

'Future of work': NMSU system leaders discuss growing industries and whether remote learning is here to stay



LAS CRUCES - During a meeting of the bicameral, bipartisan Legislative Finance Committee Thursday, May 20, in Las Cruces, leaders within the New Mexico State University system announced their plans to better meet the needs of an evolving workforce in a post-pandemic era. The meeting took place in the Stan Fulton Center on the campus of NMSU.

Citing a recent report from the New Mexico Economic Development Department, NMSU Chancellor Dan Arvizu said the state's workplace has been changed by the COVID-19 pandemic.

Returning to work... or not

"Many of our students are not choosing to go back to school or go back to work for a variety of reasons," Arvizu said. "The assessment of our workplace is changing, quite dramatically."

Key reasons employees may be reluctant to return to work include health and safety concerns, children who are not attending school, and a lack of access to daycare, he told the lawmakers. At the same time, workers are reassessing the reasons they do want to come back to work.

"They want better pay — especially some of the frontline workers who feel like they've been disenfranchised, with how challenging their job has become. And their wages are so low, they're wondering if it's still worth it or not," Arvizu noted. "They want better protection; they want flexibility to work from home."

Because of jobs that can be automated, Arvizu said experts project that 30 to 40 percent of "the jobs that we had before (the pandemic) will not be coming back."

Furthermore, Enrico Pontelli, dean of NMSU's College of Arts and Sciences, told the lawmakers statistics that show graduates entering the workforce will change careers, on average, seven times throughout their lifetime.

"Not jobs," Pontelli stressed, "careers."

To prepare students for the workforce of the future, this makes the university's ability to facilitate and encourage interdisciplinary studies all the more important.

Remote learning is here to stay

Pontelli noted that the pandemic has brought about changes in higher education that are here to stay. For example, in 2019, a large majority of the university's courses were face-to-face — more than 80%. The pandemic forced 100% of courses to be moved online, before eventually moving to a “hybrid” model, which is a combination of the two.

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While some disciplines — such as theater and music — are very difficult to teach effectively online, Pontelli said, others adapt quite well to online instruction. And, he noted, in many cases, students prefer it. For example, 100% of the Spanish general education sections for the Fall 2021 semester are already full, whereas the same is true of only about 50% of the face-to-face sections.

Looking ahead to the fall, about 60% of NMSU's courses are expected to be face-to-face, while the number of online courses has nearly doubled, to 30%.



Growing industries

One field which has been growing exponentially in recent years is artificial intelligence, Pontelli said. Developed in the 1950s, the industry tends to go through “summers” and “winters.” During AI summers, interest around the topic is very hot; the opposite is true during winters — which, historically, have roughly aligned with decades.

“Right now, we are in a very hot summer. This is a summer that is going to stay around for a very long time,” he said. “Why? Because now, AI is in your hands. Your cell phone is AI.”



And the field is starving for workers — and for computer science graduates, more broadly.

"AI is, of course, based on computer science. We still have a big need for producing computer science talent. Right now, (in the U.S.,) there are currently 400,000 open jobs, and there were 71,000 graduates last year. In New Mexico itself ... there are about 1,800 open jobs, and we graduated 173 CS graduates last year."

Similarly, the field of cybersecurity has been growing by leaps and bounds in recent years. Pointing to the [recent ransomware attack on the Colonial Pipeline](#), Pontelli said the university will focus on preparing the next generation to prepare for the challenges of cybersecurity.

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“And that’s not something we can train students by giving them a six-week boot camp,” he said.

It’s also an example of a field that requires a wide range of interdisciplinary studies — including government, business, engineering and, of course, computer science.

Since 2013, the number of jobs in cybersecurity has grown 350%, he told lawmakers. About 3.5 million cybersecurity jobs are open; however, industry analysts say that for every four applications received, only one is qualified to do the job.

Meeting the needs of the workforce

Citing a recent analysis by The Bridge of Southern New Mexico, Arvizu noted that in New Mexico, there are currently three times as many people looking for jobs as there are jobs available. However, those looking for jobs largely lack the skills necessary for the job openings that exist.

“Many of those are high-tech jobs, like you might find at the national labs,” Arvizu said. Some of those industries, identified by NMEDD, are aerospace, bioscience, cybersecurity and film and television.

To address this gap, the NMSU system has been working with private industry to identify necessary skills lacking in the state’s workforce, and aligning course offerings to produce graduates who meet that demand.

In response to these conversations, Arvizu said NMSU is also developing NMSU On-Demand, a program that will allow current workers — who don’t have the ability to go back to school for a two-year or four-year degree — to “upskill.” The program is designed to accommodate those who just need to earn one competency or one credential.

"The idea is that the individuals who take (these courses) need to upskill — they need a credential for something," Arvizu explained. "They need a skill in order to do something at their workplace, or to give them a competency that (will give them) an advantage in the marketplace with various employers. And we're working with the employers on what those competencies are."

The certifications will be set up as four-week and six-week courses, and graduates will earn an NMSU credential.

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Monica Torres, president of Doña Ana Community College, noted that predicted growth industries also include those relating to sustainability — such as sustainable energy and sustainable construction. She said the college has been giving a lot of thought to how it will respond to the changing needs of the workforce.

"How is the content that we teach — and that means content in the classroom in majors that exist, our developing our new majors —how is that going to change as a result?" she said.

The college has introduced (or is developing) new programs in cybersecurity, data analytics, logistics and child development, Torres said. It also is working with private industry to be more responsive to emerging needs.

Legislators weigh in

Sen. Siah Correa Hemphill, D- Silver City, stressed the importance of investing in higher education throughout the state, as a means of creating a more highly-skilled workforce.

"That's a critical piece to the prosperity cycle," she said. "When we have a higher-skilled workforce, then they earn more income. That income goes into supporting our local economies and local small businesses. And that creates tax revenue that goes into support our education system, and it's this beautiful cycle of prosperity."

Sen. Gay Kernan, R-Hobbs, spoke about the shortage of students entering field of education, while Sen. Nancy Rodriguez, D-Santa Fe, expressed similar concerns about the nursing profession

Rep. Javier Martinez, D-Albuquerque, commended NMSU's continued developments in AI, but said it is critical to do what's possible to bring equity to the industry.

"New Mexico, with its long history of multiculturalism, multilingualism, etc. — it seems like this research in AI that is happening here in our university in Las Cruces is ripe for some cutting-edge research around that issue," Martinez said.

Pontelli said the NMSU system is committed to this goal, and is a founding institution of the Computing Alliance of Hispanic Serving Institutions. He also noted NMSU was recently selected to [partner with AI4ALL](#), a US-based nonprofit dedicated to increasing diversity and inclusion in AI education, research, development, and policy.

Dive deeper: Read the complete hearing brief below

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