Michael M. Crow became the 16th president of Arizona State University in July 2002, with the goal of transforming ASU into what he calls a “New American University”—an institution combining the highest levels of academic excellence, inclusiveness to a broad demographic, and maximum societal impact. His view included increasing graduate numbers, graduation rates, and freshman-retention rates while also expanding ethnic and economic diversity.
Today, ASU has established more than a dozen new transdisciplinary schools and large-scale research initiatives and has nearly tripled research expenditures. Enrollment increased 30 percent since 2002, to a record 72,254 undergraduate and graduate students in fall 2011. Minority enrollment as a percentage of the total student population increased 52 percent, to 31 percent of the total student body. ASU awarded 17,090 degrees in 2011, up 51.5 percent from 2002. Undergraduate degrees increased 42.4 percent during that time. The six-year graduation rate for the freshman cohort entering in fall 2004 was 58.7 percent, up 19.3 percent from the rate for the cohort that entered in fall 1995. Freshman persistence in fall 2011 increased to 84 percent, 9 percent higher than in fall 2002. In addition, the number of first-time, full-time, low-income Arizona freshmen increased 647 percent from FY2003 through FY2011.¹

President Crow attributes much of this success to the use of analytics. Recently, EDUCAUSE President Diana Oblinger talked with Crow about why the university moved toward using analytics, how ASU has implemented analytics, where there could be problems, and what he sees ahead.

Oblinger: Some people think of analytics as a by-the-numbers approach. Something as methodical as analytics isn't usually seen as innovative. Yet at ASU, you've created a culture of innovation using analytics. How would you reconcile this view of decision making with your use of analytics to lead innovation?

Crow: Our use of analytics is being driven by the objective of student success. If you're running an elite institution for which you can handpick students through some kind of a selection methodology, you're working in an elite model. The value of analytics might be different in such a case. But those institutions make up a small percentage of the higher education enterprise. If you are instead trying to educate a broader spectrum of the population, including elite students, and you aren't using analytics, you won't know what's going on.

We've learned some important lessons about analytics, all the way down to the classroom level. We've had distinguished professors in the hard sciences, such as physics, say they feel ashamed that for thirty years they didn't know why certain students were learning or weren't learning. They had no idea of the reasons. Their only analytics was the grading of an exam or paper. We found that by applying analytics through every level of the enterprise—from subfractions of individual courses (used to guide academic advising decisions to help students stay on track to completion) all the way up to the university's modeling relative to demographic shifts in Arizona—we have infinitely more information to allow us to help students be successful. Analytics are not the end. They are the means to the end: the successful world-class university graduate who has come to us from any family, any background, any income level.

Oblinger: You've used analytics across the entire ASU institution. What prompted your move into analytics?

Crow: For us, to be a public university means engaging the demographic complexity of our society as a whole. It means understanding that demographic complexity. It means designing the institution to deal with that demographic complexity. And it means accepting highly differentiated types of intelligence: analytical intelligence, emotional intelligence. Students are not of one type but are of many, many types. Taking all of that and overlaying it with hundreds of degree programs results in so many variables and so

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many dimensions of complexity that you actually can’t operate the institution unless you make a fundamental switch and say to yourself that, at the end of the day, it is just about analytics. You have no other way of moving forward. So to be able to deal with all of our complexity at ASU, we decided to change the nature of our decision making away from trying to operate a traditional enterprise on a traditional basis and toward being an innovative enterprise driven by analytics.

Oblinger: Where did some of the original inspiration for using analytics come from? From the corporate world—health care, insurance, retail? Or was your use of analytics more grounded in the theory of how best to make decisions in the university?

Crow: I went to a public policy school and studied decision making and similar areas in which analytics were really, really important. But analytics weren’t utilized at other academic institutions that I was a part of. At ASU, I could see that we would not be able to innovate fast enough without analytics. Without analytics, we can’t understand what’s going on, we can’t understand the complexity of what we’re trying to do, and we can’t measure our progress. We needed tools to help us make better decisions—about everything. How should we design academic advising? How should we design individual courses? How should we design the overall pedagogical structure of the institution? Every facet of the institution requires robust analytics.

Oblinger: What about the use of analytics on the business side? Have you used analytics to improve efficiency?

Crow: Absolutely. We could not have made the adjustments that we made without finding ways to build the institution further. We now have analytically driven models—eight- to ten-year strategic business frameworks—from which we can create one- to three-year business frameworks for individual units. From those we can build revenue projections. And we can build performance projections. Which students in which programs with what levels of support get to the levels of success that we’re looking for? How does that work from an academic success perspective? How does that work from a financial perspective? We can then integrate all of those aspects.

Oblinger: Have you run into bumps along the road as you implemented analytics?

Crow: Our biggest problem has been that launching an analytical tool that is not 100 percent reliable creates tension and frustration and anger in the institution. Our biggest problem has been that launching an analytical tool that is not 100 percent reliable creates tension and frustration and anger in the institution. If we devise or buy a tool allowing us to move in the direction we want to go and then the tool doesn’t work well enough or uniformly, many in the institution can lose confidence in managerial decisions. They’ll say: “Yes, we want to use the tool, but it’s too bad you guys can’t really make it work.” The biggest stresses and strains for us have been that if we say we’re going to switch to a new analytical platform for advising or to a new learning-assessment tool that will be integrated into our online advising tool, it must work flawlessly. If you’re trying to do these things in real time or quickly, you better be sure that everything works. And if it doesn’t work, you better have another plan. Otherwise people will use the situation as a way to say: “This is the wrong path. This is too complex. It really can’t be done. You might think that we can do this, but we can’t actually do this.”

Oblinger: Have you had faculty or staff say “I can’t trust you with my data” or “We can’t do this because of FERPA” or
“That’s a violation of my academic freedom”? Are these common issues?

Crow: We created a program we call the Student 360. We wanted an academic advisor or a student affairs dean or an associate dean to be able to have a 360-degree analytical view of a student. This view should include all aspects of a student: financial aid information, grade information, behavioral information. But before we launched the program, we did a legal analysis—to determine what constraints there might be relative to FERPA. What we found is that FERPA is concerned with the university releasing information outside of the institution and is not focused on the use of this information inside the institution. And so, with the right training and the right controls and the right discipline, we were able to build this 360 analytical tool, which has been remarkably helpful for us in terms of creating a new way to advise students.

We were also partly motivated by the Virginia Tech shooting incident, where several campus units were aware of the perpetrator’s unusual behavior beforehand but felt they couldn’t talk about it, even within the institution. We went back and reengineered the group-responsibility logic. At ASU, we are all responsible for the care, well-being, and success of our students. We all need to be aware if we have students that are having difficulty or are acting out or are melting down. It can’t be just the English department or just the football team that is aware of unusual behavior, with no other campus department knowing. We require engagement of the university’s counseling services immediately, with the 360 review process, for all students in jeopardy. We have used analytics at this level, in a very large institution with many undergraduates, to greatly enhance our ability to be of better service to our students.

Obinger: Where are we in terms of analytics in higher education today, and where do we need to be?

Crow: In the United States, our institutions have unbelievable technological capability. We have unbelievable backbone. We have everything that should enable us to be the most analytical enterprise class in the world. We're not. We should be using analytics at all levels of the institution. Some institutions are, and some aren’t. I think we have a huge opportunity to tackle this issue of improvement. We are graduating only 55 percent of the students that come
to four-year colleges. We are losing 45 percent. We need to make a dramatic change. We need to be graduating 90 percent, but we can't do that without enhanced analytics, and we can't do that without enhanced linkages and integration. We are not as innovative or as adaptive as we should be. As a sector, U.S. higher education institutions are not taking advantage of one of our natural strengths: our technological capability and technological infrastructure. We should be highly analytical, on every possible level, driving toward our objective: high-quality education at the lowest-possible cost.

Oblinger: What is the role of the federal government or of state governments in driving analytics forward?

Crow: We need to be relieved of regulations to the extent that we can. It would be great to have a unified single student ID number system that would allow anyone in a given state, or even anyone across the country, to talk about student X: he went to such-and-such community college, then transferred to the university, and then went on to graduate school. I think having all that information would be positive.

But right now the rules and regulations, particularly at the federal level, are constraining. They are constraining in the sense that the government is using older, antiquated analytical measures. For instance, when the federal government calculates graduation rates, it calculates rates only for first-time, full-time freshmen. It does not calculate whether or not students actually graduate from somewhere else. It does not count transfer students who ultimately graduate. So we have a grossly underreported performance from some institutions, creating bad data that then goes into bad policymaking. We need more flexibility and more adaptability, and we need more recognition that students are moving around.

This is just one example. We need to update our overall logic and focus on student success nationally as opposed to student success institutionally. We need to track students all the way along their educational path. Right now, the government is not particularly innovative.
Oblinger: Many aspects are critical in the adoption of analytics: cultural change, data governance policies, data quality and security, technology infrastructure, necessary skills. What do you think is the biggest barrier—or, to put it another way, what is the number-one thing we ought to be working on to enable analytics to move more rapidly?

Crow: The thing we are missing right now is a clear focus on our underperformance as a sector. We focus a lot of energy on elite institutions, which are highly successful because of their handpicked student classes. If we set aside those institutions, which are few in number, the rest of the sector is grossly underperforming. It needs a set of significant tools put in place to help it perform better. If institutions became focused on performance and on the use of analytics at every level to both measure and enhance performance, these technologies would naturally be put to work. They're the means by which we can know exactly where we are. Students from families with incomes below $30,000, students who have Pell Grants, students who have specified levels of preparation on any given day—how are they doing? How are they advancing? How are they moving toward their goals? How might additional resources or additional assets or additional analytical tools or additional decision-making tools help them to be more successful? Let's measure all of that. When you're dealing with millions and millions of students in large-scale higher education institutions, in large-scale community colleges and public universities, you don't have any choice: you must use these kinds of tools to get a better sense of how to be successful.

I think the number-one thing we need to do is to focus on our own performance and the need to enhance student success. There are no more excuses. If you use these analytical tools, you will know where you are, you will know what you're doing, you will know if what you're doing is working or not, and therefore you will know whether or not you need to be doing new things customized to fit your particular school or your particular demographic to be...
“The number-one thing we need to do is to focus on our own performance and the need to enhance student success. There are no more excuses.”

Crow: We’re next headed away from hard, confined definitions of learning timeframes. We’re trying to change from the old agricultural cycle—or whatever it is that semesters are currently based on, because nobody really knows—to cycles based on learning outcomes. That might mean a course could take two years and other courses could take three weeks. How can we allow students to individualize their learning in a structured institution? We’re looking to use technology and analytics to help us move into a much less constrained time structure.

Oblinger: Do you have any words of advice you’d like to share with your colleagues in higher education about where to begin in using analytics?

Crow: I would say to focus on those tools that allow students to learn more quickly and more broadly and that give students access to whatever information they need in real time. Allow them to game and simulate their academic careers, and allow them to engage 24/7 academic advice without having to speak to an academic advisor. That’s where we’ve found the most positive impact. We are focused on using every analytical tool that will help us to enhance student success across the full spectrum of students while also allowing us to simultaneously contain our costs. We have been able to drive up our freshman retention while diversifying the socioeconomic backgrounds of our students. It has been surprising to us that we could make as much progress as quickly as we did using these analytical tools. We didn’t know we could do that. Now we know.

Oblinger: Arizona State is on the leading edge in many areas, not only analytics but also other technology tools. What’s next?

Note
1. ASU Office of Institutional Analysis.

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