy for attracting private capital investment and pairing new companies with FSE students who will perform research and technology development via capstone projects, entrepreneurial fellowships, and other curricular and extra curricular pathways.

Goal Accomplished

Report Follows

Key Elements of the STC

Faculty: current and future faculty providing technology leadership

- Self-associate with the STCs through participating funding announcements, road-mapping or proposal submission
- Contribute as NEI hires to clusters of excellence in key areas
- Strategic planning ensure faculty staffing gaps and expertise align with university hiring plans

Facilities: unique equipment, platforms and personnel to support novel engagement

- Collectively STCs and Core Facilities work to align equipment purchases and capabilities development and ensure availability to the broader research community
- Startups affiliate with STCs to access co-working and event spaces

Industry Partnership: conduit to the community – projects and STC access

- STCs provide value through collaborative, co-funded research co-funded, access to capabilities outside a company's immediate expertise, potential customers/partners/funders at Consortium meetings, and student interns and hires
- STCs are on-ramps for broader engagement of companies with ASU (e.g., research outside of the STC thrusts, philanthropic investments, student projects, internships, etc.)
- Companies invest in STCs through projects, faculty engagement, talent development and usage of Core Facilities

Key Elements of the STC (continued)

Entrepreneurship and Innovation (E + I): fueling the local startup ecosystem

- Each STC will have 5-7 research projects—which grow to 10-15 at any given time
- STCs annually fund PhD Outreach Fellows and Postdoctoral Entrepreneurial Fellows to grow startups based on STC technologies
- STCs leverage ASU E+I programs, including customer discovery training for STC Awardees, mentors with broad experience for PhD Outreach Fellows, and startup space for Postdoctoral Entrepreneurial Fellows

Workforce Development: current students, current workforce

- Leverages faculty expertise to develop content rapidly in modular formats across platforms and modalities
- Program design and learner experience is informed by industry partners and learner research and ensures immersive, real-work examples for learners to optimize skill acquisition
- STCs deliver week-long, in-lab short courses within thrust areas (e.g., Solar Cells 101) to community college students, industry employees, and others in need of reskilling or upskilling

Philanthropy: supporting people, broadening access

- STCs provide a runway for engagement (individual, foundation, and corporate philanthropic)
- Develops roadmaps to transition from student and project funding to comprehensive partnerships including centers, joint research proposals, faculty chairs and professorships, and long-term endowed partnerships for Schools and programs

Functions of the STC - Operations

Industry-academia Proposers' Days:

- Gathers industry and ASU faculty, students, and staff every 6 months
- Reports out on progress by funded projects, defines key research needs and prioritizes those for inclusion in funding opportunity announcements
- Engages based upon workforce needs and pipelines

Research projects (co-funded by industry):

- Each STC issues Funding Opportunity Announcements (FOA) semi-annually to solicit projects of 1 – 2 years in length
- Each proposals must include an ASU Primary Investigator (PI) and at least one company that commits to co-funding
- Approximately $600K annually of STC funds will be awarded annually per STC
- Each FOA cycle typically generates 4 – 7 new projects per STC

Impact Engineering Fellowships:

- PhD Outreach Fellowship for ASU graduate students – These are one-semester (or summer) experiences at a company, non-profit, national lab, or government agency connected to an STC
- Postdoctoral Entrepreneurial Fellowships for ASU recent grads and postdocs – These are to start or grow a company based on STC related ASU IP

Workforce training program:

- Customize, develop and deploy advanced technical education in partnership with industry
- Scalable courses designed to upskill and reskill workers to succeed in New Economy roles

STC Implementation Pathway

STEP 1

Assess **customer discovery** and needs of STC-related industries. This process consists of several integrated approaches, e.g., a Proposers' Day to attract and gather inputs about unmet needs from prospective industry partners and leveraging existing industry networks associated with other ASU-wide initiatives, including existing STCs, Industry/University Cooperative Research Centers and Engineering Research Centers. This process will focus on refining the Problem Statement of the STC to align with industry needs, thereby optimizing outcomes of industry that is based in Arizona or, by virtue of the value proposition offered by the STC ecosystem, out-of-state industry that would open research operations in Arizona. Part of the industry feedback that received so far is that the STC must build mechanisms to reduce friction and remove roadblock that currently interfere or delay with building collaborations. These mechanisms will be an integral component of the STC.

STEP 2

Identify (a) **existing intellectual and material resources** at ASU and (b) **gaps in these resources** that must be addressed to pursue the STC education and research mission. Resources the STC can offer to industry partners include but are not limited to ASU research parks and other specialized research facilities on campus.

STEP 3

Define **investment priorities**, including but not limited to creating or renovating core research facilities, hiring personnel (e.g., tenured or tenure-track faculty and pre- and post-award staff who will be hired through the NEI; PhD and postdoctoral associates who will be supported by Impact Engineering Fellowships), and seed funding mechanisms to support faculty engagement in collaborative projects with industry; all of these investments will be geared towards building an ecosystem to train the next generation of experts in the multi-disciplinary field of Human Performance and support the growth of this industry sector.

STEP 4

Define a financial structure to address sustainability of the STC, including but not limited to appropriate funding models to incentivize industry-university projects; a robust structure for development and licensing of IP and technology innovations; allocation of a portion of indirect costs from grants to the center consistent with other ASU centers; a close collaboration between Knowledge Enterprise Corporate Engagement and Center leadership to help develop new industry members; and an active effort between the STC centers, Fulton Schools of Engineering and ASU Foundation to identify prospective donor support.

Advanced Materials, Processes, and Energy Devices (AMPED) STC and Thrust Areas

The AMPED STC seeks to create the materials and devices needed for broad electrification of the energy sector by working collaboratively with industry to create products and services in photovoltaics, batteries, and power-electronic devices.

3 R&D thrusts

Solar

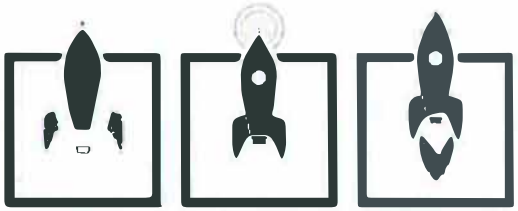
Batteries

Power Electronics

3 types of value

Research

Entrepreneurship



Workforce development

Thrust Area – Strategic Development

Thrust leadership completes a strategic development process to determine faculty, landscape analysis (R&D, competitors and roadblocks) and resource needs identification. Below is an example of the planning documents that guide the strategic development of each thrust area.

Thrust Area – Solar – Faculty

Faculty Member	Research Focus/Foci	Academic Unit
Identify existing and needed faculty	Identify the research foci required for success – both existing faculty and needed faculty hires	Identify the academic units which each faculty position will be assigned to

Thrust Area – Solar – Landscape

Key R&D Project

- Based upon the identified problem statement and proposed solution, each thrust area will identify 3 – 5 key R & D project areas to drive STC research, development, operations, faculty development, resources needs identification and industry engagement strategy.

Competitors

- Identify competitors within the research and development sector along with any industry competitors.

Roadblocks

- Identify potential roadblocks to development, IP development, regulatory challenges, etc. to industry, partnership and development.

Thrust Area – Solar – Resource Needs Identification

One-time expenses	On-going expenses
(e.g., start-up equipment, core facilities refresh, facilities equipment purchases, etc.)	*(e.g., faculty, support staff, fellowships, co-funded, etc.)*

STC Strategic Development

After receiving the needs of each thrust area, STC Directors will work to develop a hiring plan for the entire STC. This plan will then be used to analyze hiring needs, ongoing (salary and benefits costs) versus one-time (startup costs) financial commitments, and anticipated research expenditure growth.

Detailed Hiring Plan by Department

Hiring Plan Code	Name (once hired)	Position title/rank	Estimated Start	Salary	ERE	Total Salary & ERE	Equipment	Summer Salary (4 months & ERE)	Estimated startup – RA's w/ tuition	Total *	Program or Specialization	Department

Research Expenditures

	Description	Total	Running total	Added Research Expenditures
Year 1	XX new hires (T/TT)			
	X existing hires – current expenditures			
	X existing hires – additional increase in research expenditures			
Year 2	XX new hires (T/TT)			
	X existing hires			
	Year 1 hires			
Year 3	XX new hires (T/TT)			
	X existing hires			
	Year 1 hires			
	Year 2 hires			

Thrust Area Strategic Development – Solar – Targeted Funding Opportunities

Federal Programs

Name of Program	Funding Amount	Year of Application / Award	Length of Project	Point of Contact	Notes

Philanthropic Opportunities

Name of Program	Funding Amount	Year of Application / Award	Length of Project	Point of Contact	Notes

Other Funding Opportunities

Name of Program	Funding Amount	Year of Application / Award	Length of Project	Point of Contact	Notes

*** Denote if each item is a.) *existing* or b.) *new***

Co-Funded Research Projects – Funding Opportunity Process

Solicitation: Semi-annually, the AMPED STC will solicit for project submissions through the Funding Opportunity Announcement (FOA) process.

Eligibility: Proposals must include an ASU PI, be proposed for 12-24 months in length and at least one company that commits to co-funding the project in accordance with the table on the next slide; *any ASU faculty member* can serve as a PI—no affiliation with FSE or prior engagement with the STC is required.

Review panel: A panel consisting of at least the STC Director, the thrust leads, and one industry rep per thrust will review the proposals; other reviewers could be from Knowledge Enterprise, the local investment or entrepreneurship community, etc.; if a thrust lead or company rep decides to submit a proposal, they will be excused and replaced for the round.

Review criteria: The criteria which will be reviewed will include each project's alignment with FOA and broader roadmap, likely impact on STC and NEI goals, plan (milestones) and feasibility, team, industry commitment, and appropriate budget.

Awards: Approximately $300k of STC funds (equates to $600K annually per STC) awarded per FOA. Funding from STC must be matched by industry per the next slide, depending on project length; equates to 3-6 projects per FOA, assuming 1 PhD student per award.

This matrix indicates the fraction of direct project costs that will be paid by the **STC** and the company respectively.

The balance of the direct costs will be paid for by the project industry partner. Both contributions are subject to indirect costs that may depend on the intellectual property terms of the project.

Funding levels are based upon, company headcount and the technology readiness level (TRL) of each project.

Project TRL	Fewer than 10	Between 11 and 50	More than 50
3-4	70% / 30%	50% / 50%	30% / 70%
5-6	50% / 50%	35% / 65%	20% / 80%
7-8	30% / 70%	20% / 80%	10% / 90%

STC / company fractions of project direct costs

Intellectual property ("IP") terms for a given sponsored project are negotiated on a case-by-case basis. The terms may depend on the sponsor's desired rights, the preferences of ASU faculty and leadership, the nature of the technology and industry, ASU's investment in the development of the IP, funding sources, applicable law and regulations, and other factors. A simplified example is provided to show options for sponsored projects.

For additional options, please contact ASU research advancement staff.

Entrepreneurial Fellowships

Fellowships enable postdoctoral scholars to grow ventures that are commercializing ASU deep technology relevant to the STCs.

ASU has developed review criteria for the application, targeted outcomes and indicators of venture success to evaluate.

Postdoctoral Entrepreneurial Fellowships:

- Postdoctoral researchers who are founders of a startup are supported to commercialize ASU STC-related IP
- Two years in length; $130k/yr per fellowship covers salary, benefits, and access to ASU Core Facilities
- Applications due twice a year

Graduate Outreach Fellowships:

- Graduate students are supported to extend the AZ impact of their research through collaboration at a company or government organizations
- One semester or summer in length; $25k per fellowship covers stipend, benefits, and travel
- Applications accepted on a rolling basis

Application Criteria

- Market opportunity and Arizona impact
- Technology innovation and alignment with an STC
- Business plan and Fellowship role
- Applicant and Team

Targeted Outcomes

- Job creation
- Wealth creation
- Economic diversity and stability within Arizona

Indicators of Venture Success

- Funding traction
  - Equity financing
  - Grants
  - Business plan competition wins
- Market traction
  - Joint-development agreements
  - Non-recurring engineering contracts
  - Early sales
- Technology leadership
  - Patents – both pending and granted

Corporate Engagement Strategy

Corporate Engagement and Strategic Partnerships (CESP) at ASU facilitates one-of-a-kind opportunities for engagement at every level. To continue to strengthen Arizona as a New Economy leader the CESP team is focused on engaging industry to support their technology roadmaps and identify opportunities with leading corporations and startups. CESP has team members dedicated based on their area of expertise to cultivate and develop the overall corporate strategy of the NEI - we also engage business development teams in the Fulton Schools of Engineering on outreach and management of key accounts.

Lead Development - The CESP team has developed an evolving list of partners and new potential companies from across current ASU relationships and new connections for the outreach and cultivation of a research and development projects Pipeline. We will host conversations aligned to the five Science and Technology Centers (STCs) of NEI, with Principal Investigators aligned to the STC's, and Ph.D. students looking to gain hands-on expertise by working on these industry-led NEI projects.

Operations - CESP will also be co-leading operational and marketing conversations and presentations through industry publications, events, and conferences.

Private capital investors - CESP will be actively attracting and inviting our local and national private/venture capital investors to participate in funding projects or bring forward startups they wish to advance technology.

Education - Upskilling and Reskilling - In support of the new ASU CareerCatalyst upskilling and workforce development program, CESP will be cultivating opportunities with corporations for deployment and customization of educational programs with the ASU Learning Enterprise.

ASU has developed review criteria for the application, targeted outcomes and indicators of venture success to evaluate.

Sustaining the STCs: Industry Partnership Pipeline

Two routes to bring industry to the STCs:

- ASU's Corporate Engagement + Strategic Partnerships (CESP) and Business Engagement Catalyst (BEC) teams cultivate strategic relationships with technology companies and maintain them with partnership management tools
- ASU faculty have a wide-ranging network of colleagues at companies with Arizona operations
- Over 170 attendees at first STC Proposers' Day

STCs lower the barrier to engagement with ASU:

- Co-funded projects offer companies operating in AZ the opportunity to engage in research and development projects at a significant discount
- Graduate Outreach Fellowships offer companies the opportunity to host innovative and accomplished graduate students—who may be potential future hires—at no cost to the company

STCs are a gateway to ASU's broader value proposition:

- CESP and BEC teams invite companies to build the best workforce by engaging students through senior design projects, internships, and career fairs
- Existing workforce will have pathways to upskilling in partnership with ASU programs like CareerCatalyst and AZNext
- Companies are also encouraged to maintain their competitive technology edge through use of ASU's Core Facilities and sponsored research agreements

Sustaining the STCs: Potential Opportunities

NSF Regional Innovation Engines:

- Augment 10-year project STC model and impact beyond ASU
- Engines are about accelerating economic development within a region through science and engineering, including driving industry partnerships, workforce development, entrepreneurship, and resilient supply chains
- Applicants must have the key pieces in place for a Phase II application; the STCs are this "nascent engine"

Small Business Innovation Research (SBIR) grants:

- Develop annual funding to ASU through SBIR subcontracts related to STC topics
- SBIRs—"America's Seed Fund"—support small businesses in technology innovation and often have a university partner; this is the same structure as STC projects but with Federal funding

Philanthropic Entrepreneurs:

- Allocate annual funding for two additional Postdoctoral Entrepreneurial Fellowships

STC pathways for workforce development

Open Courses

- Not for university credit
- Online, self-paced learning on demand
- Developed by ASU faculty
- Low to no cost
- Purpose is to upskill around specific competencies
- Goal is to introduce technical topics and provides pathways to other credentials
- 8-20 hours per course
- 4-6 open courses can lead to a specialization

Short Courses

- Not for university credit
- Agile training options delivered in various modalities
- Industry relevant topics
- Developed and taught by ASU faculty and industry experts
- Purpose is to upskill around specific competencies with increased rigor & engagement
- Goal is to enable learner to rapidly apply content knowledge and build in-demand skills
- 20-40 hours

Professional Certification

- Not for university credit
- Agile training options delivered in various modalities
- Industry relevant topics
- Taught by ASU faculty and industry experts
- Industry-relevant projects
- FSE-recognized professional certification
- Purpose is to upskill around specific competency via completion of a project
- Goal is to provide real-world application to professionals seeking a high impact return
- 3-6 months

Undergraduate

- Earn university credit
- Enhanced courses focus on relevant topics
- Faculty engagement and feedback
- Taught by ASU faculty
- Accredited programs
- Financial aid
- Condensed 7.5 week format possible
- Transfer pathways
- 120 credits completed over 4-6 years to earn a degree

Graduate

- Earn university credit
- Enhanced courses specialized on relevant topics
- Faculty engagement and feedback
- Taught by ASU faculty
- Accredited programs
- Financial aid
- Unique assessments based on graded assignments, exams and applied projects
- 10 courses completed over 2-4 years to earn a degree
- 5 courses completed to earn a graduate certificate

Modes of Delivery: Online, Classroom, Hybrid, On-Site

Value Proposition: Global Alumni Network, Career Resources, 24/7 Learner Support, Focused on Student Success

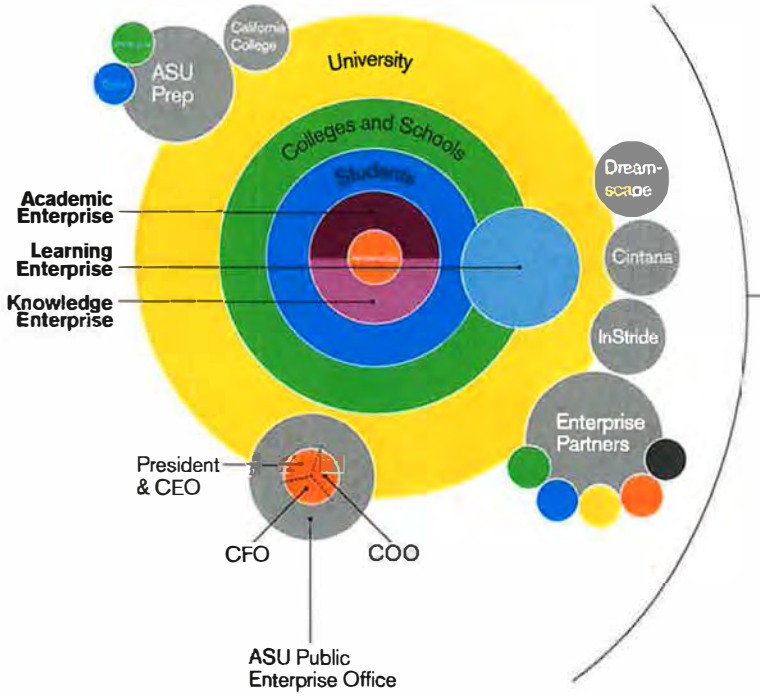
2021-2022 Individual At-Risk Goal 3

Clarify and document the expectations for communication, collaboration, and working relationships among ASU's Teaching, Learning and Knowledge Enterprises, to include: 1) public-facing delineations of areas of primary responsibility and expectations regarding collaboration, 2) strategies for financial planning, and 3) a regular process to evaluate collaboration and communications for effectiveness and efficiency (to include designation of an individual or office responsible for overseeing the evaluations and determining how effectiveness will be measured).

Goal Accomplished

Report Follows

The ASU Public Enterprise organizes comprehensive efforts to advance the ASU Charter



ASU mission and goals make clear expectations for the collective work of the public enterprise

Demonstrate **leadership** in enabling academic excellence and accessibility at scale

Establish **national standing** in academic quality and impact of colleges and schools in every field

Expand **ASU's role as the leading global center** for interdisciplinary research, discovery and development by 2027

Enhance our **local impact** and social embeddedness

Enterprises advance key areas of the ASU Charter and the ASU Public Enterprise Office drives collective priorities

Nancy Gonzales

Executive Vice President and University Provost

ASU Academic Enterprise

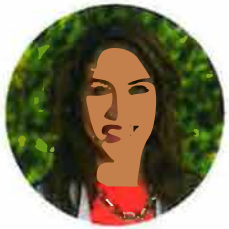
Ph.D., University of Washington

Sally Morton

Executive Vice President

ASU Knowledge Enterprise

Ph.D., Stanford University



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ASU Public Enterprise Office

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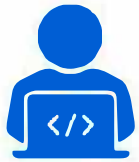
Three enterprises advance goals across their areas of primary responsibility

Academic Enterprise

Advances academic excellence through the faculty and growing the quality, scope and scale of campus immersion and online programs.

Knowledge Enterprise

Advances research, innovation, strategic partnerships, entrepreneurship and international development.



Learning Enterprise

Services learners across their entire lifespan, from kindergarten to high school to midcareer to post-retirement.

ASU Public Enterprise Office advances enterprise-wide goals and guides key units serving all three enterprises

- The **Public Enterprise Office** is led through the **President**, the **Executive Vice President and Chief Financial Officer**, and the **Executive Vice President and Chief Operating Officer**.

- The office is one mechanism for coordination of the work of the **ASU Public Enterprise Office units**, which serve all three of the ASU enterprises.

EdPlus@ASU

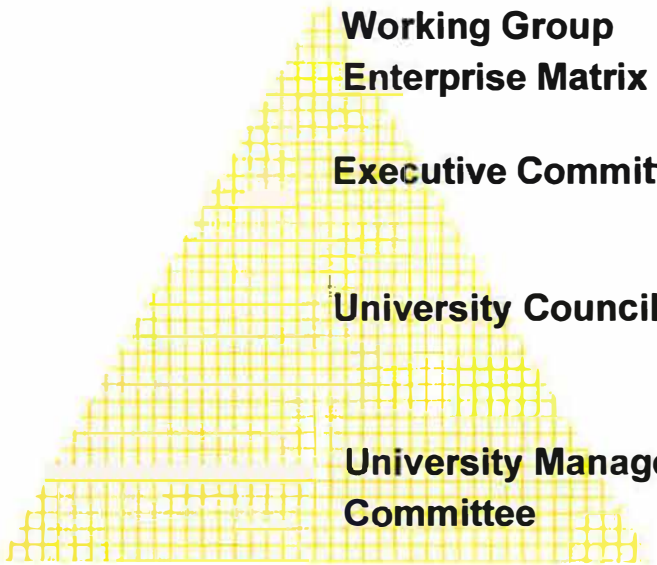
ASU Enterprise Partners

ASU Enterprise Technology Office

ASU Enterprise Brand Strategy and Management

ASU Preparatory Academy

Collaboration is expected through matrixed structure illustrated by key enterprise groups at all levels



Collaboration between the President and the executive vice presidents on key, highest-level cross-enterprise issues.

Collaboration between the President, executive vice presidents and senior vice presidents on public enterprise strategy and operations.

Venue for senior officers of the enterprise to share information and receive updates on public enterprise priorities

Venue for all managers at the level of director and above to receive updates on public enterprise priorities

Financial planning across at both the enterprise and university levels to focus resources toward future growth

- **Working Group Finance** is the primary venue in which public enterprise leaders ensure coherence between **budgetary and financial considerations**—at both the university and enterprise levels—**with the strategic, operational, and tactical plans of the public enterprise**.

- The members are the President, the executive vice presidents, the senior vice president and university planner, the senior vice president and chief of staff, the vice president for budget and planning, and the vice president for enterprise planning.

- The group oversees the following matters: 1) budget management, 2) financial management, 3) revenue enhancement, 4) margin enhancement, 5) financial aid management, and 6) strategic innovations.

Office of Enterprise Planning is responsible for evaluation of design against goals included in the ASU Charter

- The **Office of Enterprise Planning**, led by the vice president for enterprise planning, is responsible for monitoring and regularly reporting on outcomes of the public enterprise.
- Communications and collaboration between public enterprise leaders is evaluated based on the extent to which they advance the goals included in the ASU Charter.
- These evaluations will continue to be presented to the Board of Regents as part of the following:
    - Annual **State of the ASU Public Enterprise and Arizona State University** presentation.
    - Regular **reporting on metrics goals, targets, and forecasts** (i.e., ABOR Enterprise-wide metrics, institutional metrics, and online metrics).

2021-2024 Multiple-Year At-Risk Goal 1

Demonstrate increased enrollment and student success in adaptive learning courses through offering more than 15 courses, with an increase in overall course completion (grade C or better) to more than 80% (from a base of less than 50%).

Progress Report Follows

Strategies to **increase the numbers of students** successfully learning in adaptive/active learning courses **by 2024.**

Adaptive learning courseware, combined with active learning exercises, is now deployed in many courses that previously experienced relatively high D-E-W rates.

- The largest numbers are in lower division courses: two courses in intro math, two in intro economics, one in psychology, one in biology, and four in astronomy.
  - Adaptive learning was offered in 230 sections of courses in 2020-21, up from 119 in 2018-19.
  - Enrollment in the courses reached 23,995 students in 2020-21.
- Grade performance has been outstanding and the **80% goal for course completion with grade C or better has been achieved**.
  - In each of the last three years, the percent of students earning a C or better ranged from 81% to 83.5%.
  - Mastery, defined as a B or better, was 64% in 2020-21.
  - A study of the results in the college algebra course found that adaptive/active learning "raised average student grades in college algebra for all students ... effects on students' algebra grade were significant for all defined subgroups".

Enrollment targets for the next four years have been set.

- 25,219 in 2022-23; 25,579 in 2023-24; 25,964 in 2024-25; and 26,374 in 2025-26.
- The largest enrollment gains are expected from four new Calculus courses. There have been delays in obtaining the vast amount of content needed for these courses. Additionally, the complexity of the learning paths in Calculus far exceeds those of the courses previously built. It is taking more time to develop these courses than originally anticipated. **Once the Calculus courses are deployed the 15 course goal will be achieved.**
- Once achieved, we expect healthy gains in retention as these courses are significant hurdles to the progression of engineering and business students.

2021-2024 Multiple-Year At-Risk Goal 2

For Arizona students, increase enrollment and number of graduates by more than 10%.

Progress Report Follows

New Goal

For Arizona students, **increase enrollment and number of graduates by more than 10% (by fall 2024)**.

Note: In these slides, progress toward this goal is measured by the number of Arizona resident undergraduates enrolled and earning bachelor's degrees.

Strategic importance of the goal to ASU's Strategic Enterprise Plan

A bachelor's degree remains a strong investment for individuals.

In terms of increased wages relative to tuition, fees, and forgone earnings, the current net present value of a college degree is $480,000 for men and $342,000 for women. This equates to a **return on investment of 14.2% per year for men and 13.9% per year for women.**

A bachelor's degree remains a strong investment for the state of Arizona.

Economists estimate that bringing Arizona's share of workers with a bachelor's degree to the national average would result in **direct effect of $14.3 billion, a spillover effect of $17.9 billion, and an increase in state government general fund revenue of $1.7 billion** over the course of the next 32 years.

As such, **ASU continues to create capacity for increasing the number of students as implicit in the ASU Charter;** emphasizing access, inclusion, discovery, and fundamental responsibility for the communities it serves.

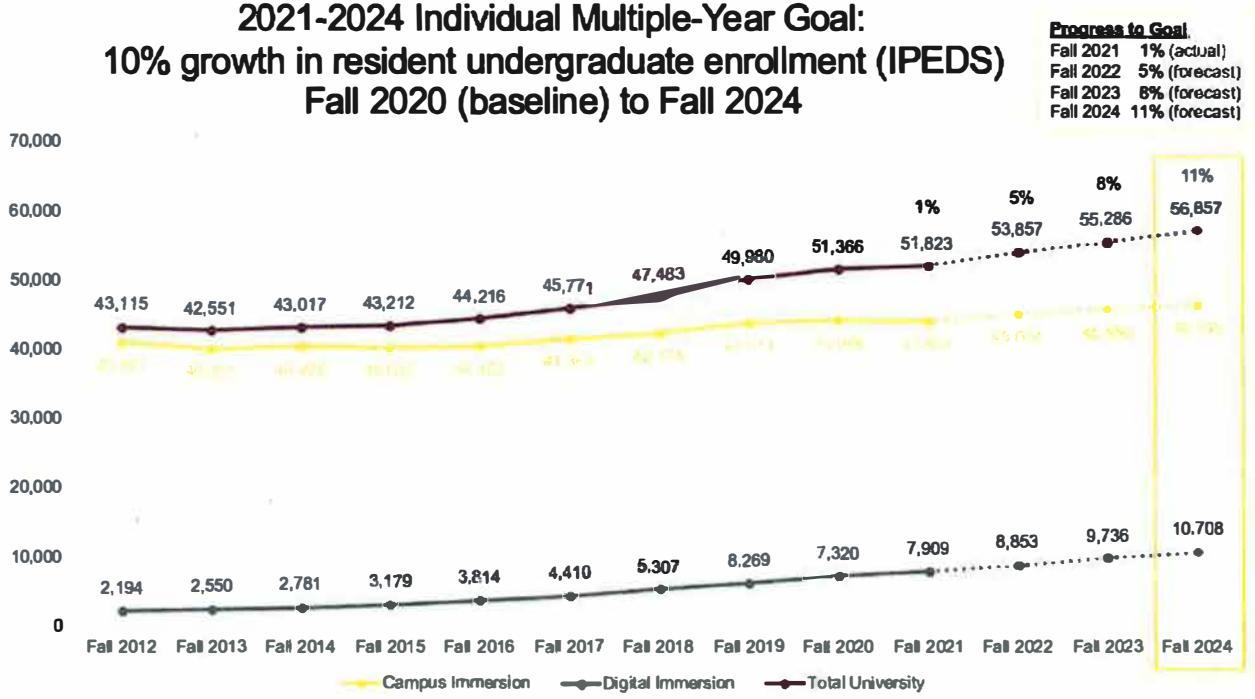
Source: Seidman Research Institute, "The Economic Impact of Raising the Educational Attainment of Arizona's Workforce: 2019 Update"

For Arizona students,
increase enrollment
by more than 10%.

56,857
Fall 2024 Resident Undergraduate Enrollment
Forecast

51,823
Fall 2021 Resident Undergraduate Enrollment
Progress to Goal

ASU anticipates an increase of **5,034 Arizona-resident undergraduates enrolling** from fall 2021 to fall 2024 in order to exceed the 10% goal.



Strategies leading to achievement of enrollment goal by 2024.

ASU seeks to **serve increasing numbers of students** through multiple pathways, including:

- Recent high school graduates.
    - Arizona high school district partnership expansion to track students' progress toward ABOR admission standards, and offer seamless pathways to admission for students.
- Transfer students from community colleges.
- Bachelor's degree completers through online programs.
    - Arizona students moving from online programs at for-profit and private colleges and universities.
- Areas outside metropolitan Phoenix through programs in Lake Havasu City and at rural community college sites, including Arizona Western, Central Arizona, Cochise, Eastern Arizona, Pima, and Yavapai Community Colleges.
- Corporate partnerships, such as with Starbucks, Uber, and other employers.
- Academic program expansion at the West campus and the Polytechnic campus to serve students across the Phoenix metropolitan region.

ASU continues efforts to **improve student persistence, which leads to increases in overall enrollment.** Strategies include:

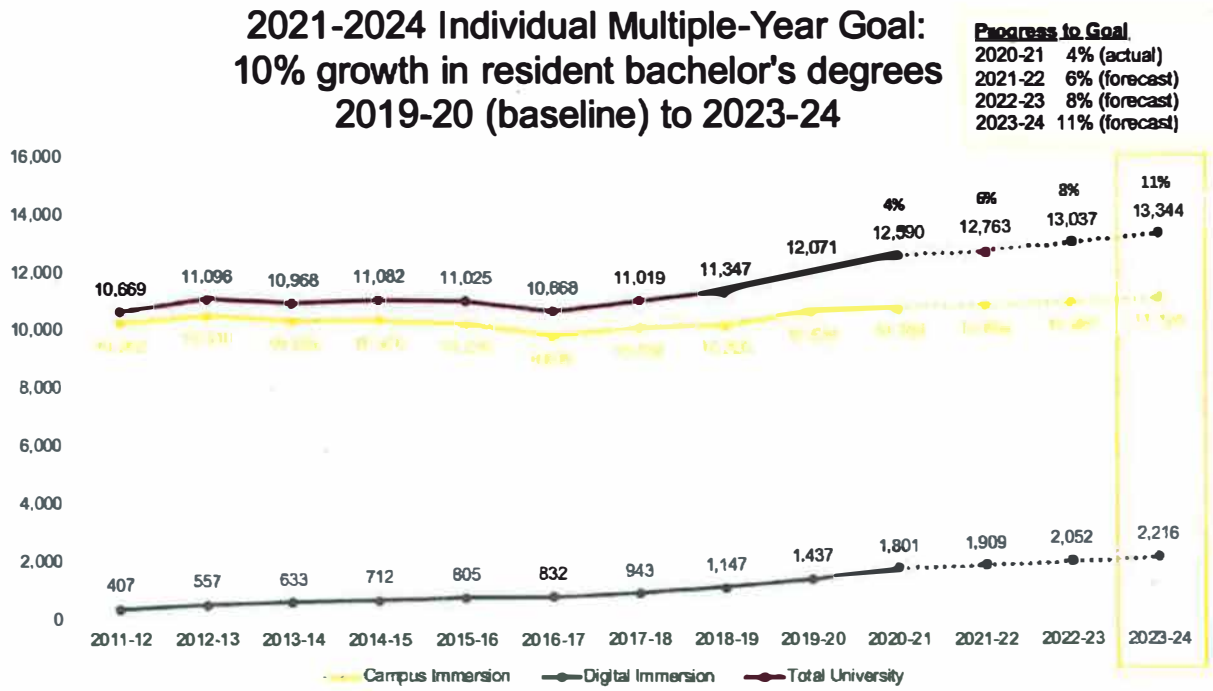
- Predictive analytics and tools to facilitate the work of advisors and other student-support staff in serving and communicating with students.
- Curricular innovations to incorporate more adaptive and active pedagogies.
- New student-facing tools to provide information to students through technologies that serve this student generation better.
- Financial literacy, growth mindset, and other programmatic features that address potential barriers to success.

For Arizona students,
increase number of undergraduates earning a degree by more than 10%.

13,344
2023-24 Resident Bachelor's Degrees
Forecast

12,590
2020-21 Resident Bachelor's Degrees
Progress to Goal

ASU anticipates an increase of **754 Arizona-resident undergraduates earning a degree** by Academic Year 2023-24 in order to exceed the 10% goal.



Strategies leading to achievement of graduation goal by 2024.

- Continue to grow the number of students enrolling in the first-year cohort, maximizing the Arizona Promise Program.
    - The number of Arizona-resident first-year students has increased by 94% since 2002, from 4,582 in 2002 to 8,877 in fall 2021.
- Continue to grow transfer pathway programs with community college partners.
    - The number of new Arizona-resident transfer students has increased by 11% since academic year 2002-03, from 4,482 to 4,987 in academic year 2021-22.
- Continue to add new undergraduate degree program offerings. ASU offers 350+ undergraduate degree programs across multiple campuses, locations and modalities, and continues to grow with over 50 programs added in the last 5 years.
- Continue to increase online program offerings. More than 144 undergraduate degree programs are offered through ASU Online.
- For online growth, present a compelling value proposition versus for-profit and private universities relative to tuition and employment outcomes, and continue to simplify the transfer process into ASU.
- Highlight and promote the earned admission pathway for Arizona residents.

2021-2024 Multiple-Year At-Risk Goal 3

Complete the design of the Global Futures Laboratory, with anticipated engagement of more than 700 faculty. Successfully merge the three schools of the College of Global Futures into a unique college with thousands of students (majors and minors).

Progress Report Follows

PROGRESS REPORT: COMPLETE THE DESIGN OF GFL, WITH ANTICIPATED ENGAGEMENT OF MORE THAN 700 FACULTY

In 2019, ASU established the Julie Ann Wrigley Global Futures Laboratory as a first-of-its-kind initiative designed to find actionable solutions to the most challenging issues facing global society and our planet. The Julie Ann Wrigley Global Futures Laboratory is rooted in the conviction that we can and must make a meaningful contribution to ensuring a habitable planet and a future in which well-being is attainable for all humankind.

Designing a thriving future requires a holistic approach defined by uncompromising transdisciplinary research and open collaboration among universities, businesses, policymakers and the wider public. "In many ways, the laboratory can be conceived as an entity that operates like a medical center for the planet", says ASU President Michael M. Crow. Its mission consists of diagnosing social and environmental maladies, developing new ways of acquiring data from all components of the Earth's systems, triaging problems to ensure they are properly prioritized, and ultimately prescribing both treatment and ongoing proactive wellness regimens that minimize harm while maximizing health.

The laboratory consolidates existing research efforts and schools and augments them with new ones. For example, the Global Institute of Sustainability and the Institute for the Future of Innovation in Society have merged to become an encompassing research institution: the Global Institute of Sustainability and Innovation.

The Global Futures Laboratory draws on ASU's deep commitment to use-inspired research, the ongoing work in sustainability and service to the global community in which we live, explored across five core spaces:

Discovery Learning Solutions Networks Engagement

The hub of the physical home of the Global Futures Laboratory is the new Rob and Melani Walton Center for Planetary Health on the Tempe campus, a $200 million facility hosting more than 500 faculty and 1,300 students. Although the building will serve as the lab's headquarters, the initiative's impact will extend far beyond its walls to engage partners across ASU's campuses, out in the field and around the world.

A major part of the concept of the Global Futures Laboratory is engaging more than 700 dedicated scholars and scientists across multiple disciplines gathering knowledge and data about how the planet functions across various systems. This is essential for creating wellness solutions and interventions that create positive outcomes.

Examples of Global Futures Laboratory Scientists and Scholars led activities are included in the supporting documents **(#1).**

DESCRIBE STRATEGIC IMPORTANCE OF THE GOAL TO THE UNIVERSITY/ENTERPRISE STRATEGIC PLAN

"We need to focus on the future of the planet, not only fixing problems we have created but also using knowledge and innovation to secure its habitability. This is urgent, and this is how what we have built at ASU can have the biggest impact on the world." Michael M. Crow President, Arizona State University

As evidenced by President Crow's quote, drawing on 700+ scientists and scholars, in addition to creating future generations of leaders, poises us to be in the optimal position to apply our knowledge and innovation in addressing increasing pressure on planetary systems.

The Global Futures Scientists and Scholars (GFSS) network advances GFL's mission of designing implementable options to sustain global habitability and improve well-being for all humankind. This program supports network members across the spaces and, by extension, enhances the visibility, thought leadership and impact for GFL and all of ASU, across fourteen focal areas.

DESCRIBE ACHIEVEMENT OF THE GOAL AS ASSIGNED Through strategic collaboration of Knowledge Enterprise, with Academic Enterprise, the GFL is increasing preparedness, increasing funding successes, and building the careers of promising and committed Global Futures Scientists and Scholars in support of ASU's research expenditure targets.

Strengthening our Research: Supporting the scholarship of all GFL faculty and students through education and training, with a focus on generating use-inspired research leading to real-world impact and affirmative outcomes.

- **Global Futures Research Accelerator** helps faculty to hone and clearly articulate their research vision, while preparing them to obtain funding and manage their awards successfully for maximum benefit to their careers and the university.

- **Rob and Melani Walton Sustainability Solutions Service Faculty Associate Network** provides support for research strategy and implementation, as faculty affiliates partner with business, government and other organizations on projects to advance sustainable solutions.

- **Global Futures Office of Research Services (GFORS)** connects GFL-affiliated scholars to research development, research advancement and other services within GFL and Knowledge Enterprise

Intellectual Expertise:

Broaden and diversify collaborations, tracks and networks for Global Futures Fellows. Broad inquiries, such as this recent IPCC survey, allow us to understand

whether and how network members and their work ties into events of national or global public significance.

- **Targeted engagement** with individual network members builds a deeper understanding of a faculty member's expertise, facilitating future collaborations, award nominations and similar opportunities.

- **Proof of concept:** The network is a subset of all ASU faculty, and as we gather data and measure their successes, the processes we implement at this scale may be valuable at the enterprise level.

- **Communicating Successes:** Demonstrate ASU's reputation in global futures, make GFL a partner across the globe.

- **Documenting successes** in a public-facing way provides evidence that ASU is already a player on the world stage with respect to topics of national or global significance.

- **Sharing of findings** with ASU News and Media Relations, with the Collaboratory, with colleagues in academic units, and on public-facing profiles provides a service that will advance individual visibility and broaden the influence of GFL across ASU units.

- **A ready repository of experts** allows responses in a timely way to media opportunities, funding opportunities, award nomination opportunities, and important RFIs.

DESCRIBE PROGRESS TOWARD ACHIEVEMENT OF GOAL

Through May 2022, there are 786 GF scientists and scholars, contributing to $692M in proposals and $138M in awards, with representation across academic units. Through these collaborations, questions are being asked no one else is asking and the right teams are being assembled to answer these questions to achieve the positive impact needed at scale.

DESCRIBE CHALLENGES THAT PREVENT ACHIEVEMENT AND STRATEGY TO OVERCOME

The GFSS network currently exists as a "virtual college" with many unknown characteristics. We are building systems to understand the network better and developing programs and activities to engage and support the work of GFSS in order to get members to identify themselves more fully with GFL and its mission. This is the current priority, with specific programming under development.

PROVIDE DATA OR OTHER EVIDENCE DEMONSTRATING ACHIEVEMENT

Global Futures Office of Research Services (GFORS) serves the institute, the college, the focal areas, and the GFSS network.

GFSS growth: From 210 in 2010 to 786 in 2022
GFSS faculty across academic units: 25.5% CLAS and 15.5% Engineering faculty participate in the network
Proposals: $431M proposals in 2019 to $691M in 2022
Awards: $142M in 2019 to $138M 2022 (through May)

Rankings: ASU's continued high placement in the Times Higher Education impact rankings (based on the UN Sustainable Development Goals) demonstrates the capability and capacity of GFL to help propel ASU to national and global recognition.

As the result of the SDG & Beyond task force, co-chaired by GFL and Thunderbird, ASU is ranked #1 in the US for Impact and 2nd internationally.

ASU is ranked #1 by Sierra magazine's 15th "coolest schools" competition due to sustainability being an enterprise wide effort.

Please see supporting documents **(#2)** for charts related to GFORS and the GFSS network.

SUCCESSFULLY MERGE THREE SCHOOLS INTO A UNIQUE COLLEGE WITH THOUSANDS OF STUDENTS (MAJORS AND MINORS)

Working with some of the world's foremost experts at the nation's most innovative university, students receiving a degree from the College of Global Futures have the knowledge and skills needed to thrive and make positive impacts on a future ASU graduates will help to define.

Individual schools joined under the College of Global Futures by a common purpose to create new knowledge, engage diverse communities and educate future leaders. The transdisciplinary composition of schools enable unique learning and training opportunities in support of the goal to engage 5,000 students by 2025. These opportunities attract a diverse group of learners, by allowing students to explore solutions to some of the most pressing challenges, and will prepare them for professions dedicated to solving existing problems through application of the most advanced decision support tools.

The School for the Future of Innovation in Society (SFIS) is a transdisciplinary unit at the vanguard of ASU's commitment to linking innovation to public value. SFIS pursues a vision of responsible innovation that anticipates challenges and opportunities, integrates diverse knowledge and perspectives, and engages broad audiences. By examining the ways imagination is translated into innovation — and

how technical and social concerns are blended, along the way — we learn to build a future for everyone.

The School of Sustainability (SOS): Established in 2006 as the nation's first, the School of Sustainability's mission is to foster innovative research, impactful education and engaged communities to achieve environmental integrity, social equity and well-being.

The School of Complex Adaptive Systems (SCAS): Our planet is the ultimate complex system with many intertwined subsystems that envelop natural, social and technological systems and transcend traditional disciplinary boundaries. This visionary school engages wide-ranging national and international collaborations to advance the exploration of these systems and disseminate fundamental transdisciplinary knowledge through a unique set of academic graduate offerings.

The School of Ocean Futures (SOF): The newly formed School of Ocean Futures will expand capacity to study the Earth system holistically (the ocean covers about 70 percent of the Earth's surface). It will address the role of the ocean in the Earth system at a time when human activities place increasing pressure upon the life supporting systems of our planet. Specifically, it will address the fundamental dynamics of the ocean as part of the Earth system, as well as its response to perturbations caused by global change. Changes in the ocean such as increasing sea surface temperatures and rising sea level have implications for the entire globe including its land surface.

This school will establish ASU as a leader in field-based ocean research and learning opportunities on the Tempe campus, the Bermuda Institute of Ocean Sciences (BIOS), and in Hawaii.

DESCRIBE STRATEGIC IMPORTANCE OF THE GOAL TO THE UNIVERSITY/ENTERPRISE STRATEGIC PLAN

The College of Global Futures is the heart of the learning space in the Julie Ann Wrigley Global Futures Laboratory, the world's first comprehensive, university-based approach to ensuring a habitable planet and a future where well-being is attainable for all humankind.

Urgent issues across the globe require informed action. Our responsibility is to develop viable options that ensure well-being for everyone.

The ASU Charter tasks us with taking fundamental responsibility for the economic, social, cultural and overall health of our community. The College of Global Futures speaks to the global community, and ASU's conviction to make a meaningful contribution to ensuring a habitable planet and future in which well-being is attainable for all.

DESCRIBE ACHIEVEMENT OF THE GOAL AS ASSIGNED

Our achievement toward this goal started by taking an assessment of ASU's independent resources and intellectual expertise and combining them to create a more powerful academic presence in the College of Global Futures. The composition of the College of Global Futures expands our expertise and tools to address the most pressing problems, and create a cadre of leaders who are prepared to tackle these challenges.

In the College of Global Futures, students are prepared to address some of the greatest challenges of our time, from ensuring the social benefits of powerful new technologies and creating just and sustainable futures, to exploring solutions to emerging issues that transcend the limitations of conventional thinking.

DESCRIBE PROGRESS TOWARD ACHIEVEMENT OF GOAL

Faculty recruitment:

2022 - 2023 5 tenure/tenure track faculty join ASU
2021 - 2022 7 tenure/tenure track faculty join ASU

Student Success:

Graduate Success: The 2021 College of Global Futures Employment Survey of alumni indicates 94% of respondents are employed or in graduate school and of those employed 71% have jobs in degree-related careers.

Fall 20 first time student retention: 92.4% CGF retention has consistently been higher than the ASU average.

Enrollment:

With a goal of 5,000 students by 2025, college enrollments have risen to 1400 in 2021 – 22.

With the expansion in program offers, the College of Global Futures now has more online students than immersion students. This trend is anticipated to continue, and assist in meeting enrollment growth targets.

New programs:

Two new schools created to round out the knowledge base:
The School of Complex Adaptive Systems - Fall 2021
The School of Ocean Futures - Fall 2022
Seven new/recently established and approved degree programs

Academic Program Reviews:

Both SOS and SFIS recently completed their scheduled Academic Program Reviews, including required external review, which demonstrated their important achievements compared to peer and aspirational peer units in the United States and internationally.

DESCRIBE CHALLENGES THAT PREVENT ACHIEVEMENT AND STRATEGY TO OVERCOME

Immediate focus is to align core faculty and services to operationalize SCAS and SOF while continuing to highlight the existing programming in SOS and SFIS.

Directors are working with College leadership to identify immediate resource needs (faculty, curriculum and infrastructure support) and to establish initial course offerings.

College leadership is working with enrollment services and GFL marketing teams to increase awareness of College of Global Futures, the schools and program offers.

In conjunction with the Provost office, strategic faculty hires are being made in support of these new investments.

PROVIDE DATA OR OTHER EVIDENCE DEMONSTRATING ACHIEVEMENT

Please see **#3** for data related to enrollment and retention.

SUPPORTING DOCUMENTS:

(#1) Examples of activities led by Global Futures Laboratory Scientists and Scholars:

ASU - Starbucks Center for the Future of the People and the Planet

The ASU-Starbucks Center for the Future of People and the Planet will advance Starbucks' transformative agenda by leveraging ASU's applied research, networks, expert faculty, and innovation through shared aspirational commitment to the betterment of people, the planet and global communities.
https://starbucks.corporate.asu.edu/center-for-the-future

BRIDGES

BRIDGES is an inclusive coalition of intergovernmental, governmental and non-governmental organizations, institutes and formal networks organized within UNESCO's international science programme Management of Social Transformations (MOST). The coalition is committed to helping higher education and research institutions, in collaboration with non-academic partners, as together they

work to address the greatest challenges facing societies during the UN Decade of Action (2021-2030) to deliver the Sustainable Development Goals (SDGs).

Center for Energy and Society

The Center for Energy & Society at Arizona State University was established to put people at the center of the conversation about the future of energy. Over the next few decades, a global energy revolution will fundamentally transform energy systems and infrastructures all over the planet. That revolution–the German word for energy transition, energiewende, means transformation or peaceful revolution– has profound human implications. The ASU Center for Energy & Society's goal is to understand those implications and ensure that they are fully accounted for in the decisions made by energy business and policy leaders between now and 2050 as they redesign the world's energy systems. https://ifis.asu.edu/content/center-energy-and-society

Center for Global Discovery and Conservation Science

The Center for Global Discovery and Conservation Science leads spatially explicit scientific and technological research focused on mitigating and adapting to global environmental change. https://gdcs.asu.edu/

Center for Innovation in Informal STEM Learning

The Center for Innovation in Informal STEM Learning is dedicated to improving how people across generations learn science, technology, engineering, and math (STEM). The center works with informal learning organizations, such as museums and libraries, to facilitate public education and conduct applied research. Center projects examine space exploration, climate and environment, socio-technical change, responsible innovation, citizen science, and storytelling. With strong expertise in science communication, the center animates STEM learning, builds literacy among participants, and democratizes science and technology education. https://pit.asu.edu/center-innovation-informal-stem-learning

Center for Negative Carbon Emissions

CNCE is advancing carbon management technologies that can capture carbon dioxide (CO2) directly from ambient air in an outdoor operating environment. https://globalfutures.asu.edu/cnce/

Global Locust Initiative

ASU's Global Locust Initiative engages key actors in locust research and management to develop partnerships and solutions for transboundary pest management in agroecosystems around the world. https://sustainability-innovation.asu.edu/global-locust-initiative

LightWorks

LightWorks pulls light-inspired research at Arizona State University under one strategic framework. It is a multidisciplinary effort to leverage ASU's unique strengths, particularly in solar-electric energy, sustainable fuels and products, and energy and society. https://sustainability-innovation.asu.edu/lightworks/

Pacific RISA

Funded by the National Oceanic and Atmospheric Administration, the center supports research into how Pacific Island communities can build resilience to extreme climate events.

Sustainable Phosphorus Alliance

In early 2014, participants at the Phosphorus Sustainability Research Coordination Network (P RCN) proposed to create the Sustainable Phosphorus Alliance (SPA) in order to implement sustainable P solutions. The Alliance is North America's central forum and advocate for the sustainable use, recovery, and recycling of phosphorus in the food system. https://phosphorusalliance.org/

Swette Center for Sustainable Food Systems

The Swette Center for Sustainable Food Systems develops innovative ideas and solutions to the many challenges of current food systems. Taking a holistic and transdisciplinary approach, the Center's work encompasses water and energy use, carbon footprint and nutrition, innovations in agtech, and the well-being and livelihood of farmers and others working in food systems. https://sustainability-innovation.asu.edu/food

Launched two new Provost-approved GFL-affiliate centers with scalable enterprise funding models:

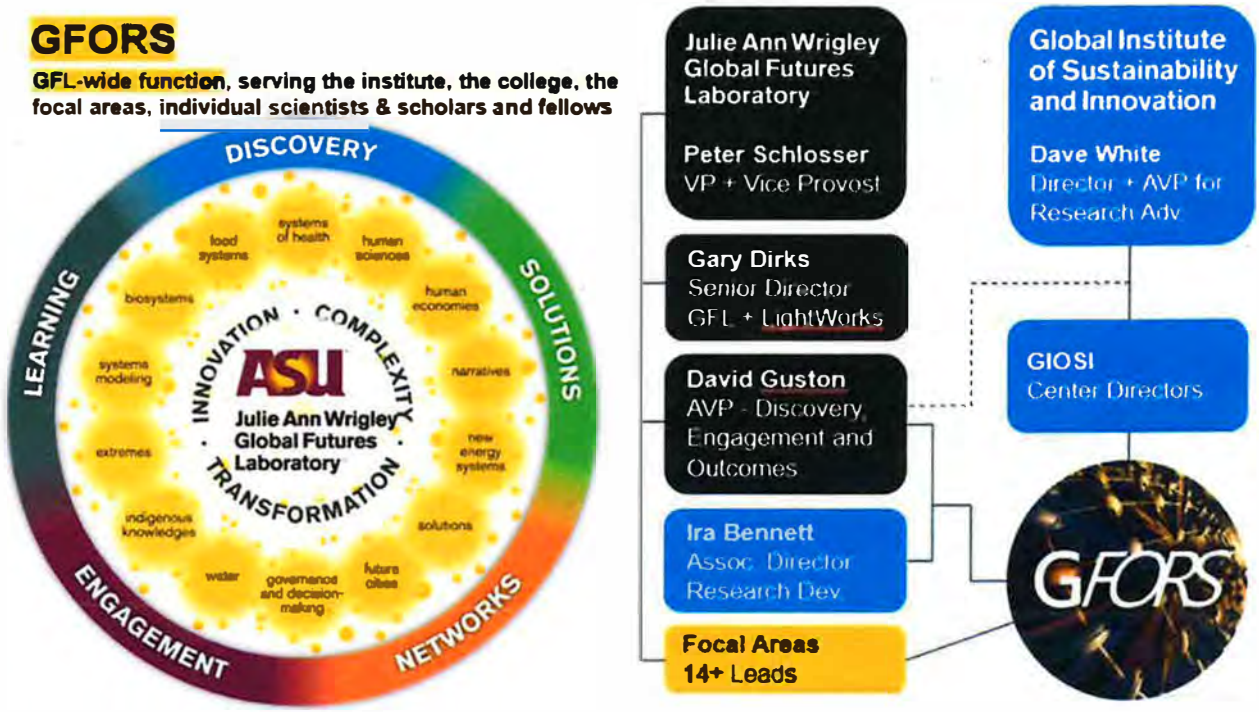
Center for Building Innovation (CoBI)

The Center of Building Innovation (CoBI) is a new center to be housed in the Herberger Institute for Design and the Arts (HIDA) and affiliated with the Julie Ann Wrigley Global Futures Laboratory through the Global Institute of Sustainability and Innovation (GIOSI). The center will bring together all disciplinary units related to the built environment at ASU into one center, operating across all three enterprises. Architects, developers, construction managers, construction engineers and planners all work side-by-side in professional communities — whether working on housing or commercial real estate, city planning, or large-scale infrastructure projects.

Center for Hydrologic Innovations (CHI)

The Center for Hydrologic Innovations (CHI) is a new center to be housed in the Ira A. Fulton Schools of Engineering within the School of Sustainable Engineering and the Built Environment (SSEBE). The Center has an academic home in the Hydrosystems Engineering specialty area and a graduate program in SSEBE. Led by Global Futures Scientist Enrique Vivoni, CHI is an affiliated center of the Julie Ann Wrigley Global Futures Laboratory (GFL) through the Global Institute of Sustainability and Innovation (GIOSI).

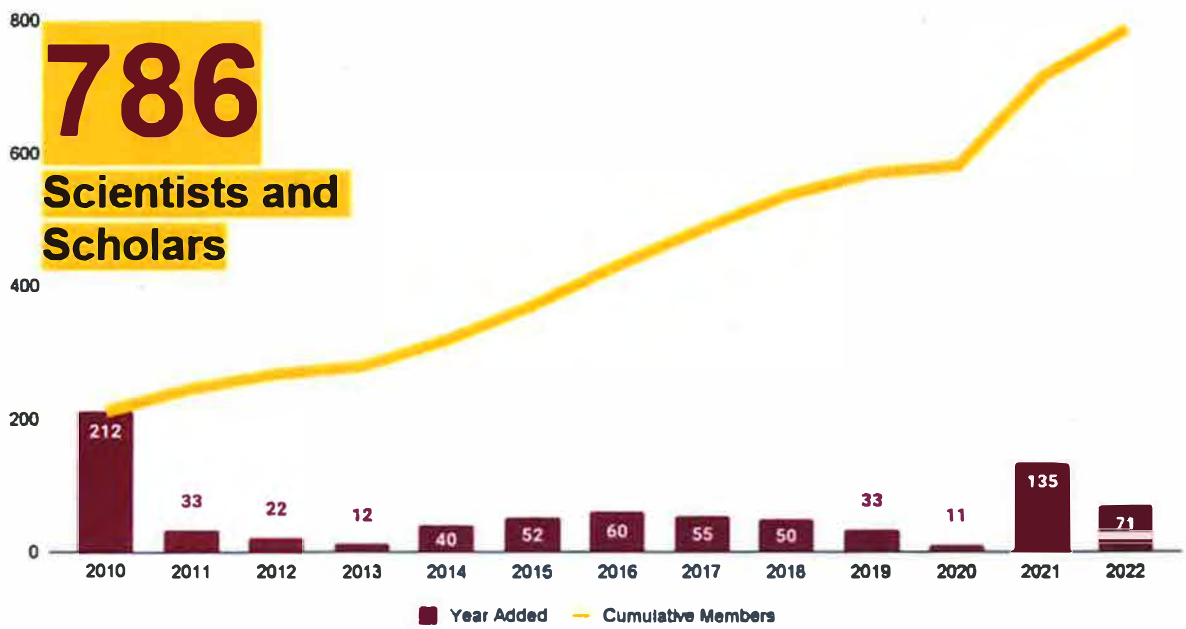
(#2). GFSS and GFORS charts



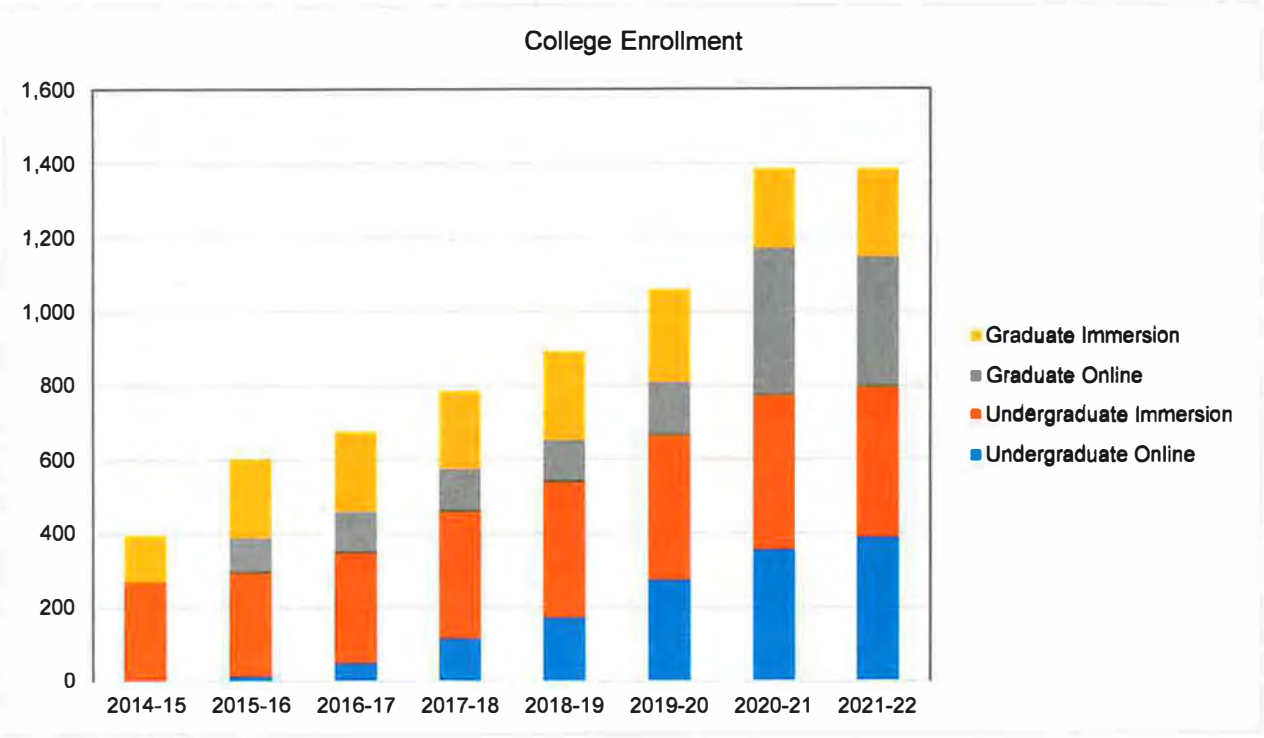
Global Futures Scientists and Scholars Network

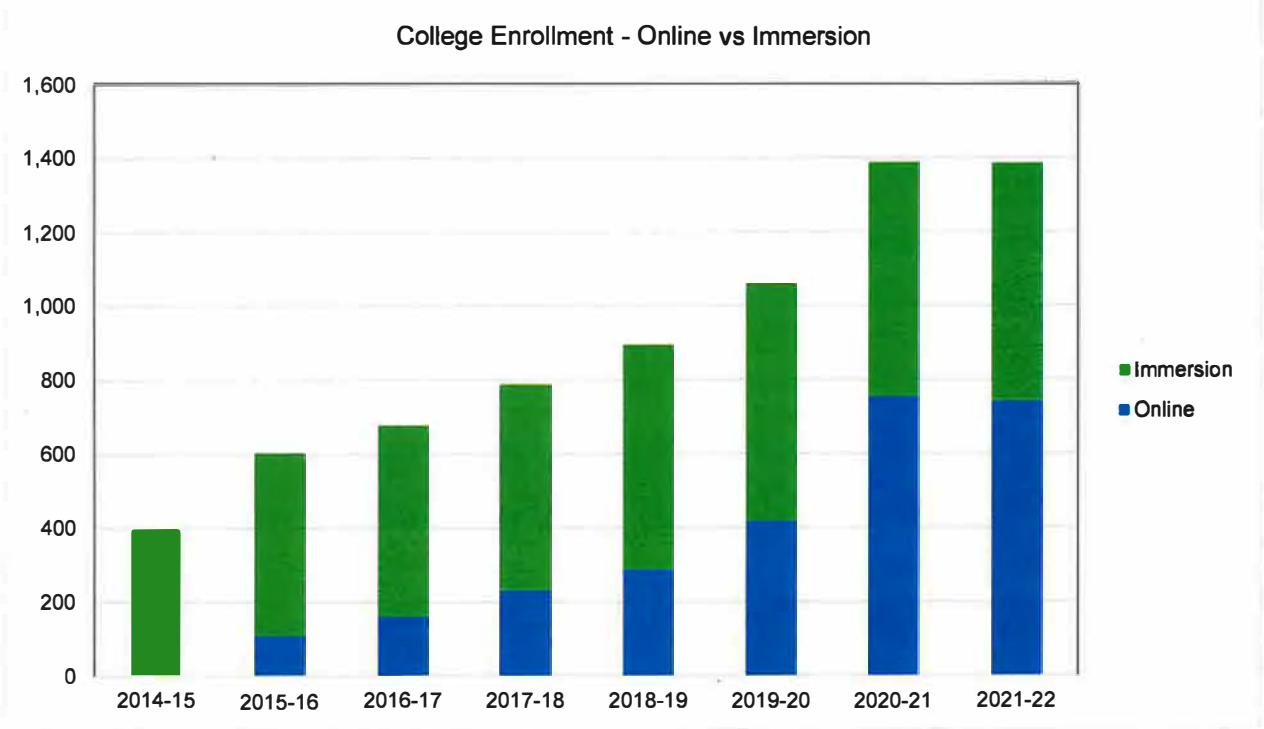
Proposals, Awards, Expenditures

	FY22*	FY21	FY20	FY19
Proposals	$691,866,943	$639,450,158	$502,855,573	$430,779,449
Awards	$138,091,034	$155,785,211	$140,209,816	$142,454,864
Expenditures	$92,686,436	$140,050,603	$146,275,111	$143,269,459
Total GFSS	786	715	580	569
Active GFSS	478	386	402	394
Percent Active	61%	54%	69%	69%
Proposals/Member	$880,238	$894,336	$866,992	$757,082
Awards/Member	$175,688	$217,881	$241,741	$250,360
Expenditures/Member	$117,922	$195,875	$252,198	$251,792
Proposals - Top Five	$447,163,216	$169,581,156	$83,273,775	$117,678,569
Awards - Top Five	$43,398,533	$59,160,229	$65,422,845	$68,179,824
Expenditures - Top Five	$24,240,643	$57,716,082	$68,414,912	$65,378,672

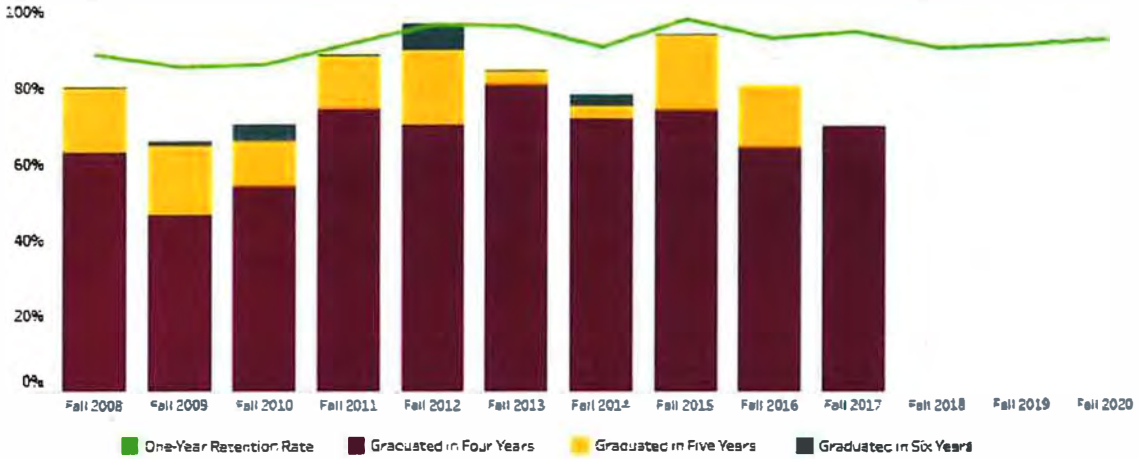


#3. College of Global Futures





Retention and Graduation Rates for Full-Time First-Year Students



	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020
Cohort	35	82	50	35	30	26	32	50	56	56	52	57	66
1-Yr Retention Rate	88.6%	85.4%	86.0%	91.4%	96.7%	96.2%	90.6%	98.0%	92.9%	94.6%	90.4%	91.2%	92.4%
4-Yr Graduation Rate	62.9%	46.3%	54.0%	74.3%	70.0%	80.8%	71.9%	74.0%	64.3%	69.6%			
5-Yr Graduation Rate	80.0%	64.6%	66.0%	88.6%	90.0%	84.6%	75.0%	94.0%	80.4%				
6-Yr Graduation Rate	80.0%	65.9%	70.0%	88.6%	96.7%	84.6%	78.1%	94.0%					

NEW/RECENTLY ESTABLISHED AND APPROVED PROGRAMS:

Newly Established Programs (past 2 years)

Program	School
MS Complex Systems Science (Tempe, Online)	SCAS
MS Public Interest Technology (Online)	SFIS
MS Sustainable Food Systems (Online)	SOS
Graduate Certificate in Sustainability (DT Phx, Poly, Tempe, West, Online)	SOS

Recently Approved Programs (to launch in 2022-2023)

Program	**School**
MS Futures and Design (Mesa)	SFIS & HIDA
4+1 Option: BS Sustainable Food Systems (Online) + MS Sustainable Food Systems (Online)	SOS

2021-2024 Multiple-Year At-Risk Goal 4

Build and document enhanced regional collaboration in research, with a focus on increased collaboration within Arizona higher education.

Progress Report Follows

Arizona State University

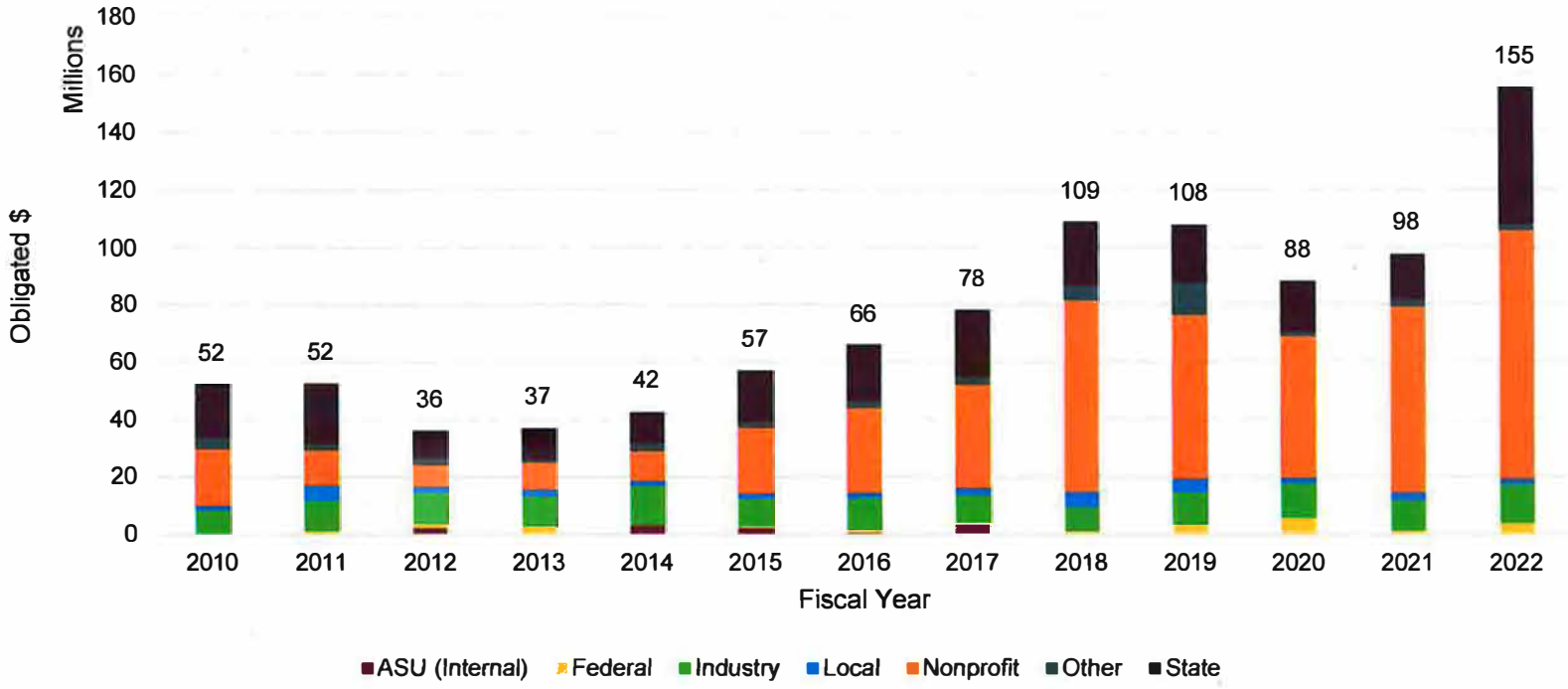
As the most innovative school and one of fastest growing research enterprises in the nation, Arizona State University advances groundbreaking research and translates solutions into impact. It accelerates discovery by bringing the best and brightest minds together:

Through powerful partnerships. ASU researchers have collaborated with colleagues from the University of Arizona and Northern Arizona University on nearly 500 awards valued at approximately $579 million. Overall, new award obligations have grown 30% in awards involving ASU and another ABOR university partner. Collaborations between all ABOR universities have increased by 92% in the last three years. A recent example: The three universities formed the Valley Fever Collaborative to start an integrated, statewide research project to identify, characterize and map hot spots and routes of exposure for the infectious disease.
ASU has seen a tremendous increase in regional collaboration in research. The impact continues to expand as we engage industry, nonprofits and philanthropic organizations, with 145% growth in obligations from Arizona sponsors since 2010. In addition, there has been a 185% growth in sponsored project award obligations with non-ABOR regional research partner organizations since 2015. Among ASU's successful partnerships are the Mayo Clinic and Arizona State University Alliance for Health Care. Its flagship program, the Mayo Clinic and ASU MedTech Accelerator, empowers medical startups to better navigate challenges while bringing forth life-changing health innovations.

Through our commitment to the community. ASU joined forces with the community — the state, health care agencies, businesses and nonprofits — in the battle against COVID-19. Amidst the chaos and confusion of the pandemic, ASU, UA and NAU researchers formed a consortium to combat disinformation and promote awareness in the hardest-hit communities. Another tri-university effort, researchers leveraged supercomputing capabilities to perform complex protein modeling of COVID-19 to arm scientists with answers. ASU also teamed up with TGen and the state's two other universities to form the Arizona COVID-19 Genomics Union, which uses big data analysis and genetic mapping to inform health care providers and public policymakers in the struggle to navigate the disease.

Through innovation. More than 180 companies have launched based on ASU innovations, attracting more than $1 billion in external funding and 1,140 patents. ASU's technology transfer activities bolster the state's economy, which gained a cumulative $851 million in gross state product, $565 million in labor income, $76 million in state and local tax revenues in 2016-21, according to a Seidman Research Institute economic impact analysis. By 2025, Seidman projects the economic impact of SkySong Innovations and these ASU-linked companies will exceed $2.9 billion, with most of that impact — $1.6 billion — realized in Arizona.

Awards Sponsored by Arizona Funders



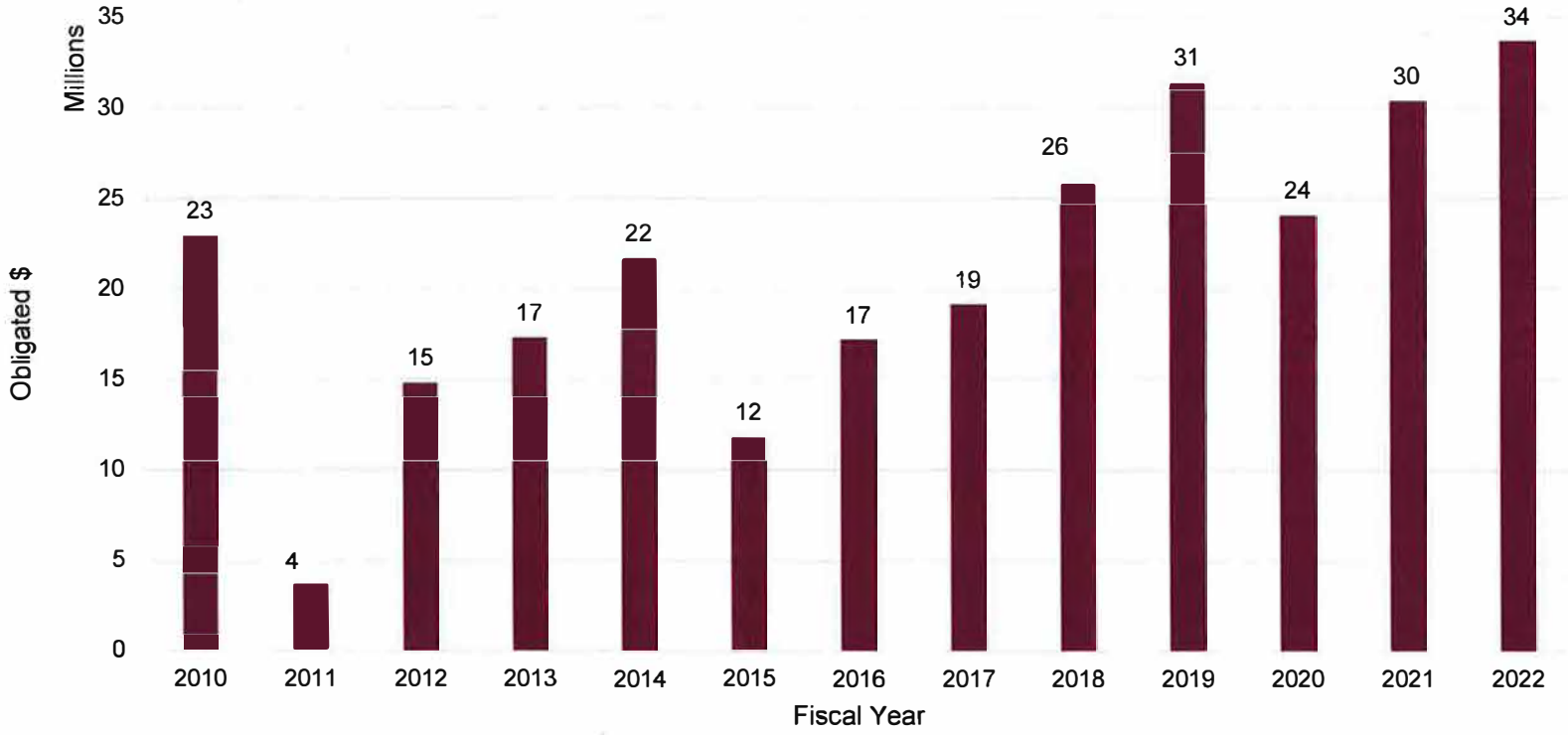
Awards from Arizona sponsors have grown by 145% since 2010.

Partnerships with ABOR Universities

Fiscal Year	ASU/NAU	ASU/UA	ASU/UA/NAU	Total
2010	3,712,041	17,086,189	4,242,986	25,041,216
2011	2,727,608	13,340,520	3,072,462	19,140,590
2012	2,837,906	24,523,511	1,993,957	29,355,374
2013	3,289,978	34,271,766	2,307,003	39,868,747
2014	2,941,445	22,477,483	2,534,196	27,953,124
2015	5,406,199	19,976,917	3,499,299	28,882,415
2016	6,536,414	22,471,071	2,296,578	31,304,063
2017	9,566,497	13,486,988	2,677,041	25,730,526
2018	11,969,930	25,352,957	5,041,993	42,364,880
2019	7,374,112	28,330,043	3,465,545	39,169,700
2020	9,864,182	32,064,104	1,665,215	43,593,501
2021	6,623,838	25,408,493	1,936,333	33,968,664
2022	5,464,266	23,897,034	3,198,694	32,559,994
Total	78,314,416	302,687,076	37,931,302	418,932,794

Obligations have grown 30% in awards involving ASU and another ABOR University partner. Collaborations between all ABOR Universities have increased by 92% in the last three years.

Community Engagement



There has been a 185% growth in obligations from 2015 in sponsored projects partnering with non-ABOR universities and local Arizona community organizations.

2021-2024 Multiple-Year At-Risk Goal 5

Submit a report that demonstrates substantial expansion of ASU Digital Prep within Arizona to at least 150 schools, with a focus on rural and underperforming schools.

Goal Accomplished

ASU Preparatory Academy
Arizona State University

2021-2024 Individual Multiple-Year At-Risk Goal

ASU Preparatory Academy within Arizona

Goal: substantial expansion within Arizona to at least 150 schools, with a focus on rural and underperforming schools.

Progress

- As of July 2022, ASU Prep has accomplished its multiple-year at-risk goal of expansion to 150+ schools in Arizona with a focus on rural and underperforming schools.
- ASU Prep is currently collaborating with **158** school partners to increase academic achievement by deploying high quality teaching and digital content.
    - **15,000+ part-time learners** are being served through Arizona digital teaching and learning school partnerships. This is outside of ASU Prep's 8,000 full-time academy students.
        - 10K of these learners are in rural and underserved schools
- In addition to the 158 school collaborations directly serving students, ASU Prep is also training **17,400+ teachers from 452** Arizona school districts as part of the ASU Prep Digital Arizona Virtual Teaching Institute.

Here is a link to the 158 school partnerships, also listed below separated by Math Momentum and all content teaching and learning:

Partnership	District/Parent Org	Number of Schools
Shonto Prep Technology HS	AZ State Board for Charters	1
North Valley Christian Academy	Private	1
Tempe Elem School District 3	Tempe Elem SD 3	1
Bourgade Catholic High School	Diocese of Phoenix	1
Miami Jr Sr High School	Miami USD	1
Arizona School for the Arts	AZ State Board for Charters	1
Blue Ridge High School	Blue Ridge USD	1
Blue Ridge Elementary School		1
Yuma	Yuma Un HSD	5
Chandler Unif School Dist 80	Chandler USD	11
Herberger Young Scholars Academy	Private	1
Desert Garden Montessori Sch	Private	1
Desert View Middle School	AZ State Board for Charters	1

ASU Preparatory Academy
Arizona State University

Desert View Online High School	AZ State Board for Charters	1
Mountainside High School	Nadaburg USD	1
Nogales High School	Nogales USD	1
St. Jerome Catholic School	Diocese of Phoenix	1
Pendergast Elem Sch Dist 92	Pendergast ESD	12
Pendergast District-Wide HS		1
Osborn Middle School	Osborn SD	1
St David High School	St. David USD	1
Victory Collegiate Academy	AZ State Board for Charters	1
Santa Cruz Valley Union HS	Santa Cruz Un HSD	1
San Luis High School	Yuma Un HSD	1
San Carlos High School	San Carlos Apache Tribal Educ/Access ASU grant	1
Desert Oasis Elementary School	Nadaburg USD	1
Tempe Preparatory Academy	AZ State Board for Charters	1
Arts Academy Estrella Mountain	AZ State Board for Charters	1
Morristown Elem Sch Dist 75	Morristown ESD	1
Phoenix Christian Prep School	Private	1
Notre Dame Preparatory HS	Diocese of Phoenix	1
Bourgade Catholic High School	Diocese of Phoenix	1
Sahuarita Unif School Dist 30	SUSD30	1
Hopi Jr Sr High School	Bureau of Indian Education	1
Salpointe Catholic High School	Diocese of Tucson	1
Seton Catholic Prep High School	Diocese of Phoenix	1
St. John Paul II High School	Diocese of Phoenix	1
Desert Garden Montessori Sch	Private	1
Arizona Cultural Academy	Private	1
Holy Family Academy	Private	1
Queen of Peace Catholic School	Diocese of Phoenix	1

ASU Preparatory Academy
Arizona State University

St. Jerome Catholic School	Diocese of Phoenix	1
Tuba City High School	TCUSD	1
Blue Ridge JHS -- already counted above	BRUSD	
Mexicayotl Academy	AZ State Board for Charters	1
Paradise Valley USD (16 schools)	PVUSD	16
Pendergast ESD (12 schools--already counted above)	PESD	
Pinon Elem	PUSD	1
Red Mesa Elem	RMUSD	1
Round Rock Elem	RMUSD	1
Salome Elem	SESD	1
Scottsdale Unif Sch Dist 48	SUSD48	3
Mesa Virtual		1
Maricopa High School		1
Western Valley High School		1
Creighton Virtual Academy		1
Gilbert Global Academy		1
Holladay Intermediate School		1
Sonoran Science Virtual Academy		1
Valentine Elementary School		1
Casa Grande Union High School		1
Maricopa Elementary School		1
Desert Wind Middle School		1
Total		**104**

ASU Preparatory Academy
Arizona State University

Math Momentum Partnerships

Partnership Account
Glassford Hill Middle School
Coyote Springs Elementary
Granville Elementary School
Bradshaw Mountain Middle School
Mountain View Elementary School
Elementary K-8 school
Amberlea Elementary
Rio Vista Elementary
Canyon Breeze Elementary
Copper King Elementary
Desert Horizon Elementary
Desert Mirage Elementary School
Garden Lakes Elementary School
Pendergast Elementary School
Sonoran Sky Elementary School
Sunset Ridge Elementary School
Villa De Paz Elementary School
Westwind Elementary School
Maxine O Bush Elementary
Ignacio Conchos Elementary
Cesar Chavez Elementary
C.O. Greenfield Elementary
C.J. Jorgensen Elementary
AVIA online academy
Atkinson Middle School
Mobile Elementary School
Willis Jr High

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Online Academy	
Fees College Prep	
Rover Elementary	
Greenway Elementary	
Lowell Jr High School	
Bisbee High School	
Westwood High School	
Phoenix iAcademy	
Desert Foothills Jr. High	
Wellton Elementary School	
L. Thomas Heck MS	
Wigwam Creek MS	
Tuba City Elem	
Dzil Libei Elem (Cameron school)	
Tuba City JHS	
Tuba City HS	
Khalsa Montessori	
Mile High Middle School	
High Desert Middle School	
Villa Montessori	
Desert Sands Middle School	
Bradshaw Mountain High School	
Red Mesa High School	
Red Mesa Junior High	
Red Mesa Elementary	
Round Rock Elementary	
Arizona Online Academy (paid)	
TOTAL	**54**