Arizona's Universities
Student Success

Universities have established goals and designed strategies to improve student retention and graduation rates, and can enhance these efforts by consistently evaluating strategies and improving strategic plans

A Report to the Arizona Legislature

Debra K. Davenport
Auditor General

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Transmitted herewith is a report of the Auditor General, *A Performance Audit of Arizona's Universities—Student Success*. This report is in response to Arizona Revised Statutes (A.R.S.) §41-2958 and was conducted under the authority vested in the Auditor General by A.R.S. §41-1279.03. I am also transmitting within this report a copy of the Report Highlights for this audit to provide a quick summary for your convenience.

As outlined in their responses, the Arizona Board of Regents, Arizona State University, Northern Arizona University, and the University of Arizona agree with all of the findings and plan to implement or implement in a different manner all of the recommendations.

My staff and I will be pleased to discuss or clarify items in the report.

Sincerely,

Debbie Davenport
Auditor General

cc: Arizona Board of Regents members

Attachment

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REPORT HIGHLIGHTS
Performance Audit
March 2018

Arizona's Universities
Student Success

CONCLUSION: The State's universities—Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA)—have established goals and appropriate strategies for improving student retention and graduation rates and can further enhance these efforts by more consistently evaluating their strategies and improving their strategic plans. The Arizona Board of Regents (ABOR) worked with the universities to establish student retention and graduation goals for each university to meet by 2025, and all three universities have developed multiple strategies that may help them achieve these goals by addressing common obstacles students face to staying in school and graduating in a timely manner. However, the universities' evaluations of these strategies did not always address important evaluation components. Therefore, they should develop and implement university-wide guidance to more consistently evaluate their student retention and graduation strategies that aligns with program evaluation best practices. In addition, although the universities' strategic plans include some best practice components, they should better align their strategic plans with their student retention and graduation goals and strategic-planning best practices.

Universities have established goals and designed numerous strategies to increase student retention and graduation rates

ABOR and the universities have established student retention and graduation goals—ABOR oversees the activities of and sets strategic priorities for the universities. Since 2008, one of ABOR's strategic priorities has been increasing the number of Arizonans with a college degree, which it refers to as educational attainment. To increase Arizona's educational attainment, ABOR worked with the universities to establish four student retention and graduation goals for each university to meet by 2025. These goals, which incorporate specific targets for each university, are:

- Increasing the percentage of freshman students who remain enrolled in the university;
- Increasing the percentage of undergraduate students who graduate with a bachelor's degree within 6 years;
- Increasing the number of bachelor's degrees awarded to all students; and
- Increasing the number of bachelor's degrees awarded to Arizona community college transfer students.

Improving educational attainment may provide various benefits to the State and the universities, including increasing citizens' earnings, which could result in higher consumer spending, and increased tuition revenues for the universities.

ASU, NAU, and UA have designed numerous strategies to increase student retention and graduation rates by addressing common academic, financial, and social obstacles—Literature identifies common obstacles that could prevent students from staying in school and graduating in a timely manner, including academic, financial, and social obstacles. Additionally, literature indicates that low-income, first-generation, transfer, and minority students are more likely to face multiple academic, financial, and social obstacles to staying in school and graduating in a timely manner, and the universities enroll large numbers of students in these four groups. ASU, NAU, and UA have designed numerous strategies consistent with those identified in literature to help students overcome common academic, financial, and social obstacles, including developing transfer agreements with Arizona community colleges to help transfer students understand how specific courses completed at a community college will transfer to their universities, targeting financial assistance to high-need students, and providing students with peer and staff mentoring and support.

Universities should establish guidance for more consistently evaluating student retention and graduation strategies

Program evaluation can enhance student retention and graduation strategies—Program evaluation is a study of how well a program is working and can help guide a university's implementation and revision of its student

retention and graduation strategies. Specifically, evaluating strategies can provide the universities with important information on whether a strategy effectively addresses a common obstacle to staying in school and graduating in a timely manner, what additional actions a university could take to improve a strategy and better help students, and how to allocate limited resources to the most effective strategies.

Universities' evaluations of student retention and graduation strategies did not always address important evaluation components—We reviewed the evaluations of nine student retention and graduation strategies that the universities had implemented—three at each university—and found that the universities had conducted evaluations of each of the reviewed strategies. However, the universities' evaluations did not consistently address two evaluation components: assessing whether the strategy achieved its purpose of helping students overcome the common obstacle the strategy was designed to address and accounting for self-selection bias, which occurs when participants' likelihood of participating in a program or strategy is correlated with the intended outcome of that strategy. Four of the nine evaluations we reviewed assessed whether the strategy achieved its purpose of addressing a common obstacle and accounted for self-selection bias, when appropriate. The remaining five evaluations did not assess whether the strategy achieved its purpose and/or did not account for self-selection bias. Although each university has existing approaches for evaluating academic programs, the universities have not established formal, university-wide approaches for evaluating their student retention and graduation strategies.

Recommendation

ASU, UA, and NAU should continue efforts to develop university-wide approaches for evaluating their student retention and graduation strategies, including developing related policies, procedures, and/or guidance.

Universities should improve strategic plans to help achieve student retention and graduation goals

Strategic planning can help universities achieve student retention and graduation goals—Strategic planning can help the universities achieve their student retention and graduation goals by guiding resource allocation, staff activities, and the implementation of strategies for addressing common obstacles that can prevent students from staying in school and graduating in a timely manner. Additionally, strategic planning establishes a foundation for performance measurement by which university leaders can monitor progress toward goals and identify and remedy any issues that may prevent a university from reaching those goals.

Universities developed strategic plans but should further align them with student retention and graduation goals and best practices—Each university has developed a university-wide strategic plan and other strategic plans and related planning documents (strategic plans) focused on specific areas, including their efforts to achieve their student retention and graduation goals. Strategic-planning best practices identify three components that should be included in a strategic plan—objectives, performance measures, and action plans—that collectively work together to help an entity achieve the goals in its strategic plans. We found that, although the universities' strategic plans included some components recommended by strategic-planning best practices, the universities should improve their strategic plans by developing additional components and/or further aligning the components with the university's student retention and graduation goals. Where appropriate, this would include developing additional objectives, performance measures, and/or action plans.

Recommendations

Where appropriate, ASU, NAU, and UA should each:

- Develop an objective for one or more of its student retention and graduation goals, and determine whether developing multiple objectives for each goal would be appropriate;
- Develop performance measures for and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its student retention and graduation goals, and consider using a combination of different performance measures; and
- Revise or continue efforts to develop action plans for its student retention and graduation goals that include the strategies and tasks that will be implemented to achieve each goal and/or to specify deadlines and the parties responsible for implementing each strategy.

Scope and objectives

The Office of the Auditor General has conducted a performance audit of Arizona State University's (ASU), Northern Arizona University's (NAU), and the University of Arizona's (UA) processes and strategies for improving undergraduate retention and graduation rates pursuant to Arizona Revised Statutes (A.R.S.) §41-2958. This audit was conducted under the authority vested in the Auditor General by A.R.S. §41-1279.03 and is the second in a series of three performance audits of the State's universities. The first audit addressed the universities' fee-setting processes, and the third audit will focus on the universities' information technology security.

Arizona Board of Regents and universities have prioritized increasing educational attainment

The Arizona Board of Regents (ABOR) is the governing body of the State's universities and is required by A.R.S. §15-1601 to maintain the following three universities:

- **ASU**—ASU has several campuses including those located in the City of Tempe, ASU Polytechnic campus in the City of Mesa, ASU West in the City of Phoenix, bordering the City of Glendale, and ASU Downtown Phoenix in the City of Phoenix. In fiscal year 2017, ASU's full-time equivalent student enrollment (FTSE), a statutorily mandated measure of student enrollment, was 92,238.

- **NAU**—NAU has several campuses including those located in the City of Flagstaff, the City of Phoenix, the City of Yuma, and the Town of Prescott Valley. In fiscal year 2017, NAU's FTSE was 27,479.

- **UA**—UA has several campuses including those located in the City of Tucson, UA South, which has a location in the City of Sierra Vista, and a biomedical campus in the City of Phoenix. In fiscal year 2017, UA's FTSE was 41,565.

As the governing body for the State's universities, ABOR oversees the activities of and sets strategic priorities for the universities through its strategic plans. These strategic priorities include enrolling a diverse student body, increasing faculty research activity, and providing affordable higher education degree programs.

Since 2008, one of ABOR's strategic priorities has been to increase the number of Arizonans with a college degree, which it refers to as educational attainment.[1] According to ABOR, increasing the number of students who graduate from the universities with a bachelor's degree can help increase Arizona's overall educational attainment because many students obtain employment and remain in Arizona after they graduate. For example, ABOR reported that in calendar year 2016, approximately 79 percent of Arizona resident students and 31 percent of nonresident students obtained employment in Arizona within a year of graduating with their bachelor's degree from one of the universities.

ABOR's approach for increasing educational attainment focuses on increasing student retention and graduation rates rather than implementing more selective admissions standards. Specifically, one approach some universities

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[1] In addition to its efforts to address educational attainment by working with the universities, ABOR has collaborated with more than 60 community, business, philanthropic, and education organizations to create Achieve60AZ. Achieve60AZ's goal is to increase Arizona's educational attainment rate for those 25 and older to 60 percent by 2030 through public awareness campaigns, building support for improving college entry and completion and adult education and training, and identifying and closing skills gaps to better prepare the State's workforce for the future.

could take to increase educational attainment would be to implement more selective undergraduate admissions standards at their colleges and universities. For example, the Utah State Auditor recommended that the University of Utah implement more selective admissions requirements to increase its graduation rate.[2] However, ABOR stated that it believes implementing more selective admissions standards at the State's universities would be inconsistent with its mission to ensure access for Arizona residents to a university education. Instead, to increase Arizona's educational attainment, ABOR worked with the universities to establish the following student retention and graduation goals for each university, with specific annual targets for each year through 2025:

- **Freshman retention rate—**The percentage of first-time, full-time, degree-seeking undergraduate students who enrolled at the university in the fall semester of their first year and who remained enrolled in that institution the following fall semester.[3]

- **6-year graduation rate—**The percentage of first-time, full-time, degree-seeking undergraduate students who enrolled at the university and graduated with a bachelor's degree within 6 years.[3]

- **Bachelor's degrees awarded to all students—**The total number of bachelor's degrees awarded by the university.

- **Bachelor's degrees awarded to Arizona community college transfer students—**The total number of Arizona community college students who transferred to the university and graduated with a bachelor's degree within 4 years of transferring.

Therefore, as of February 2018, each university has four student retention and graduation goals to achieve by 2025 (see Chapter 1, page 6, for each university's specific student retention and graduation goals and additional information about the universities' performance on these goals).

According to ABOR staff, each university developed its goals with assistance from ABOR and projected where its performance would need to be each year to help achieve these goals. University staff indicated that they considered various factors when developing their goals, including historical performance, benchmarking against peer universities in other states, enrollment projections, and how the university's financial model and funding will affect its organizational capacity to achieve its goals.

ABOR monitors and oversees progress toward increasing the State's educational attainment in several ways, including:

- **University Operational and Financial Reviews (OFR)—**ASU, NAU, and UA are each required to annually update ABOR on their progress toward meeting their student retention and graduation goals through an annual OFR. Each university's OFR consists of a written report that includes several components related to the university's student retention and graduation goals, including data on the university's progress toward achieving these goals; data on operational and financial activities relevant to these goals, such as educational expenses by academic degree; and descriptions of the specific efforts each university has implemented and/ or plans to implement to meet its student retention and graduation goals. Each university presents its OFR to ABOR as part of ABOR's public meetings.

- **Analyzing and compiling educational attainment data—**ABOR staff analyze and compile data related to state-wide educational attainment, such as the number of students who have transferred from Arizona's

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[2]   State of Utah Office of the Legislative Auditor General. (2011). *A performance audit of higher education graduation rates and excess hours*. Salt Lake City, UT.

[3]   The freshman retention and 6-year graduation rates for first-time, full-time, degree-seeking students are nation-wide standards that the National Center for Education Statistics collects as part of a survey of all postsecondary institutions that participate in Title IV federal student financial assistance programs. These students are defined as those who have enrolled in 12 or more credit hours at the undergraduate level and who have not previously attended another college or university prior to attending an institution. Additionally, 20 USC. §1092(a)(1)(L) requires bachelor's-degree-granting colleges and universities to report the proportion of full-time, degree-seeking students who graduate within 150 percent of the normal time to completion. For 4-year colleges or universities, this would be the proportion of students who graduate with a bachelor's degree within 6 years. According to ABOR staff, the 6-year graduation rate is the best available measure used nationally for higher education.

community colleges and earned bachelor's degrees at one of the universities, the number of bachelor's degrees awarded by academic major at the universities, and the wages of graduates from the universities.

ABOR and the State's universities' focus on improving student retention and graduation rates is similar to other universities' strategic focus. Specifically, auditors reviewed the strategic plans for two peer institutions identified for each of the State's universities and determined that each of these peer institutions had strategic plans that included a focus on improving student retention and graduation rates (see Appendix A, page a-1, for more information on the selection of peer institutions for ASU, NAU, and UA). For example, the University of Iowa—which is a peer university for both ASU and UA—has a strategic plan that focuses on improving retention and graduation rates for undergraduate students, including first-generation, underrepresented, and nontraditional students.

Increasing educational attainment may benefit Arizona and the State's universities

Increasing educational attainment in Arizona may benefit both the State and the universities in various areas, including:

- **Increased economic benefits**—Increasing the percentage of Arizona's workforce with a bachelor's degree could have economic benefits for Arizona and its citizens. Specifically, increased earnings for Arizona citizens may boost consumer spending, which can benefit the State's entire economy.[4] Several studies note that college graduates generally have higher earnings than those with little or no college education. For example, ABOR's 2017 Annual Report on Wages reported that, according to the U.S. Census Bureau's 2016 American Community Survey, the median earnings for an Arizona resident with a bachelor's degree were approximately $50,500.[5] By contrast, the median earnings for an Arizona resident with some college but no bachelor's degree and for an Arizona high school graduate were approximately $34,250 and $27,700, respectively. Similarly, a study from the American Institutes for Research suggests that these differences in earnings accrue over time to the extent that a college graduate's lifetime earnings can exceed those of a high school graduate by as much as half a million dollars.[6] Further, according to ASU's Productivity and Prosperity Project, a more educated workforce leads to increased productivity, or production per capita, due to workers sharing knowledge and skills, which can translate into higher earnings for all workers.[7,8]

- **Higher government revenues**—An increase in earnings for college graduates can result in higher government revenues. For example, ASU's Productivity and Prosperity Project reported that individuals who experience an increase in earnings will pay more income taxes and will likely use their extra earnings to make more purchases that are subject to sales tax, ultimately resulting in higher state tax revenues.[9] ASU's Productivity and Prosperity Project estimated that increasing the percentage of Arizona's workforce with a bachelor's degree by one percentage point between 2009 and 2013 would have increased State General Fund revenues by $61.5 million over those 5 years. In addition, the Lumina Foundation, which is an independent foundation focused on improving postsecondary education, reported that individuals with a bachelor's degree or higher have a higher net contribution to government services.[10] Specifically, these

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[4] Hoffman, D., & Rex, T. (2016). *The educational attainment of the workforce*. Tempe, AZ: Arizona State University, Office of the University Economist.

[5] Arizona Board of Regents. (2017). *2017 annual report on wages earned by Arizona university system graduates*. Phoenix, AZ.

[6] Schneider, M., & Yin, L. (2011). *The high cost of low graduation rates: How much does dropping out of college really cost?* Washington, DC: American Institutes for Research.

[7] Hoffman, D., & Rex, T. (2015). *The economic impact of raising the educational attainment of Arizona's workforce*. Tempe, AZ: Arizona State University, Office of the University Economist.

[8] The Productivity and Prosperity Project is an initiative ASU sponsors that focuses on the State of Arizona's economic competitiveness by researching topics such as Arizonan's educational attainment.

[9] Hoffman & Rex, 2015.

[10] Trostel, P. (2015). *It's not just the money: The benefits of college education to individuals and to society*. Indianapolis, IN: The Lumina Foundation.

individuals pay more in lifetime taxes, on average, than they receive in direct financial benefits from public programs such as Medicare, public assistance, and corrections.

- **Increased personal benefits—**Studies have documented a significant relationship between education and personal well-being. For example, the Lumina Foundation reported that those with a bachelor's degree are more likely than those without a bachelor's degree to report their health in very good or excellent condition, are less likely to be in prison or jail, and are more likely to have a retirement plan through employment.[11] Additionally, some research indicates that attaining a college degree may make an individual more likely to volunteer, donate to charities and service organizations, and vote in local and national elections.[12]

- **Higher tuition revenue—**Increasing the retention rate for first-time, full-time freshman students may also increase the amount of tuition revenue for the State's universities. For example, based on auditors' analysis, increasing the retention rate for both in-state and out-of-state freshman students by one percentage point could have increased gross tuition revenue by an estimated $1.3 million for ASU, $656,500 for NAU, and $1.5 million for UA in fiscal year 2017.[13,14]

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[11] Trostel, 2015.

[12] Trostel, 2015.

[13] Auditors calculated the additional tuition revenue that each university could gain by increasing the number of in-state and out-of-state freshman students who returned for their second year in fiscal year 2017 by 1 percentage point each. This estimate is for tuition only and does not include other sources of revenue, such as room and board or student fees.

[14] The ASU estimate is based on ASU's Tempe campus.

Universities have established goals and designed numerous strategies to increase student retention and graduation rates

The State's universities and the Arizona Board of Regents (ABOR) have established goals to increase student retention and graduation rates and designed strategies that are aligned with best practices to achieve these goals. Each of the universities established student retention and graduation goals to meet by 2025. Although literature identifies several common obstacles that may prevent students from staying in school and completing their bachelor's degrees, the universities have implemented strategies consistent with best practices to address these common obstacles. However, as discussed in Chapters 2 and 3 of this report (see pages 11 through 27), auditors have identified some enhancements the universities can make in evaluating their student retention and graduation strategies and strategic plans.

Universities have established student retention and graduation goals

As discussed in the Introduction (see pages 1 through 4), each of the State's universities—Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA)—have established student retention and graduation goals to meet by 2025 in four areas: freshman retention rate, 6-year graduation rate, number of bachelor's degrees awarded to all students, and number of bachelor's degrees awarded to Arizona community college transfer students. According to ABOR staff, these goals were developed to be aspirational and challenging but also achievable.

Table 1 on page 6 shows each university's 2025 goals and each university's actual performance in each goal area as of fiscal year 2017. For example, ASU's 2025 goal for its freshmen retention rate is 90 percent, and in fiscal year 2017, ASU's freshman retention rate was 83.8 percent. Meanwhile, NAU's 2025 goal for its 6-year graduation rate is 57.5 percent, and in fiscal year 2017, NAU's 6-year graduation rate was 53.3 percent. Finally, UA's 2025 6-year graduation rate goal is 75 percent, and in fiscal year 2017, its 6-year graduation rate was 59.9 percent. As illustrated by Table 1, the universities are relatively close to meeting some of their 2025 goals, while they need to make substantial progress to meet other goals.

Universities have developed strategies to help address common obstacles to student retention and graduation

Many students attending the universities face obstacles that could prevent them from staying in school and graduating in a timely manner, and the universities have designed strategies that are consistent with literature that auditors reviewed to help students overcome these obstacles (see Bibliography in Appendix B, pages b-1 through b-4, for the full list of literature auditors reviewed to identify strategies). These obstacles include academic, financial, or social obstacles. Additionally, literature indicates that low-income, first-generation, transfer, and minority students are more likely to face multiple academic, financial, and social obstacles to staying in school and graduating in a timely manner. The universities enroll large numbers of students in these four groups. For example:

Table 1

Each university's 2025 student retention and graduation goals compared to actual rates/amounts in fiscal year 2017

	Freshman retention rate		6-year graduation rate		Bachelor's degrees awarded to all students		Bachelor's degrees awarded to AZ community college transfer students[1]	
	2025 Goal	2017 Actual	2025 Goal	2017 Actual	2025 Goal	2017 Actual	2025 Goal	2016 Actual
ASU	90%	83.8%	75.0%	67.0%	21,430	16,450	5,346	4,629
NAU	80%	75.5%	57.5%	53.3%	6,930	5,901	2,500	1,752
UA	91%	80.5%	75.0%	59.9%	11,665	6,947	1,703	1,165

[1] As of November 2017, ABOR data for bachelor's degrees awarded to Arizona community college transfer students was not yet available for fiscal year 2017. As a result, auditors utilized fiscal year 2016 data for these goals.

Source: Auditor General staff review of ASU's, NAU's, and UA's 2016-2017 operational and financial review background reports and historical ABOR data obtained in September 2017.

- In fiscal year 2016, approximately 39 percent of degree-seeking undergraduate students at the universities were low-income students who received federal Pell Grants.[15,16]

- In fiscal year 2017, first-generation students made up at least 35 percent, 42 percent, and 13 percent of all undergraduate students at ASU, NAU, and UA, respectively.[17]

- In the Fall 2017 semester, transfer students comprised approximately 45 percent, 36 percent, and 26 percent of all undergraduate students who were enrolled at ASU, NAU, and UA, respectively.[18]

- In the Fall 2016 semester, at least 38 percent of degree-seeking undergraduates at the universities were minority students.[19]

To help achieve their 2025 student retention and graduation goals, ASU, NAU, and UA have designed numerous strategies consistent with those identified in literature to help students overcome common academic, financial, and social obstacles. Specifically:

- **Helping students overcome academic obstacles—**Students may face several academic obstacles that can prevent them from staying in school and completing their bachelor's degrees in a timely manner.[20] Specifically, some students may be underprepared for college-level courses, which may either delay the time it takes them to complete their bachelor's degrees or lead them to drop out. For example, UA data indicates that 17 percent of students who withdrew from the university in fall 2016 did so for academic reasons. Additionally, students may be required to take remedial courses to prepare them for college-level courses.

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[15] Arizona Board of Regents (2016). *Financial aid report 2016*. Phoenix, AZ.

[16] Pell Grants are federal grants that are based on a student's financial need and that do not need to be repaid. In fiscal year 2016, most Pell Grants were awarded to students with a family income of less than $50,000 nationwide.

[17] Information provided by ASU, NAU, and UA.

[18] Information provided by ASU, NAU, and UA.

[19] Auditor General staff analysis of Arizona State University at Tempe Campus Common Data Set 2016-2017, Northern Arizona University Common Data Set 2016-2017, and University of Arizona Draft Common Data Set 2016-2017.

[20] See e.g., Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low-income, first-generation students*. Washington, DC: The Pell Institute; Monaghan, D. B., & Attewell, P. (2015). The community college route to the bachelor's degree. *Educational Evaluation and Policy Analysis*, 37(1), 70-91; Xu, D., Jaggars, S. S., & Fletcher, J. (2016). *How and why does two-year college entry influence baccalaureate aspirants' academic and labor market outcomes?* New York, NY: Columbia University, Community College Research Center, Center for Analysis of Postsecondary Education and Employment. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

However, students often do not earn credits for remedial courses that count toward degree completion, which can prolong their graduation time. Additionally, some transfer students may take longer to graduate than they planned because their course credits from another institution did not transfer.[21] A 2017 U.S. Government Accountability Office report estimated that, nationwide, for students who transferred between colleges between 2004 and 2009, an average of 43 percent of their credits did not transfer to their new institution.[22] Finally, students may be uncertain about which courses to take, when to take them, and in what order to complete their degree programs, and some courses may not always be available when students need to take them to graduate within 4 years.

Literature on improving students' academic performance identifies several best practice strategies that universities can implement to help students overcome these academic obstacles, such as:

○ **Developing degree maps—**Institutions can develop degree maps that provide students with the sequence of courses they will need to take, including general education courses and courses required to complete their degree programs, often within 4 years of enrollment.[23] All three universities have developed online resources that help students identify which classes to take, when, and in what order to graduate within 4 years. In addition, these systems allow students to track their progress toward completing their degrees.

○ **Identifying and modifying difficult courses—**Universities can reduce academic obstacles by identifying difficult courses and modifying them, such as by emphasizing interactive approaches to learning and/or providing students in those courses with additional support, including peer-to-peer tutoring and supplemental instruction.[24] Accordingly, each university has developed strategies for modifying and/or helping students who may be struggling in courses the universities have identified as relatively more difficult than others. For example:

  • ASU redesigned some of its introductory math courses that had relatively low success rates as adaptive learning courses, which use computer software to identify areas where students are struggling and provide them with additional, individualized instruction and support.[25] In these courses, students complete lessons using computer software, and ASU reported that students most often receive assistance from an instructor and instructional assistants. Based on students' responses to questions answered during the lessons, the computer software provides these students with additional instruction to help them learn concepts that are necessary to succeed in the courses.

  • UA developed a series of weekly, out-of-class study sessions for students taking historically challenging courses.[26] The study sessions are led by trained UA students who have previously excelled in the courses and bring students together to discuss course concepts, compare notes, and share study

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[21] See e.g., Preston, D. C. (2017). *Untold barriers for black students in higher education: Placing race at the center of developmental education*. Atlanta, GA: Southern Education Foundation. Miller, A., Erisman, W., Bermeo, A., & Smith, C. T. (2011). *Sealing the gaps: Supporting low-income, first-generation students at four-year institutions in Texas post-transfer*. Washington, DC: The Pell Institute for the Study of Opportunity in Higher Education. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[22] U.S. Government Accountability Office. (2017). *Students need more information to help reduce challenges in transferring college credits*. Washington, DC.

[23] See e.g., Wyner, J., Deane, K. C., Jenkins, D., & Fink, J. (2016). *The transfer playbook: Essential practices for two- and four-year colleges*. Washington, DC: The Aspen Institute; Bailey, T. (2017). Community colleges and student success: Models for comprehensive reform. *Educause Review*, 52(3), 32-42; Miller et al., 2011. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[24] See e.g., Engle & Tinto, 2008; Cunningham, A., Cooper, M. A., Leegwater, L., & Smith, E. (2012). *Supporting first-generation college students through classroom-based practices*. Washington, DC: Institute for Higher Education Policy; Bettinger, E. P., & Baker, R. (2014). The effects of student coaching in college: An evaluation of a randomized experiment in student mentoring. *Educational Evaluation and Policy Analysis*, 36(1), 3-19. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[25] ASU defines a course's success rate as the percent of students initially enrolled in the course who received an A, B, or C grade upon completion. Thus, a course with a low success rate would have a higher number of students who either received a D or F grade or withdrew from the course.

[26] According to UA, historically challenging courses are those in which approximately 25 percent of enrolled students receive a D or F grade or withdraw from the course.

strategies. UA reported that it encourages its faculty to promote the study sessions during course lectures and in course syllabi.

- NAU redesigned some of its introductory math courses in which students have historically struggled to include both in-class instruction and interactive instructional software. In these courses, students complete coursework using computer software that assesses their performance and provides them with individualized instruction and support to help them learn concepts that are necessary to succeed in the courses. These courses are held in a math center with access to course instructors, tutors, and software help tools.

- **Developing transfer agreements**—Developing transfer agreements with community colleges can help transfer students complete their degrees.[27] Transfer agreements between community colleges and a university detail how courses completed at a community college will satisfy course requirements at a university. Transfer agreements may enable more credits to transfer between a community college and a university. Therefore, transfer students may be able to graduate with their bachelor's degrees faster because of these transfer agreements. Consistent with this approach, ABOR and the State's community colleges jointly operate AZTransfer, an initiative that helps coordinate how courses and degree programs in Arizona's community colleges can apply to bachelor's degrees offered at the universities. In addition, all three universities have developed transfer agreements with Arizona community colleges and published course equivalency guides on their respective websites to help transfer students understand how specific courses completed at a community college will transfer to their universities.

- **Helping students overcome financial obstacles**—Students may face varied financial obstacles that may prevent them from staying in school and completing their bachelor's degrees in a timely manner.[28] For example, low-income students may have difficulties paying for expenses such as childcare and housing that are not always covered by financial aid. Further, some students may need to work while attending school because they have difficulty paying for college while also paying for housing, food, healthcare, and transportation.

Literature identifies several approaches that universities can take to help students overcome financial obstacles, including:

- **Financial literacy counseling**—Financial literacy counseling and educating students about nontuition costs of college, such as housing, mandatory fees, and textbooks, can provide students with a clearer understanding of how much their education costs and how to budget for it.[29] For example, all three state universities provide a financial literacy counseling program called Earn to Learn, which encourages students to save for college by providing matching monies that qualified students can use for approved expenses such as tuition and books.[30] In return for receiving the matching monies, participating students must attend personal finance training and/or in-person workshops each year. Additionally, ASU provides students with access to an electronic, web-based financial literacy application that helps students track their student loans and learn more about money management by using interactive activities, videos, articles, and calculators. Similarly, NAU provides students with access to electronic, web-based financial

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[27] Turk, J. M., & Chen, W. (2017). *Improving the odds: An empirical look at the factors that influence upward transfer*. Washington, DC: American Council on Education, Center for Policy Research and Strategy

[28] See e.g. Chaplot, P., Cooper, D., Johnstone, R., & Karandjeff, K. (2015). *Beyond financial aid: How colleges can strengthen the financial stability of low-income students and improve student outcomes*. Indianapolis, IN: The Lumina Foundation; Gualt, B., Reichlin, L., & Román, S. (2013). *College affordability for low-income adults: Improving returns on investment for families and society*. Washington, DC: Institute for Women's Policy Research; Spradlin, T. E., Burroughs, N. A., Rutkowski, D. J., & Lang, J. R. (2010). *College persistence and completion strategies: Opportunities for scaling up*. Bloomington, IN: Indiana University Bloomington, Center for Evaluation & Education Policy. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[29] Sáenz, V. B., & Ponjuan, L. (2011). *Men of color: Ensuring academic success of Latino males in higher education*. Washington, DC: The Institute for Higher Education Policy; Engle & Tinto, 2008.

[30] To qualify for Earn to Learn, prospective students must be Arizona residents, plan to attend one of the State's universities full-time, and be eligible for federal student aid with a household income that is less than 200 percent of the federal poverty level.

education programs that offer interactive courses on various topics such as financial aid, student loan management, and personal finance.

    ○ **Targeted financial assistance to high-need students—**Literature suggests that universities should provide targeted financial aid to students that goes beyond tuition assistance. ASU, NAU, and UA all have financial aid programs that provide assistance from numerous sources including the federal government, the university itself, the State, and private sources. Financial aid typically provides students with funds to assist in covering tuition, but low-income students may need additional financial assistance to help pay for housing, food, transportation, healthcare, and child care. Additionally, all three universities have developed programs to provide financial support for financially needy students beyond providing tuition assistance. For example, each university provides financial support to help some students pay for childcare, which can help these students concentrate on their studies. Finally, ASU, NAU, and UA provide low-income, Arizona-resident students with additional financial assistance that may cover on-campus housing costs as well as tuition and fees.

• **Helping students overcome social obstacles—**According to the Pell Institute, numerous social experiences, such as studying in groups, interacting with faculty and other students, participating in extracurricular activities, and using campus support services, can help promote students' staying in school and completing their degrees.[31] However, literature suggests that some students—particularly community college transfer students, first-generation students, and minority students—may feel isolated or lack a sense of belonging at college.[32] For example, some students may have dependent care obligations, such as caring for children or other family members, that may limit their ability to engage in campus activities.

Literature identifies several approaches that universities can take to help students overcome these social obstacles, including:

    ○ **Residential learning communities—**Linking academic and social supports may help address some social obstacles.[33] One such strategy for doing so is residential learning communities, where students who take the same classes reside on-campus in the same residence halls. All three universities have developed strategies to promote students' social integration into campus life by establishing residential learning communities. These communities group students together based on academic major and/ or academic area of interest, as well as common extracurricular activities such as campus leadership organizations.[34] Literature suggests that residential learning communities can help foster and strengthen students' social networks, sense of connection to the college or university, self-confidence, and academic motivation.[35]

    ○ **Peer and staff social supports—**Other social supports may include being involved in student organizations, interacting with faculty, and participating in peer mentoring programs, all of which can help increase student engagement on campus. All three universities have advising programs where university staff provide advice and guidance to students to help them navigate their degree programs. Additionally, ASU uses a web-based application to connect students to other students also using the application who have successfully navigated similar experiences such as struggling in a course or feeling like they do not fit in at the university, and who can offer advice and encouragement. For example, a student might

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[31] Engle & Tinto, 2008.

[32] See e.g., Wyner et al., 2016; Turk & Chen, 2017; Monaghan & Attewell, 2015. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[33] See e.g., Milem, J. F., Salazar, K. G., & Bryan, W. P. (2016). *Arizona minority student progress report, sixth edition*. Phoenix, AZ: Arizona Minority Education Policy Analysis Center; Sáenz & Ponjuan, 2011; Cunningham et al., 2012. For additional sources used, please see Bibliography in Appendix B, pages b-1 through b-4.

[34] Participation in these communities is voluntary, and students who do not live on campus do not participate.

[35] Patterson, D. A., Butler-Barnes, S. T., & Van Zile-Tamsen, C. (2015). *American Indian/Alaskan Native college dropout: Recommendations for increasing retention and graduation*. St. Louis, MO: Washington University in St. Louis, Center for Social Development; Cunningham et al., 2012; Spradlin et al., 2010.

receive a poor midterm grade and could use the application to connect with and receive advice and encouragement from other students who overcame a similar experience.

Additional improvements may help universities meet student retention and graduation goals

Although the universities have implemented strategies consistent with literature to address common obstacles to staying in school and graduating in a timely manner, the universities can enhance their implementation of these strategies in two areas. Specifically, the universities can more consistently evaluate their student retention and graduation strategies to better assess which strategies are working; to make appropriate changes to these strategies, including revising or eliminating strategies; and to allocate their limited resources to the most effective strategies (see Chapter 2, pages 11 through 17). Additionally, the universities can enhance their strategic plans to more effectively guide their staff, resources, and activities toward achieving their student retention and graduation goals (see Chapter 3, pages 19 through 27).

Universities should establish guidance for more consistently evaluating strategies to achieve student retention and graduation goals

The State's universities—Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA)—should take steps to more consistently evaluate the strategies they have implemented to help students overcome common obstacles that could prevent them from staying in school and graduating in a timely manner, which in turn can help the universities achieve their student retention and graduation goals (see textbox for information on the universities' student retention and graduation goals). As discussed in Chapter 1 (see pages 5 through 10), the universities have implemented various strategies designed to address common obstacles students may face that could prevent them from staying in school and graduating in a timely manner. Evaluating these strategies can provide the universities with important information on whether a strategy effectively addresses a common obstacle, what additional actions a university could take to improve a strategy and better help students, and how to allocate limited resources to the most effective strategies. Although the universities evaluated the nine student retention and graduation strategies auditors reviewed, some evaluations did not address important evaluation components, which may have led to the universities lacking information about these strategies' effectiveness. To help ensure more consistent strategy evaluations, the universities should develop and implement formal university-wide approaches for evaluating their strategies that align with program evaluation best practices.

> ### Universities' student retention and graduation goals
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> As discussed in the Introduction (see pages 1 through 2), the State's universities set goals to reach by 2025 in the following four areas:
>
> - Freshman retention rate
> - 6-year graduation rate
> - Number of bachelor's degrees awarded to all students
> - Number of bachelor's degrees awarded to Arizona community college transfer students
>
> Source: Auditor General staff review of ASU's, NAU's, and UA's 2016-2017 operational and financial review background reports.

Program evaluation can enhance student retention and graduation strategies

A program evaluation is a study of how well a program is working and can help guide a university's implementation and revision of its student retention and graduation strategies (see textbox for program evaluation definition). Specifically, according to the U.S. Government Accountability Office (U.S. GAO), evaluation results may be used to assess a program's effectiveness, identify how to improve performance, guide resource allocation, or provide external accountability for the use of public resources.[36] Similarly, an article

> **Program evaluation**—A study designed to answer specific questions about whether a program is working as intended and why.
>
> Source: U.S. Government Accountability Office. (2012). Designing evaluations. Washington, DC.

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[36] U.S. Government Accountability Office. (2012). *Designing evaluations*. Washington, DC.

published by the Association of American Colleges and Universities notes that evaluations can guide resource allocation decisions by providing universities with information on how to best spend their limited resources.[37] For example, a university that has implemented a tutoring program to help students who are struggling in certain courses could evaluate the tutoring program to determine whether students experienced improved academic performance following participation, actions the university could take to improve or revise the program, whether the resources devoted to the tutoring program were appropriate based on the results achieved, and whether it should expand the tutoring program's capacity.

Universities' evaluations of student retention and graduation strategies did not always address important evaluation components

Although the universities have completed some evaluations of their student retention and graduation strategies, these evaluations have not consistently addressed two important evaluation components, and as a result, the universities may not have identified important information about these strategies' effectiveness in helping them achieve their student retention and graduation goals. As discussed in Chapter 1 (see pages 5 through 10), the universities have implemented dozens of strategies to help students overcome common academic, financial, and social obstacles that may prevent them from staying in school and graduating in a timely manner. Auditors reviewed the evaluations of nine retention and graduation strategies—three from each university—that the universities had implemented to address the needs of first-time, full-time students and transfer students, which are the two primary student groups targeted in their student retention and graduation goals.[38] Auditors found that the universities had conducted evaluations of each of the nine reviewed strategies (see Appendix C, pages c-1 through c-4 for a summary of these evaluations). However, the universities' evaluations did not consistently address two evaluation components: assessing whether the strategy achieved its purpose of helping students overcome the common obstacle the strategy was designed to address and accounting for self-selection bias (see textbox on page 13 for more information on these evaluation components). Specifically:

- **Four of the nine evaluations addressed the two evaluation components, which provided the university with information on the strategy's effectiveness—**Specifically, four of the nine evaluations auditors reviewed assessed whether the strategy achieved its purpose and accounted for self-selection bias, when appropriate. For example:

  - **Evaluation assessed whether the strategy achieved its purpose—**As discussed in Chapter 1 (see page 7), in fiscal year 2012, ASU identified three introductory math courses that had relatively low success rates because of students' academic struggles in the courses and redesigned them as adaptive courses in an effort to improve success rates in the courses.[39] Adaptive courses use computer software to identify areas where students are struggling and to provide them with additional, individualized instruction and support. ASU's evaluation focused on whether this change improved the success rates of students taking the courses, which is an outcome that is directly related to the purpose of this strategy, and made additional changes to these courses based on its evaluations. ASU's evaluation of its adaptive courses after they were redesigned identified mixed results. Specifically, ASU's evaluation indicated that after these courses were redesigned as adaptive courses, one course's success rate increased, another course experienced a decrease in its success rate, and the success rate for the third course remained unchanged. However, through this evaluation, ASU also identified and addressed areas for improvement in the adaptive courses, including enhancing instructor mentoring and training, consolidating the three math courses into two courses, and updating its course software. After these changes were implemented, ASU again evaluated these courses and found improved student success rates in both adaptive math

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[37] Fairris, D. (2012). Using program evaluation to enhance student success. *Liberal Education*, 98(1), 52-55.

[38] Auditors reviewed the evaluations of the following strategies: Adaptive math courses, GetSet, and transfer student orientation at ASU; degree planning tool, summer programs, and transfer student tool at NAU; and early progress grades, increase participation in first-year programs, and the Transfer Student Center at UA. See Appendix C, pages c-1 through c-4, for more information about these strategies.

[39] ASU defines the success rate of a course as the percent of students initially enrolled in the course who received an A, B, or C grade upon completion. Thus, a course with a low success rate would have a high number of students who either received a D or F grade or withdrew from the course.

Evaluations of student retention and graduation strategies should address the following two components:

Assess whether the strategy achieved its purpose—Evaluations should assess outcome(s) directly related to the strategies' purpose. Specifically, each evaluation of a strategy should examine whether the strategy was effective in helping students overcome the common obstacle the strategy was designed to address. Because each university has multiple strategies designed to help students overcome obstacles to staying in school and graduating in a timely manner and students may participate in multiple strategies simultaneously, it may be difficult to determine which strategies were most effective or if any of the strategies had a minimal or negative effect on students staying in school and graduating in a timely manner. Additionally, it may take several years to determine whether a strategy—such as one targeted at first-year students—improves graduation rates. Therefore, consistent with program-evaluation best practices, an evaluation should assess whether a strategy achieved its intended outcomes associated with the common obstacle the strategy was designed to change or impact. In cases where the outcomes associated with the strategy's common obstacle are more difficult to assess, such as a student's motivation or feeling of social belonging, the evaluation should consider other changes that could be expected from participation in the strategy, such as changes in grade point average (GPA) or involvement in social activities offered on campus.

Account for self-selection bias—Evaluations should account for the potential influence of self-selection bias on the strategies' outcomes. Self-selection bias occurs when participants' likelihood of participating in a program or strategy is correlated with the intended outcome of that strategy. In other words, because the universities' strategies to help students overcome common obstacles are often voluntary, the students who choose to participate in these strategies may also be those students who are more likely to succeed and are, thus, more likely to stay in school and graduate on time. When an evaluation does not account for the potential effects of self-selection bias, it may incorrectly show that the strategy is having a positive effect when it could have no effect or a negative effect when the self-selection bias is considered. One way to address self-selection bias is through the use of statistical methods. For the strategies auditors reviewed, all three universities either used or reported that they planned to use statistical methods for addressing self-selection bias, where appropriate (see page 14, footnote 40, for information on NAU's use of statistical methods for addressing self-selection bias, and Appendix C, page c-3, footnote 61, for information on UA's use of statistical methods for addressing self-selection bias).

Source: Auditor General staff analysis of U.S. Government Accountability Office, 2012; National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Division of Nutrition, Physical Activity, and Obesity. (2011). *Developing an effective evaluation plan*. Atlanta, GA: Centers for Disease Control and Prevention.

courses. Because all students taking these introductory math courses were required to take the courses as adaptive courses, the evaluation did not need to address self-selection bias because participation in the strategy was not voluntary.

○ **Evaluation assessed whether the strategy achieved its purpose and accounted for self-selection bias—**NAU's Successful Transition and Academic Readiness (STAR) program is a summer program that is intended to help incoming freshman students make a successful academic and social transition to the university. According to NAU, STAR participants should develop their academic skills while living on campus and learning about university resources, as well as build a network of peers, to help them prepare for a successful freshman year. Before beginning their freshman year, STAR participants live on the NAU campus, take two summer courses that help them develop college-level written and verbal communication skills, engage in social activities to establish supportive relationships with peers, and attend peer-led workshops that reinforce and support the content in their two summer courses.

NAU evaluated the STAR program's effectiveness in helping students transition to the university and used this information to expand the program. Specifically, the evaluation found that STAR program participants had higher freshman retention rates, earned more credit hours in the first semester, and had higher rates of progression toward sophomore status by the end of their first year based on courses

completed and credit hours earned at that time compared to nonparticipants. Additionally, because program participation was voluntary, NAU's evaluation included methods for accounting for self-selection bias. These methods consisted of examining multiple academic outcomes for STAR participants and comparing participants' outcomes to those of a group of students who did not participate in the program but had similar characteristics to program participants.[40] Based on the results of this evaluation, NAU developed two additional summer programs that target specific student populations that have historically not stayed in school and have graduated at lower rates. According to NAU staff, NAU will similarly evaluate the new summer programs.

Because these evaluations assessed outcomes related to the common obstacle the strategy was designed to address and accounted for self-selection bias, they provided the universities with information on each strategy's potential effectiveness in helping them achieve their student retention and graduation goals. As a result, the universities had important information for determining whether these strategies should be modified, expanded, or discontinued in favor of other more effective strategies. For the two additional evaluations that addressed both components, see ASU's evaluation of its transfer student orientation and UA's evaluation of its early progress grades in Appendix C, pages c-2 and c-3.

- **Remaining five evaluations did not address one or both of the evaluation components, which may have led to the university lacking information on the strategy's potential effectiveness—**Five of the evaluations auditors reviewed either did not assess whether the strategy achieved its purpose or did not account for self-selection bias. For example:

  ○ **Evaluation did not assess whether the strategy achieved its purpose of helping students overcome common obstacles—**One of the purposes of UA's Transfer Student Center (Center) is to connect transfer students to campus support services and to offer them academic and social supports through activities such as mentoring and social events.[41] Additionally, the Center offers services for prospective transfer students such as helping students identify how their courses will transfer to UA, referred to as course articulation.[42] Although UA's evaluation provided the university with useful information about the Center, such as the total number of student visits, how many students participated in social activities the Center hosted, and the number of course equivalencies developed for course articulation, it did not provide information on the effectiveness of the services it provided. Specifically, the evaluation did not include an assessment of whether the services the Center provided helped students overcome common academic and social obstacles, such as struggling to pass initial courses or not having a sense of belonging. For example, UA administers a survey to all transfer students to assess their experience transferring to the university and use of the Center. However, UA could expand its analysis of the survey results to include an assessment of whether students who used the Center reported a greater sense of belonging at the university. Additionally, questions could be added to the survey to assess whether the Center's numerous services helped students overcome academic difficulties and/or better navigate UA's policies, procedures, and services.[43]

  ○ **Evaluation did not account for self-selection bias that may have influenced outcomes—**ASU's GetSet is a web-based application that promotes motivation and resiliency in students by creating a peer-mentoring network to connect them to other students who successfully navigated similar challenges and who can offer advice and encouragement. For example, a student might receive a poor midterm

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[40] The control group included students with similar characteristics, such as high school grade point average (GPA) and participation in other student success initiatives at NAU. Specifically, NAU's evaluation used a statistical method called entropy balancing to ensure that the characteristics of the control group reflected those of the students who participated in this program.

[41] Campus support services include academic support services such as tutoring and writing workshops and social support services such as mentoring and student clubs and organizations.

[42] In addition to these student services, the Center performs administrative functions related to the transfer process such as developing transfer agreements with community colleges (see Chapter 1, page 8, for more information on transfer agreements).

[43] UA administers a survey to all transfer students to examine their sense of belonging at the university; satisfaction with the transition experience; students' ability to navigate the university's policies, procedures, and services with ease; and use of the Center.

grade and could use GetSet to obtain advice and encouragement from other students who overcame a similar experience. In fall 2016, ASU began incorporating GetSet into some assignments for its freshman experience courses.[44] Specifically, students had to complete short writing assignments in which they reflected on a topic covered in their freshman experience course, such as time management, and then were supposed to post these reflections to GetSet. Their classmates would then be able to read and comment on these reflections, which could help these students learn from and connect to peers with similar problems or experiences.

ASU evaluated GetSet by comparing the grade point averages (GPAs) for students in two groups: students who used the application in their freshman experience courses more than three times and students who used the application three times or less or whose freshman experience courses did not include the use of GetSet for assignments. The evaluation found that students who used GetSet more than three times had higher GPAs than those who used it less or did not use it at all. However, this evaluation did not account for the potential impact of self-selection bias in its results. Specifically, students in these courses who chose to complete their assignments as directed, including posting their reflections to GetSet, may have also been more likely to succeed. Therefore, these students may have had higher GPAs even without using GetSet. As a result, it was unclear if the increase in GPAs resulted from using GetSet three or more times or for other reasons among those students who completed their course assignments as directed. ASU reported that it plans to address self-selection bias using statistical methods when it evaluates GetSet results for the 2017-2018 school year, which will include enough students to allow for the use of its planned statistical method.

Without assessing whether each strategy achieved its purpose and/or accounting for self-selection bias, these evaluations may not have provided the universities with information on each strategy's effectiveness in helping them achieve their student retention and graduation goals. As a result, the universities may have lacked important information for determining whether these strategies should be modified, expanded, or discontinued in favor of other more effective strategies. For the three additional strategies that did not address one or both evaluation components, see Appendix C, pages c-1 through c-4.

Universities should establish guidance for consistently evaluating student retention and graduation strategies

The universities should take steps to more consistently evaluate their student retention and graduation strategies, including developing and implementing formal, university-wide approaches for evaluating their strategies that align with program evaluation best practices. Although each university has existing approaches for evaluating academic programs, the universities have not established formal, university-wide approaches for evaluating their student retention and graduation strategies, which may have contributed to the inconsistent evaluations of these strategies. By more consistently evaluating their strategies, the universities can better understand which strategies are effective in helping students overcome common obstacles that could prevent them from staying in school and graduating in a timely manner. Consequently, this information can help the universities achieve their student retention and graduation goals.

As of February 2018, ASU, NAU, and UA had begun taking steps toward developing university-wide approaches for evaluating their strategies. Specifically:

- ASU has created a group to develop protocols for the design of data, indicators, and strategies that are designed to increase the university's student retention and graduation rates. For example, ASU plans to create a website for institutional research findings and program findings that may help staff understand which strategies are under development and which strategies have been effective in helping students overcome common obstacles. According to ASU, this group consists of leaders and analysts from all areas of the

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[44] ASU's freshmen experience courses are designed to help freshman students transition to the university by covering topics such as how to academically succeed and the importance of academic integrity.

university who are responsible for implementing and evaluating strategies to improve the university's student retention and graduation rates.

- NAU has established a university-wide committee that is responsible for determining which student retention and graduation strategies will undergo evaluations by NAU's institutional assessment and research staff (see pages 13 through 14 for NAU's evaluation of the STAR program, which was conducted by NAU's institutional assessment and research staff). Additionally, NAU reported that this committee has begun developing guidance for evaluating student graduation and retention strategies which have not been selected for evaluation by NAU's institutional assessment and research staff.

- UA has begun exploring how to scale up its existing evaluation processes to develop a university-wide approach for evaluating its student retention and graduation strategies. For example, UA has developed resources and made available standards for evaluating student learning outcomes for its courses. Additionally, UA provides workshops and has an institute that instructs university staff on how to design and conduct various evaluations, including those that assess outcomes.

ASU, NAU, and UA should continue these efforts to develop university-wide approaches for evaluating student retention and graduation strategies. These approaches should include related policies, procedures, and/or guidance for evaluating their student retention and graduation strategies. In addition, their university-wide evaluation approaches should include guidance on planning the evaluation of each strategy before it is implemented. According to the U.S. GAO, planning an evaluation can enhance its quality, credibility, and usefulness and help ensure staff use their time and resources effectively.[45] Further, planning an evaluation before a strategy is implemented can help an entity determine what information, if any, should be collected prior to implementing a strategy to establish baseline measures in order to evaluate the effectiveness of that strategy at a later date.[46] Finally, consistent with program evaluation best practices from the U.S. GAO and the Centers for Disease Control and Prevention, ASU's, NAU's, and UA's evaluation approaches should include guidance on the following:

- Strategy descriptions that clarify the strategy's activities and desired short-term and long-term results, including an explanation of how the strategy is expected to achieve these results. Developing a strategy description can help ensure that the evaluation assesses outcome(s) directly related to the strategy's purpose. Additionally, incorporating short-term outcomes helps identify more immediate changes that will result from the strategy that can be assessed before the long-term benefits have had time to take place.[47]

- Questions the evaluation will answer. First, these questions should assess strategy implementation, which involves how and to what extent activities have been implemented as intended and whether they target appropriate populations or problems. Second, these questions should assess both short-term and long-term outcomes related to overcoming common obstacles to staying in school and graduating in a timely manner. These questions should also inform decisions about what data to collect and evaluate.

- Methods for answering the evaluation questions, including what information is needed to do so, how the information will be obtained, and how the information will be analyzed and interpreted. Additionally, strategies that involve voluntary participation should include methods for addressing the potential influence of self-selection bias, when applicable.

- Explanations for how evaluation results will be used, such as for decision making—including continuing, discontinuing, or making changes to the strategy—or to inform strategic planning decisions.

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[45] U.S. Government Accountability Office, 2012.

[46] Westat, J. F., Mark, M. M., Rog, D. J., Thomas, V., Frierson, H., Hood, S., Hughes, G., & Johnson, E. (2010). *The 2010 user-friendly handbook for project evaluation*. Arlington, VA: National Science Foundation.

[47] U.S. Government Accountability Office, 2012.

Recommendations

2.1. ASU, NAU, and UA should continue efforts to develop university-wide approaches for evaluating their student retention and graduation strategies. These approaches should include related policies, procedures, and/or guidance, for evaluating their student retention and graduation strategies. Their university-wide evaluation approaches should also include guidance on planning the evaluation of each strategy before it is implemented. In addition, these approaches should include guidance on the following:

- Strategy descriptions that clarify the strategy's activities and desired short-term and long-term results, including an explanation of how the strategy is expected to achieve these results;

- Questions the evaluation will answer, including questions for assessing strategy implementation and short-term outcomes and long-term outcomes related to overcoming common obstacles to staying in school and graduating in a timely manner;

- Methods for answering the evaluation questions, including what information is needed to do so, how the information will be obtained, and how the information will be analyzed and interpreted. Additionally, strategies that involve voluntary participation should include methods for addressing the potential influence of self-selection bias, when applicable; and

- Explanations for how evaluation results will be used.

Universities should improve strategic plans to help achieve student retention and graduation goals

Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA) should improve their strategic plans to help them achieve their student retention and graduation goals by 2025. Strategic planning can help the universities achieve these goals by guiding resource allocation, staff activities, and the implementation of strategies for addressing common obstacles that can prevent students from staying in school and graduating in a timely manner. The State's universities have worked with the Arizona Board of Regents (ABOR) to develop strategic plans and regularly update ABOR on their progress toward achieving their student retention and graduation goals. Although the universities' strategic plans include some components recommended by strategic-planning best practices, they should develop additional components and/or improve other components in their strategic plans to better align them with their student retention and graduation goals and strategic-planning best practices.

Strategic planning can help universities achieve student retention and graduation goals

Strategic planning can help guide the universities' efforts toward achieving their student retention and graduation goals by 2025 (see textbox for more information on the universities' student retention and graduation goals).

As discussed in Chapter 1 (see page 5), the universities' student retention and graduation goals were developed to be aspirational and challenging. According to the RAND Corporation, strategic planning offers higher education institutions several benefits to overcome the significant challenges they may face in achieving their diverse and ambitious goals, such as the universities' student retention and graduation goals.[48] For example, strategic planning can guide university staff activities and the allocation of resources at various levels of the organization. Additionally, strategic planning establishes a foundation for performance measurement by which university leaders can monitor progress toward goals and identify and remedy any issues that may prevent a university from reaching those goals.

Universities' student retention and graduation goals

As discussed in the Introduction (see pages 1 through 2), the State's universities set goals to reach by 2025 in the following four areas:

- Freshman retention rate
- 6-year graduation rate
- Number of bachelor's degrees awarded to all students
- Number of bachelor's degrees awarded to Arizona community college transfer students

Source: Auditor General staff review of ASU's, NAU's, and UA's 2016-2017 operational and financial review background reports.

Strategic planning can also help the universities improve their student retention and graduation rates by focusing their efforts on specific student populations that may be more likely to face obstacles to staying in school and graduating in a timely manner. Specifically, as discussed in Chapter 1 (see pages 5 through 10), literature identifies several common academic, social, and financial obstacles some students face that may prevent them

[48] Goldman, C. A., & Salem, H. (2015). *Getting the most out of university strategic planning: Essential guidance for success and obstacles to avoid*. Santa Monica, CA: RAND Corporation.

from staying in school and graduating in a timely manner, such as difficulties paying for expenses not covered by tuition assistance or being underprepared for college-level courses. Strategic planning can help the universities address common obstacles for certain student populations, which may in turn help them achieve their student retention and graduation goals. For example, a study conducted by the Aspen Institute and the Community College Research Center (CCRC) at Columbia University's Teachers College identified several obstacles community college transfer students may face, including university staff possibly holding biases about community college transfer students' ability to succeed.[49] To address these issues, the study recommended that universities prioritize community college transfer students' success as a core part of their missions, dedicate significant resources to support community college transfer students, and collect and share data on community college transfer student outcomes. Strategic planning can help universities communicate to university staff and students that improving community college transfer students' success is a university-wide priority, guide the allocation of resources to support strategies dedicated to helping community college transfer students, and facilitate the universities' monitoring of and reporting on the effectiveness of these strategies in improving outcomes for community college transfer students.

Universities have developed strategic plans but should further align them with student retention and graduation goals and best practices

The universities have worked with ABOR to establish strategic planning processes that help guide their efforts toward achieving their student retention and graduation goals (see textbox on page 19 for more information on the universities' student retention and graduation goals). Specifically, each university has developed a university-wide strategic plan and other strategic plans and related planning documents (strategic plans) focused on specific areas, including their efforts to achieve these goals. Additionally, the universities are required to annually update ABOR on their progress toward meeting their student retention and graduation goals through their Operational and Financial Reviews (OFR), which include information on the strategies the universities have implemented or are in the process of implementing to help them achieve their student retention and graduation goals (see Chapter 1, pages 5 through 10, for more information on the strategies the universities have implemented). As part of these OFRs, each university submits a written strategic plan or updates to a previously submitted strategic plan, which it further supplements with a university presentation during an ABOR meeting (see Introduction, page 2, for more information on the OFRs). These strategic plans and presentations include information on each university's progress toward achieving its student retention and graduation goals and the strategies implemented to achieve these goals.

The strategic plans the universities developed include several components strategic-planning best practices recommend, including mission and vision statements. Mission statements provide a brief, clear, comprehensive statement that explains an entity's purpose, while a vision statement provides a compelling image of an entity's desired future.[50] Additionally, the universities' strategic plans outline goals in several areas, including the universities' four student retention and graduation goals discussed previously. Consistent with best practices, the universities' student retention and graduation goals are aligned with the universities' mission and vision statements, address gaps between the universities' current and desired level of performance, encompass a relatively long time period, and are challenging but realistic and achievable.[51]

In addition to mission statements, vision statements, and goals, strategic-planning best practices identify three other components that should be included in a strategic plan—objectives, performance measures, and action

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[49] Wyner, J., Deane, K. C., Jenkins, D., & Fink, J. (2016). *The transfer playbook: Essential practices for two- and four-year colleges*. Washington, DC: The Aspen Institute.

[50] Office of Strategic Planning and Budgeting. (2011). *Managing for results handbook: Strategic planning guide for state agencies*. Phoenix, AZ: State of Arizona, Office of the Arizona Governor.

[51] See e.g., Office of Strategic Planning and Budgeting, 2011; Hanover Research. (2013). *Strategic planning in higher education – Best practices and benchmarking*. Washington, DC; Hinton, K. E. (2012). *A practical guide to strategic planning in higher education*. Ann Arbor, MI: Society for College and University Planning. For additional sources used, see Bibliography in Appendix B, pages b-1 through b-4.

plans—that collectively work together to help an entity achieve the goals in its strategic plans (see textbox for more information on these three components).[52] However, the universities have not consistently included objectives, performance measures, and action plans in their strategic plans. Specifically:

- **ASU's strategic plans have SMART objectives for most goals but performance measures and action plans can be improved—**For its goal to increase its 6-year graduation rate, ASU's strategic plans contain two SMART objectives that set targets for the graduation rates for Arizona resident students by 2020 (see Table 2, page 22). Additionally, for its goal to increase the number of bachelor's degrees awarded to all students, ASU's strategic plans contain two SMART objectives that set targets for the number of bachelor's degrees to award to both online and in-person students by 2020; and for its goal to increase freshman retention rates, its strategic plans include a SMART objective that sets a target to reach an 89.1 percent retention rate for Arizona resident students by 2020. However, ASU has not developed a SMART objective or objectives related to its goal to increase the number of bachelor's degrees awarded to Arizona community college transfer students. Further, although ASU's strategic plans include a SMART objective for maintaining transfer students' graduation rates, this objective focuses on all transfer students and does not address increasing the number of bachelor's degrees awarded to Arizona community college transfer students.

In addition, ASU's strategic plans contain performance measures and an action plan for one of its student retention and graduation goals that are consistent with best practices. Specifically, ASU has established an action plan focused on achieving higher levels of learning, satisfaction, and graduation among transfer students, which is related to its goal of increasing the number of bachelor's degrees awarded to Arizona community college transfer students.[53] Consistent with strategic-planning best practices, this action plan identifies the strategies ASU will implement and includes deadlines and staff responsibility for implementation of the strategies. For example, the action plan includes a strategy to reexamine financial incentives that can be offered to students who participate in a program designed to offer a pathway (pathways program) and guaranteed admission to students from the Maricopa County Community College District to ASU.[54] This action plan also includes an implementation deadline and assigns staff responsibilities for implementation of the strategy. ASU's strategic plans also outline multiple performance measures related to this action plan to measure progress toward achieving its goal. For example, the performance measures for its strategy to

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[52] The universities' student retention and graduation goals are designed similarly to SMART objectives. For example, they set specific and measurable timebound targets. However, consistent with best practices, these goals are also broad, in line with the universities' mission statements, and represent the desired results of many of the universities' academic activities. Thus, achieving these goals will likely require the universities to achieve several more specific accomplishments, or objectives. As a result, each university should also establish objectives to provide targets that represent how they will achieve their goals. For example, if the university's goal is to award 2,500 bachelor's degrees to Arizona community college transfer students in 2025, an objective for this goal could be to increase the first to second year retention rate of transfer students by 5 percentage points by 2025. Increasing the retention rate of transfer students could lead to an increase in the number of students moving toward graduation, which could increase the number of students receiving a bachelor's degree.

[53] Although ASU's student retention and graduation goal focuses specifically on Arizona community college transfer students, its action plan related to this goal includes strategies aimed at students who transferred to ASU from any 2-year or 4-year institution. However, this action plan includes some strategies that are directed specifically at Arizona community college transfer students.

[54] This program is referred to as the Maricopa–ASU Pathways Program.

Table 2

ASU's 2025 student retention and graduation goals and whether its accompanying strategic plans contain best practice components for these goals
As of October 2017

Goals	Number of objectives	Performance measures	Action plans		
			Strategies	Deadlines	Staff responsibility
90% freshman retention rate by 2025	1	(See footnote 2)	✓		
75% 6-year graduation rate by 2025	2	(See footnote 2)	✓		
21,430 bachelor's degrees awarded to all students in 2025	2	(See footnote 2)	✓		
5,346 bachelor's degrees awarded to Arizona community college transfer students in 2025	0 (See footnote 1)	✓	✓	✓	✓

1 ASU's strategic plans include a SMART objective for maintaining transfer students' graduation rates; however, this objective does not directly address ASU's goal for increasing the number of bachelor's degrees awarded to Arizona community college transfer students.

2 Although ASU's strategic plans contain some performance measures that ASU indicated are related to its goals for its freshmen retention rate, 6-year graduation rate, and bachelor's degrees awarded to all students, these performance measures do not assess the progress of ASU's strategies and tasks in its action plans for achieving these goals.

Source: Auditor General staff analysis of ASU's strategic plans, operational and financial reviews, and related planning documents. See Methodology in Appendix D, page d-1, for the specific university documents that auditors reviewed.

reexamine financial incentives include measuring participation in the pathways program and the number of students in the pathways program who indicate that they intend to transfer to ASU.

Although ASU's strategic plans contain some additional performance measures, these performance measures are not related to the strategies and tasks in its action plan for achieving its goals for increasing its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students. For example, ASU's strategic plans include a performance measure to assess how many students are living in first-year residential communities. ASU indicated that this performance measure is related to its goal for improving its freshmen retention rate; however, it has not included any strategies or tasks related to first-year residential communities in its action plan for improving freshmen retention rates. Therefore, this performance measure does not assess the progress of ASU's strategies and tasks outlined in its action plan for achieving its freshman retention rate goal.

Finally, although ASU's strategic plans include action plans for its goals to increase its freshmen retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students, the action plans lack implementation deadlines and staff responsibilities for implementing the strategies. ASU staff reported, and auditors observed, that it uses meetings and informal communications to discuss the personnel and deadlines associated with the strategies in its action plans. For example, in one meeting, ASU staff discussed details of several student outreach efforts, including having advisors contact students who were not enrolled for the upcoming semester. In addition, ASU staff discussed the results of completed outreach efforts and potential revisions to consider when conducting similar outreach in future semesters. However, this information was not documented in formal meeting minutes or other meeting notes and may not be discussed for all the strategies in the action plans. ASU indicated that these meetings are not part of a formalized committee

structure. Rather, these meetings are convened on a regular basis to focus on implementation of specific strategies, and different university staff join meetings on an as-needed basis based on specific topics and responsibilities.

- **NAU's strategic plans do not contain any SMART objectives but include performance measures and an action plan that is explicitly linked to one goal that may also help it achieve its other three goals**—Although NAU's strategic plans do not contain SMART objectives for its four student retention and graduation goals, its strategic plans contain multiple performance measures related to improving student retention, which NAU reported are important for achieving its other three student retention and graduation goals. In addition, NAU's strategic plans include an action plan for improving student retention related to its freshman retention goal that aligns with strategic-planning best practices by detailing specific strategies it will implement and identifying deadlines and staff responsibility for implementation of the strategies (see Table 3).

Table 3
NAU's 2025 student retention and graduation goals and whether its accompanying strategic plans contain best practice components for these goals
As of October 2017

Goals	Number of objectives	Performance measures	Action plans		
			Strategies	Deadlines	Staff responsibility
80% freshman retention rate by 2025	**0** (See footnote 1)	✓	✓	✓	✓
57.5% 6-year graduation rate by 2025	**0** (See footnote 1)	(See footnote 2)			
6,930 bachelor's degrees awarded to all students in 2025	**0** (See footnote 1)	(See footnote 2)			
2,500 bachelor's degrees awarded to Arizona community college transfer students in 2025	**0** (See footnote 1)	(See footnote 2)			

[1] NAU's strategic plans focus on increasing retention rates of various groups of students, consistent with its goal to increase its freshman retention rate to 80 percent as one of its 2025 student retention and graduation goal targets. However, according to NAU, its strategic plans are also intended to help retain students until they graduate and, as a result, they help guide NAU's efforts toward achieving its other goals related to the graduation rate and degrees awarded.

[2] NAU's strategic plans contain performance measures that may help it assess progress in achieving its 6-year graduation rate and the number of bachelor's degrees awarded to all students and Arizona community college transfer student goals. However, these performance measures assess the strategies and tasks outlined in NAU's action plan for improving its freshmen retention rate, rather than strategies and tasks for its other three goals.

Source: Auditor General staff analysis of NAU's strategic plans, operational and financial reviews, and related planning documents. See Methodology in Appendix D, page d-1, for the specific university documents that auditors reviewed.

Additionally, NAU's strategic plans contain strategies and performance measures that may help it achieve its goals related to its 6-year graduation rate and the number of bachelor's degrees awarded to all students and Arizona community college transfer students, but these strategies and performance measures are not explicitly linked to these three goals. According to NAU, the strategies contained in its strategic plans are intended to help retain students up to the point they graduate and, as a result, they help guide NAU's efforts toward achieving its goals related to its graduation rate and number of degrees awarded. For example, one of the strategies in NAU's action plan for improving student retention involves informing students of university resources that may help them in courses or combinations of courses that have been historically challenging.

This strategy could simultaneously help increase NAU's freshman retention rate, its graduation rate, and the number of degrees it awards by helping ensure that students pass all the courses necessary to continue in school and ultimately graduate. However, these performance measures and strategies do not explicitly state that they are related to improving graduation rates or the number of degrees awarded.

NAU reported that it contracted with a consultant to help design its strategic plans for achieving its student retention and graduation goals, which it divided into six different student populations.[55] Further, NAU reported that it executed an updated contract with its consultant in May 2017 and is in the process of working with the consultant to revise its strategic plans for its student retention and graduation strategies, including establishing objectives for each student population and developing action plans for all of its student retention and graduation goals. According to NAU, the revised strategic plan will focus on strategies for recruiting, retaining, and graduating students.

- **UA's strategic plans have SMART objectives for most goals but performance measures and action plans can be improved—**UA's strategic plans contain two SMART objectives for its goal related to its 6-year graduation rate and one SMART objective each for its goals for the number of bachelor's degrees awarded to all students and Arizona community college transfer students, but do not include a SMART objective for its freshman retention rate goal (see Table 4). Specifically, UA's strategic plans outline multiple strategies

Table 4
UA's 2025 student retention and graduation goals and whether its accompanying strategic plans contain best practice components for these goals
As of October 2017

Goals	Number of objectives	Performance measures	Action plans		
			Strategies	Deadlines	Staff responsibility
91% freshman retention rate by 2025	0 (See footnote 1)	(See footnote 2)	✓	✓	
75% 6-year graduation rate by 2025	2	(See footnote 2)	✓	✓	
11,665 bachelor's degrees awarded to all students in 2025	1	(See footnote 2)	✓	✓	
1,703 bachelor's degrees awarded to Arizona community college transfer students in 2025	1	(See footnote 2)	✓	✓	

[1] UA's strategic plans outline multiple strategies and tasks in eight focus areas, such as financial aid availability and increasing graduation rates for harder-to-reach populations, that are intended to help it achieve its student retention and graduation goals. Although one of the focus areas is to target first-time, full-time retention efforts, UA's strategic plans do not contain a SMART objective or objectives for its freshman retention rate goal.

[2] Although UA's strategic plans contain performance measures that could provide it with helpful information related to its student retention and graduation goals, these performance measures do not assess the strategies and tasks in its action plan for achieving these goals.

Source: Auditor General staff analysis of UA's strategic plans, operational and financial reviews, and related planning documents. See Methodology in Appendix D, pages d-1 through d-2, for the specific university documents that auditors reviewed.

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[55] The six populations of students are all undergraduate students; first-year, full-time students; online students; students of color; transfer students; and underprepared and underperforming students.

and tasks in eight focus areas, such as financial aid availability and increasing graduation rates for harder-to-reach populations, that are intended to help it achieve its student retention and graduation goals. Some of these focus areas include SMART objectives related to UA's student retention and graduation goals. For example, to achieve its goal related to its 6-year graduation rate, UA's strategic plans include a focus area and associated strategies to target second-to-third year retention efforts, which include a SMART objective to reduce the number of students not retained from their second to third year by 4 percentage points by 2020. Additionally, to achieve its goal related to the number of bachelor's degrees awarded to Arizona community college transfer students, UA's strategic plans contain a focus area to increase student success for Arizona community college transfer students, which includes a SMART objective to increase the 4-year graduation rate of UA's Arizona community college transfer students to 69.6 percent by 2020. However, although one of the focus areas is to target first-time, full-time undergraduate student retention efforts, UA's strategic plans do not contain a SMART objective or objectives for its freshman retention rate goal.

Additionally, UA's strategic plans contain multiple performance measures, but these performance measures do not assess the strategies and tasks in its action plan for achieving its student retention and graduation goals. For example, UA's strategic plans include a performance measure for the average time to graduation for students who began as freshmen. This performance measure could provide UA with helpful information related to its 6-year graduation goal such as identifying characteristics of those students whose time to graduation is higher than average, which could help it design strategies for assisting these students to graduate more quickly. However, UA's strategic plans use this performance measure to assess progress on meeting an institutional goal related to student instruction, but do not use it to assess whether the strategies and tasks outlined in UA's action plan are working to improve 6-year graduation rates.

Finally, although UA's strategic plans contain action plans for all four of its student retention and graduation goals, and these action plans identify the strategies UA will implement and include implementation deadlines for the strategies, they do not specify the staff responsible for implementing the strategies. For example, UA's action plans include a strategy to target second-to-third year student retention by implementing policy changes to reduce the number of second-year students who have not declared a major and connect these students to a long-term academic plan. The action plan includes a spring 2018 implementation deadline for the strategy but does not specify a responsible party for implementing the strategy.

Because objectives, performance measures, and action plans are intended to collectively work together to help accomplish a strategic plan's goals, by further developing these components in their strategic plans, the universities can improve their efforts to achieve their student retention and graduation goals. For example, developing multiple objectives for each of their goals would help the universities identify the specific achievements that are necessary to help them meet these goals and establish specific timelines and targets for completing these achievements, thus providing the universities and their staff with a path for meeting their goals. Additionally, developing multiple performance measures for each of their goals can help the universities not only assess their efforts' impact, but also assess if those efforts are cost effective and being delivered according to students' expectations, all of which could help the universities identify the most beneficial efforts and improve those efforts. Finally, developing action plans for each of their goals can both help the universities identify specific strategies and tasks to implement to achieve those goals and provide clarity and accountability for university staff by specifying deadlines and the staff responsible for overseeing and completing those strategies and tasks. According to the Society for College and University Planning (SCUP), action plans should be documented to help a university turn strategic thoughts into operational actions.[56] In addition, SCUP states that a university should revise its action plans frequently to respond to environmental factors, such as a change in the availability of resources or organizational changes.

Therefore, ASU, NAU, and UA should each revise, where appropriate, their respective strategic plans by developing at least one SMART objective for their student retention and graduation goals that do not have objectives. Specifically, ASU should develop a SMART objective for its goal related to increasing the number of bachelor's degrees awarded to Arizona community college transfer students. Additionally, NAU should develop at least one SMART objective for each of its four student retention and graduation goals. Meanwhile, UA should develop a

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[56] Hinton, 2012.

SMART objective for its goal related to increasing its freshman retention rate. Further, because achieving these goals may require multiple efforts to address a variety of common obstacles that may prevent students from staying in school and graduating in a timely manner, the universities should consider developing multiple SMART objectives for each of their respective student retention and graduation goals, as appropriate.

Additionally, ASU, NAU, and UA should each revise, where appropriate, their respective strategic plans by developing performance measures and/or revising existing performance measures to assess the progress of their strategies and tasks for achieving their student retention and graduation goals. Specifically, ASU should develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students. NAU should develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the number of bachelor's degrees awarded to Arizona community college transfer students. Finally, UA should develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving each of its student retention and graduation goals. The universities should also consider using a combination of multiple types of performance measures to assess different aspects of their performance related to each of their strategies and tasks, where appropriate. For example, the Arizona Governor's Office of Strategic Planning and Budgeting outlines five types of performance measures—input, output, outcome, efficiency, and quality—that can be used in combination to effectively analyze progress in achieving strategic goals and objectives (see textbox for a description of the different types of performance measures).

Types of performance measures

Input—Measures the amount of resources needed to provide particular products or services, and the demand for the products and services.

Output—Measures the amount of products or services provided and focuses on the level of activity in a particular program.

Outcome—Measures whether services are meeting proposed targets and reflect the actual results achieved, as well as program impact or benefit.

Efficiency—Measures the productivity and cost-effectiveness of operations.

Quality—Measures effectiveness in meeting customers' and stakeholders' expectations.

Source: Auditor General staff review of Office of Strategic Planning and Budgeting. (2011). *Managing for results handbook: Strategic planning guide for state agencies*. Phoenix, AZ: State of Arizona, Office of the Arizona Governor.

Finally, ASU and UA should revise their action plans, and NAU should continue with its efforts to develop its action plans, to include the missing components previously identified. Specifically, ASU should revise its action plans for its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students to specify deadlines and the party or parties responsible for implementing each strategy and task. Additionally, NAU should continue with its efforts to develop action plans for its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the number of bachelor's degrees awarded to Arizona community college transfer students, and these action plans should include the strategies and tasks that will be implemented to achieve the goals and specify deadlines and the party or parties responsible for implementing each strategy and task. Finally, UA should revise its action plans for each of its student retention and graduation goals to specify the party or parties responsible for implementing each strategy and task.

3.1. ASU should:

a. Develop a SMART objective for its goal related to increasing the number of bachelor's degrees awarded to Arizona community college transfer students.

b. Consider developing multiple SMART objectives for each of its student retention and graduation goals, as appropriate.

c. Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students. ASU should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

d. Revise its action plans for its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students to specify deadlines and the party or parties responsible for implementing each strategy and task.

3.2. NAU should:

a. Develop at least one SMART objective for each of its student retention and graduation goals.

b. Consider developing multiple SMART objectives for each of its student retention and graduation goals, as appropriate.

c. Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the number of bachelor's degrees awarded to Arizona community college transfer students. NAU should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

d. Continue with its efforts to develop action plans for its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the number of bachelor's degrees awarded to Arizona community college transfer students, and these action plans should include the strategies and tasks that will be implemented to achieve the goals and specify deadlines and the party or parties responsible for implementing each strategy and task.

3.3. UA should:

a. Develop a SMART objective for its goal related to increasing its freshmen retention rate.

b. Consider developing multiple SMART objectives for each of its student retention and graduation goals, as appropriate.

c. Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving each of its student retention and graduation goals. UA should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

d. Revise its action plans for each of its student retention and graduation goals to specify the party or parties responsible for implementing each strategy and task.

Peer institution selection

This appendix provides information on the methods auditors used to select peer institutions for Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA). Auditors reviewed these peers to determine whether they had strategic plans that focused on improving undergraduate retention and graduation rates (see Introduction, page 3, for more information on these strategic plans). Auditors selected peers from Arizona Board of Regents (ABOR)-approved lists of peer institutions for the State's universities.[57] According to ABOR staff, ABOR and the universities collectively developed their peer lists to feature similar institutions that each university could use to benchmark its performance in areas such as tuition-setting, student retention and graduation rates, and research expenditures.

Auditors analyzed data from the Integrated Postsecondary Education Data System (IPEDS), which is a U.S. Department of Education database that contains data on every postsecondary institution that participates in Title IV federal student financial aid programs, to further identify those peer institutions from the ABOR-approved list that were most comparable to their corresponding state university. In particular, auditors focused their IPEDS data analysis on finding institutions with similar factors that would affect an institution's student retention and graduation rates, such as the academic and demographic profile of incoming undergraduate students; revenues from tuition, fees, and state appropriations per student; and expenditures for instruction, academic support, and student services per student when selecting peer institutions.

Through this analysis, auditors identified two peer institutions for each of the State's universities:

- ASU: Indiana University–Bloomington and the University of Iowa.

- NAU: Kent State University–Kent Campus and Wichita State University.

- UA: Michigan State University and the University of Iowa.

Tables 5 and 6 on page a-2 contain the fiscal year 2015 comparative information that auditors used to select these peer institutions.

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[57] The ABOR-approved peer lists for ASU and UA contain several of the same peer institutions. These peer institutions include the University of Iowa, Michigan State University, Ohio State University–Main Campus, the University of Texas at Austin, the University of Minnesota–Twin Cities, the University of California–Los Angeles, the University of Wisconsin–Madison, the University of Washington–Seattle, Pennsylvania State University–Main Campus, the University of Maryland–College Park, and the University of Illinois at Urbana-Champaign.

Table 5
Each state university's and its two peer institutions' student demographics
Fiscal year 2015

Institution	Percent of undergradu- ate students admitted	Total SAT Math and Reading 25th percentile scores	Percent of students awarded Pell grants
Arizona State University-Tempe	83%	1,030	31%
Indiana University-Bloomington	78%	1,060	16%
University of Iowa	81%	1,000	19%
Northern Arizona University	77%	930	37%
Kent State University-Kent Campus	85%	950	32%
Wichita State University	95%	940	36%
University of Arizona	76%	960	32%
Michigan State University	66%	980	22%
University of Iowa	81%	1,000	19%

Source: Auditor General staff analysis of IPEDS data for fiscal year 2015.

Table 6
Each state university's and its two peer institutions' revenues, expenditures, retention rates, and graduation rates
Fiscal year 2015

Institution	Revenue from tuition, fees, and state appropriations per student	Expenditures for instruction, academic support, and student services per student	Full-time, freshmen retention rate	6-year graduation rate
Arizona State University-Tempe[1]	$17,404.38	$15,056.26	86%	59%
Indiana University-Bloomington	$21,995.27	$19,580.83	89%	77%
University of Iowa	$22,448.60	$23,151.72	85%	70%
Northern Arizona University	$11,791.33	$11,118.56	74%	49%
Kent State University-Kent Campus	$13,755.48	$10,284.68	81%	52%
Wichita State University	$13,767.13	$10,468.75	72%	46%
University of Arizona	$21,555.49	$18,989.46	80%	61%
Michigan State University	$23,402.70	$18,401.21	92%	78%
University of Iowa	$22,448.60	$23,151.72	85%	70%

[1] Because ASU reports financial information to IPEDS as a total for all its campuses, the indicated revenue and expenditure amounts represent those for the entire university.

Source: Auditor General staff analysis of IPEDS data for fiscal year 2015.

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The following bibliography includes citations of literature auditors reviewed to identify the potential benefits of increasing the number of Arizonans with a college degree, also referred to as educational attainment (see Introduction, pages 3 through 4), common obstacles to student retention and graduation (see Chapter 1, pages 5 through 10), best practices for evaluating program effectiveness (see Chapter 2, page 16), and strategic-planning best practices (see Chapter 3, pages 19 through 21).

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Summary of strategy evaluations reviewed

This appendix provides information on the universities' evaluations of three student retention and graduation strategies that auditors selected and reviewed from the strategic plans at each of the State's universities—Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA) (see Chapter 2, pages 12 through 15, for more information on the selection and review of the nine student retention and graduation strategies). Below is a description of each selected strategy, the common obstacle(s) to staying in school and/or graduating in a timely manner the strategy was designed to address, and a description of the strategy's evaluation (see Chapter 1, pages 5 through 10, for more information on the common obstacles students face that may prevent them from staying in school and graduating in a timely manner, according to literature).

ASU

- **Adaptive math courses**

  - **Strategy description—**In fiscal year 2012, ASU identified introductory math courses with relatively low success rates and redesigned them as adaptive courses.[58] Adaptive courses use computer software to identify course content areas where students are struggling and provide them with additional, individualized instruction and support.

  - **Common obstacle(s) addressed by strategy—**Students may face academic obstacles, including struggling in courses that are relatively more difficult than other courses, such as introductory math courses, and may need to take a remedial course and/or take the course a second time.

  - **Evaluation of strategy—**ASU evaluated whether changing its introductory math courses to adaptive courses improved success rates of students taking the courses by comparing the success rates in these courses before and after they were changed to adaptive courses.

- **GetSet**

  - **Strategy description—**GetSet is a web-based application that promotes student motivation and resiliency by creating a peer mentoring network to connect them to other students who successfully navigated similar challenges and who can offer advice and encouragement. For example, a student might receive a poor midterm grade and could use GetSet to obtain advice and encouragement from other students who overcame a similar experience. In fall 2016, ASU began requiring students to use GetSet as part of the required assignments for its freshman experience courses.[59]

  - **Common obstacle(s) addressed by strategy—**Students may face social and academic obstacles such as feeling isolated at the university or decreased motivation to perform well in their freshman year courses that they may find challenging.

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[58] ASU defines a course's success rate as the percent of students initially enrolled in the course who received an A, B, or C grade upon completion. Thus, a course with a low success rate would have a high number of students who either received a D or F grade or withdrew from the course.

[59] ASU's freshmen experience courses are designed to help freshman students transition to the university by covering topics such as how to academically succeed and the importance of academic integrity.

- ○ **Evaluation of strategy**—ASU evaluated GetSet by comparing the grade point averages (GPAs) and freshman retention rates for students in two groups: students who used the application in their freshman experience courses more than three times and students who used the application three times or less or whose freshman experience courses did not require them to use GetSet.

- **Transfer student orientation**

  - ○ **Strategy description**—In fiscal year 2016, ASU created a web-based orientation to help transfer students successfully transition to ASU by providing them with information about standard university procedures and available campus resources. For example, a transfer student who may not be familiar with standard university procedures can learn how to access course documents and submit assignments online.

  - ○ **Common obstacle(s) addressed by strategy**—Transfer students may face academic obstacles such as not being familiar with the university's academic resources that can help them if they have difficulties with their coursework.

  - ○ **Evaluation of strategy**—ASU's evaluation of online transfer orientation assessed the number of students who participated in the orientation. Additionally, ASU surveyed students who completed the online orientation asking if the online transfer orientation had helped transfer students better locate campus resources and provided useful course information.

NAU

- **Degree planning tool**

  - ○ **Strategy description**—NAU designed an online, interactive, degree-planning tool to provide students with better information on their pathway to graduation and to help students graduate in a timely manner. The tool allows students to map out which courses they will need to complete each semester over the course of their studies to graduate in a specific time period.

  - ○ **Common obstacle(s) addressed by strategy**—Students may face academic obstacles such as difficulty identifying which courses they need to take and when they need to take them to graduate in a timely manner.

  - ○ **Evaluation of strategy**—NAU assessed its degree-planning tool by tracking student use, such as the number of unique times that a student accessed the application per semester. This evaluation did not assess whether students who used this tool were more likely to take courses and earn credits for completing their degrees or if it resulted in more timely graduation for students who used it.

- **Summer programs**

  - ○ **Strategy description**—NAU's Successful Transition and Academic Readiness (STAR) program is a summer program intended to help incoming freshman students make a successful academic and social transition to the university. According to NAU, STAR participants develop their academic skills while living on campus, learn about university resources, and build a network of peers to help them prepare for a successful freshman year. Specifically, before beginning their freshman year, STAR participants live on the NAU campus, take two summer courses that help them develop college-level written and verbal communication skills, engage in social activities to establish supportive relationships with peers, and attend peer-led workshops that reinforce and support the content in their two summer courses.

  - ○ **Common obstacle(s) addressed by strategy**—Students may face academic and social obstacles such as not being familiar with university expectations, processes, and resources and not having a social support system on campus.

  - ○ **Evaluation of strategy**—NAU's evaluation included multiple academic outcomes, such as first-semester GPAs and earned credit hours in the first semester for STAR participants, to assess their transition to the university, and it compared participants' outcomes to those of a group of students who did not participate

in the program but had similar characteristics to account for self-selection bias (see Chapter 2, page 13, for more information on self-selection bias).[60]

- **Transfer student tool**

  - **Strategy description—**NAU created an interactive, web-based tool (transfer-student tool) to allow prospective transfer students to see how their coursework from another institution will transfer to NAU. It also provides prospective transfer students with information on what additional coursework they could complete for their degree program before transferring to NAU.

  - **Common obstacle(s) addressed by strategy—**Transfer students may face academic obstacles such as uncertainty over whether courses that they completed at another institution will apply to their degree program at NAU, which can impact how long it will take them to graduate.

  - **Evaluation of strategy—**NAU's evaluation of the transfer-student tool included an assessment of the number of application users. This evaluation did not assess whether use of the transfer-student tool provided prospective transfer students with a better understanding of how their coursework from another institution would transfer to NAU or if users' time to graduation was less than non users'.

UA

- **Early progress grades**

  - **Strategy description—**In fall 2016, UA began providing some students with early progress grades to inform them of their academic performance earlier in the semester. UA staff stated that communicating this information could encourage students to make any needed changes to successfully complete their courses, such as seeking tutoring or meeting with their instructors to discuss how to improve their performance.

  - **Common obstacle(s) addressed by strategy—**Students may face academic obstacles such as not being aware of a performance problem in a course in time to make changes needed to complete the course successfully and may need to take a remedial course and/or take the course a second time.

  - **Evaluation of strategy—**UA has evaluated its early progress grades strategy by looking at the change in grade distribution in courses before and after the implementation of early progress grades.

- **Increase participation in first-year programs**

  - **Strategy description—**UA plans to increase student participation in first-year programs that have a demonstrated record of increasing freshman-retention rates. Specifically, these programs are designed to help students make a successful transition to the university by connecting them with academic and social supports. UA previously evaluated these first-year programs to determine if they increased participants' freshman retention rates and used statistical methods to account for self-selection bias in its evaluation.[61]

  - **Common obstacle(s) addressed by strategy—**Students may face academic and social obstacles such as not being familiar with programs the university offers to assist student with transitioning.

  - **Evaluation of strategy—**UA's evaluation of its efforts to increase participation in first-year programs included tracking the number of students participating in these programs each year. This evaluation did not assess outcomes related to UA's efforts to increase participation in first-year programs. Further, this evaluation did not assess participation in first-year programs as a percent of the freshman student

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[60] Students who did not participate in STAR had similar characteristics to STAR participants, such as high school GPA and participation in other student-success initiatives at NAU.

[61] UA accounted for self-selection bias by using propensity score matching, a statistical method used to create a control group of students who did not participate in the program but had similar characteristics to program participants, which can be used to compare outcomes between the two groups.

population or of a student subpopulation, such as the percent of low-income students participating in programs designed for low-income students.

- **Transfer Student Center**

  - **Strategy description—**UA's Transfer Student Center (Center) is intended to connect transfer students to campus support services and offer academic and social supports through activities such as mentoring and social events.[62] Additionally, the Center offers services for prospective transfer students such as helping students identify how courses they have taken at another institution will transfer to UA, referred to as course articulation.

  - **Common obstacle addressed by strategy—**Transfer students may face academic and social obstacles such as not being familiar with the university's procedures and resources and not having a sense of belonging at the university, which can make transitioning to the university difficult. Additionally, students may not know whether courses that they completed at another institution will apply to their degree program at UA, which can impact how long it will take them to graduate.

  - **Evaluation of strategy—**UA's evaluation assessed the use of the Center, such as the total number of student visits, how many students participated in social activities the Center hosted, and the number of course equivalencies developed for course articulation.

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[62] Campus support services include academic support services such as tutoring and writing workshops, and social support services such as mentoring and student clubs and organizations.

Methodology

Auditors used various methods to study the issues addressed in this report. These methods included reviewing applicable federal and state laws, interviewing staff from the Arizona Board of Regents (ABOR), Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA), and reviewing information obtained from the universities' and ABOR's websites.

In addition, auditors used the following specific methods to meet the audit objectives:

- To determine how ABOR and the universities set goals for increasing undergraduate retention and graduation rates, auditors reviewed ABOR's strategic plans, meeting minutes and materials, and policies and data, and interviewed ABOR and university staff. Additionally, auditors reviewed unaudited ABOR data from fiscal years 2016 and 2017 to determine each university's performance compared to its student retention and graduation goals.

- To identify common obstacles that may prevent students from staying in school and graduating in a timely manner and strategies to address these obstacles, auditors reviewed literature and student success publications for four student populations: first-generation students, minority students, low-income students, and transfer students (see Bibliography in Appendix B, pages b-1 through b-4, for citations of all literature auditors reviewed). Additionally, auditors also reviewed university documents and interviewed university staff to determine which strategies the State's universities had designed to address obstacles that prevent undergraduate students from staying in school or graduating in a timely manner.

- To evaluate the universities' processes for evaluating the effectiveness of and revising their student retention and graduation strategies, auditors selected and reviewed three strategies from each university's strategic plan that focused on the needs of first-time, full-time students and transfer students. Additionally, auditors interviewed university staff and reviewed documentation to determine how the universities had evaluated these strategies. To assess each university's evaluations of these strategies, auditors compared the universities' evaluations against program-evaluation best practices identified by the National Science Foundation, University of Oxford, the World Bank, Health Compass, and the U.S. Government Accountability Office (see Bibliography in Appendix B, pages b-1 through b-4, for citations of all literature auditors reviewed).

- To evaluate the universities' strategic plans, auditors reviewed each university's strategic plans and related documents for its student retention and graduation goals. Specifically, these strategic plans are:

  ○ **ASU—**Fiscal Years 2016-2020 Draft Provost Action Plan, September 2016 Transfer Matters Final Report and Action Plan, ASU Charter and Goals, ASU Fiscal Years 2017-2019 Master List of State Government Programs and Agency Five Year Plan, February 2017 Operational and Financial Review (OFR) Background Report, February 2017 OFR enterprise plan, and February 2017 OFR presentation.

  ○ **NAU—**2016-2019 Retention Plan, NAU Fiscal Years 2016-2018 Master List of State Government Programs and Agency Five Year Plan, April 2016 Strategic Plan, September 2016 OFR Background Report, September 2017 OFR business plan, and September 2016 OFR presentation.

  ○ **UA—**March 2016 Never Settle Strategic Plan, 2016-2020 Student Success and Retention Innovation Strategic Plan, UA Fiscal Years 2016-2018 Master List of State Government Programs and Agency Five

Year Plan, November 2016 OFR Background Report, November 2016 OFR business plan, and November 2016 OFR presentation.

Auditors compared the universities' strategic plans against strategic-planning best practices, including those published by the Arizona Governor's Office of Strategic Planning and Budgeting, Hanover Research, and the RAND Corporation (see Bibliography in Appendix B, pages b-1 through b-4, for citations of all literature auditors reviewed). Auditors also reviewed strategic plans from five peer universities' websites to determine if these institutions developed strategic plans that focus on improving student retention and graduation rates (see Appendix A, page a-1, for more information on the specific methods used to select peer institutions).

- To obtain information for the Introduction, auditors compiled unaudited data on the universities' student retention and graduation goals from ABOR's website, including each university's 2016-2017 Operational and Financial Review background report, and interviewed ABOR staff. Additionally, auditors reviewed publications about the benefits of increasing the number of citizens with college degrees from the Lumina Foundation, ASU's Productivity and Prosperity Project, the American Institutes for Research, and ABOR (see Bibliography in Appendix B, pages b-1 through b-4, for citations of all literature auditors reviewed). Further, auditors estimated the additional tuition revenue that each university would receive by retaining more undergraduate students by reviewing and analyzing unaudited information from each university's 2015-2016 Common Data Set, retention and enrollment data from NAU's and UA's websites for fiscal years 2016 and 2017, and data ASU provided on retention and enrollment for fiscal years 2016 and 2017.

Auditors conducted this performance audit of the State's universities in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The Auditor General and staff express appreciation to ABOR's chair, members, president, and staff and ASU's, NAU's, and UA's presidents and staff for their cooperation and assistance throughout the audit.

RESPONSES

March 15, 2018

Debra K. Davenport
Auditor General
2910 N. 44th Street
Phoenix, AZ 85018

Dear Ms. Davenport,

On behalf of the Arizona Board of Regents, I am pleased to respond to the audit report, Arizona's Universities - Student Success. We thank you for the tremendous time and effort of your team in preparing the report and its recommendations. We will work closely with the universities to ensure their implementation.

Ensuring students are well prepared with the knowledge, skills and values necessary for the work and life path they choose is central to our work. Accordingly, student success is a primary objective of our state's public universities and a primary focus of our governance. Although the audit report is focused on university-level practices, we feel it is important to share some additional details regarding the board's recent efforts to promote stronger student outcomes at all of our universities and to promote higher levels of educational attainment statewide. We appreciate the chance to offer these additional considerations given the importance of the audit topic.

How the Board Prioritizes and Measures Student Success

While individual university performance measures have been in place for some time, the board added student success as a statewide objective in 2013 as part of our statewide strategic plan. That plan includes performance targets and benchmarks for our universities according to their respective missions. At the same time, the board established quality markers that ensure our offerings represent the level of excellence our students expect even as we scale in size and

productivity. That quality initiative has since evolved to a full evaluation of quality assurance priorities and practices at our universities, a review and reforms to general education offerings and analysis of student learning evaluations.

Universities are encouraged to set whatever additional metrics and benchmarks necessary for the management of their institutional performance. Once the plans have been developed, presented and accepted by the board, each plan then becomes the baseline against which progress is measured and against which resource requests and investments are made. Student success metrics and other factors closely related to student success are monitored by regents throughout the year through a dedicated academic affairs committee.

Why Student Success Matters

It has long been recognized that higher education is an investment that pays dividends throughout an individual's lifetime, from increased wages to a better quality of life. In fact, Arizonans with an undergraduate degree earn a median wage that is approximately $20,000 more each year than their peers with a high-school diploma. More than ever, higher levels of educational attainment and skills acquisition are essential for employment mobility. Our state and country face a rapidly changing economy that prioritizes higher education: today, nearly two-thirds of all jobs now demand education beyond a high school diploma.

Our state's public universities are the primary institutions through which Arizonans are able to earn a bachelor's degree or higher. Market factors, a growing population and changing demographics mean that we must not just make our university offerings available to more individuals. We must also forge new ways to make more students -from increasingly diverse backgrounds- successful in learning, skill acquisition and degree completion, so that they - and our state - can be competitive. Students have more choices available to them than ever for their higher education, and they are more responsible than ever for paying for it. For all of these reasons, ABOR and Arizona's public universities put considerable effort into ensuring student success while maintaining their access mission.

Statewide Focus on Student Success Shows Results

By all accounts, this statewide focus on student success is producing results. We are pleased your report demonstrates the impacts of our work. Student enrollment is at a record high, and student diversity has set records as well. Importantly, retention and completion rates continue to climb.

Arizona Board of Regents   AZRegents.edu

Arizona University System	2009-10	2016-17	Increase	Percent Change
Total Enrollment	130,151	179,102	48,951	37.6%
Graduation Rate	56.0%	61.5%	5.5ppt	9.8%
Bachelor's Degrees	21,110	29,298	8,188	38.8%
Degrees in High Demand Fields	11,733	16,814	5,081	43.3%
Freshmen Retention	78.5%	81.1%	2.6ppt	3.3%

Arizona State University	2009-10	2016-17	Increase	Percent Change
Total Enrollment	68,064	103,567	35,503	52.2%
Graduation Rate	55.8%	67.0%	11.2ppt	20.1%
Bachelor's Degrees	11,810	16,450	4,640	39.3%
Degrees in High Demand Fields	5,487	8,477	2,990	54.5%
Freshmen Retention	81.2%	83.8%	2.6ppt	3.2%

Northern Arizona University	2009-10	2016-17	Increase	Percent Change
Total Enrollment	23,320	30,704	7,384	31.7%
Graduation Rate	50.0%	53.3%	3.3ppt	6.6%
Bachelor's Degrees	3,473	5,901	2,428	69.9%
Degrees in High Demand Fields	2,926	3,547	621	21.2%
Freshmen Retention	72.2%	75.5%	3.3ppt	4.6%

University of Arizona	2009-10	2016-17	Increase	Percent Change
Total Enrollment	38,767	44,831	6,064	15.6%
Graduation Rate	58.4%	59.9%	1.5ppt	2.6%
Bachelor's Degrees	5,827	6,947	1,120	19.2%
Degrees in High Demand Fields	3,320	4,790	1,470	44.3%
Freshmen Retention	78.1%	80.5%	2.4ppt	3.1%

Other Student Success Measures and Monitoring In Place to Promote Retention and Completion

We appreciate the recommendations to improve student success practices at our universities, along with the efforts made by the Auditor General to identify best practices in the field, including those of other universities and higher education organizations. As the auditors have noted, there is no single set of "industry standards" related to student success among public universities. In every instance, however, we strive to adhere to available best practices and to encourage further innovation and scaling of best practices at our universities.

In addition to student success measures discussed in the report, many other factors impact the educational attainment of our students. Accordingly, we extensively measure and monitor outcomes related to:

Transfer Students - Students transferring from community colleges comprise a greater percentage of the student body. ABOR has established transfer student retention metrics to measure the progress and outcomes of this population following their arrival at the universities. We also measure the graduation rates of transfer students to determine their ability to complete their studies as compared to their peers.   Likewise, to promote degree completion, "reverse transfer" has been prioritized, a process by which students who started their education at a community college receive an associate's degree once they complete the requisite coursework, even if they did not complete all of the courses at the community college.

Earnings Power - More than ever, a key measure of student success to graduates and the general public the public is employability after graduation. With our Wages of Graduates and other reports, we track the employment and earnings trends of our graduates and the impact of our graduates on the state economy. We also show how our graduates' earnings compare to others with lower levels of educational attainment.

Affordability - Affordability is a big factor in determining a student's ability to pursue and complete a college degree. Apart from tuition reforms such as guarantee programs and efforts to stabilize and reduce operational costs, we also encourage the creation of new degree pathways and other instructional delivery methods, such as online education, to help reduce the costs to students. Financial aid is key to our affordability strategy, and we particularly appreciate the audit's recognition of financial aid in the report. It is important to note that nearly all financial aid is generated within the university system; only one-half of one percent comes from the state of Arizona. Meanwhile, no financial aid program exists for community colleges. Our annual financial aid report is a key state resource to monitor university affordability and student debt levels. Similarly, we have revamped our state appropriations requests to emphasize funding for resident students to help defray their costs. Over time, it will be essential for our state to reconsider funding and aid strategies so that students are not blocked from attending and completing college for financial reasons.

Pipeline Performance - Student success at the university level begins long before students are enrolled. We actively measure the progress of our Arizona high school students in core courses required for admission. Likewise, we measure the numbers of students who continue on to higher education here and in other states. Once enrolled, we also examine the degrees and majors selected. Examples of these reports and analyses include ABOR reports on Fall Enrollment, High School Report Card, Degrees and Majors, and AZTransfer's Articulation and

Transfer report. We make all of these reports and our analysis of the related trends available to the public and collectively, these fact sets represent are respected as a leading authority on student success in Arizona.

Statewide Attainment - ABOR's student success measures tie to other state measures of academic progress and educational attainment. We participate in efforts like the Arizona Progress Meter to examine how well our state's P-20 education pipeline is performing. To help raise educational attainment levels in Arizona, ABOR helped spearhead "Achieve60AZ" a grassroots movement to encourage 60 percent of Arizonans aged 25 to 64 have a college degree or certificate by 2030.

Finally, our commitment to student success also extends to the health and wellbeing of our students. Many programs are in place to ensure students have access to the support they need beyond academics, including health, recreation, advising and counseling services. We recently revamped our student health insurance offerings so that students have the coverage they need. With student safety a top concern nationwide, we led a statewide task force to update our campus safety practices to better protect students on and off campus. The board also has increased student engagement and involvement in board and university processes to ensure the student voice is heard in key decisions.

We appreciate this opportunity to outline additional focus on student success at our public universities and the results of those efforts. We hope this helps underscore our commitment to our students and to the continuous improvement of the services we provide them.

We thank you and your team for their dedication to excellence and for the insights they shared with us through this process to help us improve our work.

Sincerely,

Eileen I. Klein
President

March 14, 2018

Debbie Davenport
Auditor General
Office of the Auditor General
2910 North 44th Street, Suite 410
Phoenix, AZ 85018

Dear Ms. Davenport:

On behalf of Arizona State University, I am pleased to respond to the performance audit of Student Success at ASU. We are in agreement with all of your findings, and our responses to your recommendations are enclosed. The report represents a thoughtful analysis of ASU's Student Success initiatives.

My staff and I wish to thank you and your staff for the professional manner in which this audit was performed. We are constantly looking for ways to improve our program and operations.

Sincerely,

Michael M. Crow
President

Enclosure

cc: Mark Searle, Executive Vice President and University Provost
    Morgan R. Olsen, Executive Vice President and CFO

Chapter 2: Universities should establish guidance for more consistently evaluating strategies to achieve student retention and graduation goals

Recommendation 2.1: ASU, NAU, and UA should continue efforts to develop university-wide approaches for evaluating their student retention and graduation strategies. These approaches should include related policies, procedures, and/or guidance, for evaluating their student retention and graduation strategies. Their university-wide evaluation approaches should also include guidance on planning the evaluation of each strategy before it is implemented. In addition, these approaches should include guidance on the following:

- Strategy descriptions that clarify the strategy's activities and desired short-term and long-term results, including an explanation of how the strategy is expected to achieve these results;

- Questions the evaluation will answer, including questions for assessing strategy implementation and short-term outcomes and long-term outcomes related to overcoming common obstacles to staying in school and graduating in a timely manner;

- Methods for answering the evaluation questions, including what information is needed to do so, how the information will be obtained, and how the information will be analyzed and interpreted. Additionally, strategies that involve voluntary participation should include methods for addressing the potential influence of self-selection bias, when applicable; and

- Explanations for how evaluation results will be used.

ASU Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

Response explanation: As indicated in the report, ASU has created a collaborative workgroup to define the data and analysis infrastructure needed to support coordinated and systematic research and evaluation related to its student success planning and implementation. As a part of this work, the group will develop the specific protocols to design and implement meaningful program/strategy evaluation.

Chapter 3: Universities should improve strategic plans to help achieve student retention and graduation goals

Recommendation 3.1: ASU should:

Recommendation 3.1a: Develop a SMART objective for its goal related to increasing the number of bachelor's degrees awarded to Arizona community college transfer students.

ASU Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

Response explanation: ASU will develop an objective pertaining specifically to the goal to increase the number of bachelor's degrees awarded to Arizona community college transfer students for inclusion in the 2018-20 ASU Five Year Strategic Plan and Arizona Master List of State Government Programs.

Recommendation 3.1b: Consider developing multiple SMART objectives for each of its student retention and graduation goals as appropriate.

ASU Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

Response explanation: ASU already includes multiple objectives pertaining to student retention and graduation goals in the ASU Five-Year Strategic Plan and Master List of State Government Programs submitted to The Governor's Office of Strategic Planning and Budgeting each year. We will continue to refine the objectives listed in this document to ensure they best reflect desired achievements to support the specific goals.

Recommendation 3.1c: Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students. ASU should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

ASU Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

Response explanation: ASU already includes multiple performance measures pertaining to student retention and graduation goals in the ASU Five-Year Strategic Plan and Master List of State Government Programs submitted to The Governor's Office of Strategic Planning and Budgeting each year. We will continue to refine the performance measures identified to ensure they provide the best methods for tracking progress towards accomplishment of our goals and objectives.

Recommendation 3.1d: Revise its action plans for its goals related to its freshman retention rate, 6-year graduation rate, and the number of bachelor's degrees awarded to all students to specify deadlines and the party or parties responsible for implementing each strategy and task.

ASU Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

Response explanation: ASU recognizes the value of systematic and documented planning. However, we will determine the best approach to adding detail as a part of documenting our plans, such that it adds value to our processes and emphasizes action and accountability.

Recommendation 3.2 – 3.3: Not applicable to ASU.

March 15, 2018

Debra K. Davenport
Auditor General
Office of the Auditor General
2910 N. 44th Street, Suite 410
Phoenix, AZ 85018

RE: Response to Auditor General's Report on Arizona's public universities' student success initiatives

Dear Ms. Davenport:

This letter provides Northern Arizona University's response to the Audit Report on the universities' student success initiatives.

Student success has been and will continue to be at the center of NAU's mission, values and strategic planning. This audit reaffirms the work NAU has already accomplished to develop and implement our retention action plan to guide our efforts to meet our 2025 metric target of 80% for first-time, full-time retention. This audit also identifies opportunities where we can apply the same planning and assessment practices more specifically to other student success goal areas. We appreciate this OAG feedback as we strive to further enhance our efforts to improve our students' success and help advance Arizona's educational attainment levels.

Chapter 2: Universities should establish guidance for more consistently evaluating strategies to achieve student retention and graduation goals

Recommendation 2.1: ASU, NAU, and UA should continue efforts to develop university-wide approaches for evaluating their student retention and graduation strategies. These approaches should include related policies, procedures, and/or guidance, for evaluating their student retention and graduation strategies. Their university-wide evaluation approaches should also include guidance on planning the evaluation of each strategy before it is implemented. In addition, these approaches should include guidance on the following:

- Strategy descriptions that clarify the strategy's activities and desired short-term and long-term results, including an explanation of how the strategy is expected to achieve these results;

- Questions the evaluation will answer, including questions for assessing strategy implementation and short-term outcomes and long-term outcomes related to overcoming common obstacles to staying in school and graduating in a timely manner;

- Methods for answering the evaluation questions, including what information is needed to do so, how the information will be obtained, and how the information will be analyzed and interpreted. Additionally, strategies that involve voluntary participation should include methods for addressing the potential influence of self-selection bias, when applicable; and

- Explanations for how evaluation results will be used.

  NAU Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

  Response explanation: NAU will continue its efforts to evaluate and enhance its student success initiatives and further develop its university policies and procedures to ensure more meaningful assessment of its initiatives.

Chapter 3: Universities should improve strategic plans to help achieve student retention and graduation goals

Recommendation 3.1: Not applicable to NAU.

Recommendation 3.2: NAU should:

Recommendation 3.2a: Develop at least one SMART objective for each of its student retention and graduation goals.

  NAU Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

  Response explanation: NAU will continue its efforts to evaluate and enhance its student success initiatives and develop one SMART objective for each of the retention and graduation goals.

Recommendation 3.2b: Consider developing multiple SMART objectives for each of its student retention and graduation goals as appropriate.

  NAU Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

  Response explanation: NAU will continue its efforts to evaluate and enhance its student success initiatives and where appropriate develop multiple SMART objectives.

Recommendation 3.2c: Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the

number of bachelor's degrees awarded to Arizona community college transfer students. NAU should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

<u>NAU Response:</u> The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

<mark>Response explanation</mark>: NAU will continue its efforts to evaluate and enhance its student initiatives and develop performance measures for the appropriate retention and graduation goals.

Recommendation 3.2d: Continue with its efforts to develop action plans for its goals related to its 6-year graduation rate, the number of bachelor's degrees awarded to all students, and the number of bachelor's degrees awarded to Arizona community college transfer students and these action plans should include the strategies and tasks that will be implemented to achieve the goals and specify deadlines and the party or parties responsible for implementing each strategy and task.

<u>NAU Response:</u> The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

<mark>Response explanation</mark>: NAU will continue its efforts to evaluate and enhance its student success initiatives and further develop action plans for the appropriate retention and graduation goals.

Recommendation 3.3: Not applicable to NAU.

Sincerely,

Rita Hartung Cheng
President

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March 14, 2018

Debra K. Davenport, CPA
Auditor General
State of Arizona – Office of the Auditor General
2910 N 44th Street – Suite #410
Phoenix, AZ 86018

Dear Ms. Davenport,

I have reviewed the preliminary report of the *Arizona's Universities – Student Success*
performance audit. Thanks to you and your team for the work that has been put into the audit
and for engaging us in a dialogue about how we engage in student success. The report clearly
values the work we have done at the University of Arizona by showing that UA has:

- Created a culture of strategic planning and assessment of student success programming
  and initiatives;
- Established mechanisms to scale those student success efforts over time; and,
- Provided a roadmap for what the UA will set out to accomplish over the next five years.

The report does highlight some areas where the University of Arizona can improve and deepen
its work in student success strategic planning and assessment. To that end, we agree with the
findings overall, although in some places we might take a slightly different methodological
approach to achieve the recommendations set out in the report.

There are several campus leaders that worked hard throughout this process to make this report
possible. They spent hours collecting and sharing key data and ensured that the University of
Arizona responded to requests from your office in a timely manner. I would be remiss if I did
not recognize that hard work, including the efforts of:

- Dr. Allison Vaillancourt, Vice President for Business Affairs and Human Resources, and
  Audit Coordinator
- Dr. Melissa Vito, Senior Vice President for Student Affairs, Enrollment, and Strategic
  Initiatives
- Dr. Vincent J Del Casino Jr, Vice President for Student Success and Retention Innovation

- Dr. Gail Burd, Senior Vice Provost for Academic Affairs
- Dr. Angela Baldasare, Assistant Provost for Institutional Research
- Dr. Jen Meyers Pickard, Assistant Vice President for Divisional Initiatives and Planning
- Dr. Marla Franco, Director of Divisional Assessment and Research

This team has led initiatives that have led to the positive outcomes outlined in the report. This group will also provide leadership as we move forward to address the recommendations outlined in the report over the next six months.

Thank you once again for the thorough review of our student success efforts and for giving the University of Arizona an opportunity to respond.

Sincerely,

Robert C. Robbins, M.D.
President

Chapter 2: Universities should establish guidance for more consistently evaluating strategies to achieve student retention and graduation goals

Recommendation 2.1: ASU, NAU, and UA should continue efforts to develop university-wide approaches for evaluating their student retention and graduation strategies. These approaches should include related policies, procedures, and/or guidance, for evaluating their student retention and graduation strategies. Their university-wide evaluation approaches should also include guidance on planning the evaluation of each strategy before it is implemented. In addition, these approaches should include guidance on the following:

- Strategy descriptions that clarify the strategy's activities and desired short-term and long-term results, including an explanation of how the strategy is expected to achieve these results;

- Questions the evaluation will answer, including questions for assessing strategy implementation and short-term outcomes and long-term outcomes related to overcoming common obstacles to staying in school and graduating in a timely manner;

- Methods for answering the evaluation questions, including what information is needed to do so, how the information will be obtained, and how the information will be analyzed and interpreted. Additionally, strategies that involve voluntary participation should include methods for addressing the potential influence of self-selection bias, when applicable; and

- Explanations for how evaluation results will be used.

<u>UA Response:</u> The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

<u>Response explanation:</u> As the auditors know, and recognize in their report, the University of Arizona has built a strong model of consistent assessment for student success strategies in pockets across the campus. With this recommendation, we will bring together leaders across campus to discuss how to implement more consistent practices. This has enabled UA to move the needle on first-year retention last year from 80.5% to 83.5% and six-year graduation rates from 59.9% to 63.5%.

Chapter 3: Universities should improve strategic plans to help achieve student retention and graduation goals

Recommendation 3.1 – 3.2: Not applicable to UA.

Recommendation 3.3: UA should:

Recommendation 3.3a: Develop a SMART objective for its goal related to increasing its freshmen retention rate.

<u>UA Response:</u> The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

<u>Response explanation:</u> The University of Arizona appreciates the use of a Strategic Planning Framework for their analysis. But, there are many approaches to strategic planning, including SMART. The University of Arizona will strive to refine its strategic plan

for Student Success and Retention Innovation and appreciates the broader spirit of the recommendations.

Recommendation 3.3b: Consider developing multiple SMART objectives for each of its student retention and graduation goals as appropriate.

UA Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

Response explanation: The University of Arizona appreciates the use of a Strategic Planning Framework for their analysis. But, there are many approaches to strategic planning, including SMART. The University of Arizona will strive to refine its strategic plan for Student Success and Retention Innovation and appreciates the broader spirit of the recommendations.

Recommendation 3.3c: Develop performance measures and/or revise existing performance measures to assess the progress of its strategies and tasks for achieving each of its student retention and graduation goals. UA should also consider using a combination of multiple types of performance measures to assess different aspects of its performance related to each of its strategies and tasks, where appropriate.

UA Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

Response explanation: The University of Arizona agrees it is reasonable to expect performance metrics.

Recommendation 3.3d: Revise its action plans for each of its student retention and graduation goals to specify the party or parties responsible for implementing each strategy and task.

UA Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

Response explanation: This is a reasonable expectation and the university will make sure to create strategic planning documents that have responsibilities attached to each strategy and task.