Growing Latino technical workforce keeps U.S. competitive

By Ray Mellado and John Yochelson

Although Hispanics are widely seen as a tipping factor in U.S. politics, their make-or-break role in America's economic future has gone largely unnoticed. The overlooked crunch point will not be in labor-intensive sectors, but at the cutting edge of technology.

The alternatives are stark. If the country's fastest-growing population yields its fair share of top-notch scientists, engineers and technicians, the U.S. economy will be well positioned to continue leading the world in innovation. If Hispanics are left behind in the skills race, a thinner pool of technical talent will weaken U.S. competitiveness and speed the flight of high-wage jobs offshore.

On the plus side, some of the brightest stars in U.S. science and technology are Hispanic. Many reached the top of their fields in a generation. The first Hispanic director of a federal energy laboratory earned his doctorate in mechanical engineering on scholarship at Stanford. The chancellor of the University of California-Riverside, an astrophysicist and formerly chief scientist at NASA, helped raise her 11 younger Mexican-American siblings. IBM's key technical strategist fled Havana as a child.

Focusing on high-tech stars, however, misses the bigger picture. The new realities of global competition have not hit home in a Hispanic community that still remains at the margins of the U.S. innovation enterprise. The Hispanic share of the population is projected to increase from 12 percent to 20 percent by 2020. Yet this surging minority comprises just 3.2 percent of the U.S. science and engineering workforce.

As a result, millions of Hispanics have little or no contact with role models in science and engineering. Few have a clear grasp of the educational pathways that lead to careers in research and development. Even fewer realize how many doors a post-secondary degree can open in aeronautics, bioengineering, chemistry or computer sciences.

Meanwhile, U.S. reliance on global talent has diverted attention away from realizing the potential of Hispanics and other under-represented minorities. International students now earn a staggering 40 percent of U.S. doctorates in science and engineering. The foreign-born segment of our nation's science and engineering workforce has jumped from 14 percent to 22 percent since 1990.

The United States will not strike a better balance between homegrown and foreign-born technical talent unless the Hispanic community is fully engaged. Four strategic objectives belong at the heart of an action agenda to grow the nation's Hispanic technical workforce:

• Create a new Hispanic mindset regarding science and technology. The silent Hispanic majority still believes that hard work alone is enough to provide for a family and build a better life. Yet this very work ethic prompts many to settle for lower levels of education and typecasts the Hispanic community as an endless supplier of reliable, low-skilled labor. This community must be convinced that 21st-century skills are indispensable in our knowledge-based economy. The transformation in attitudes and expectations

that is needed must start with a well-designed awareness campaign targeting the 17 states that account for 90 percent of the U.S. Hispanic population.

• Increase the number of Hispanic math and science teachers. Hispanics comprise a scant 2 percent of the math and science teachers employed in U.S. school districts. Such under-representation sends a devastating message. To be sure, teacher effectiveness matters more than age, gender, race or ethnic background. But common sense suggests that well-trained Hispanic teachers will make a special difference in their own communities. Attracting talented Hispanic undergraduates to math and science teaching careers is an urgent national need.

• Expand grass-roots outreach to Hispanic middle school students. U.S. achievement in math and science drops sharply from fourth to eighth grade, the very years that should spark lasting interest in these subjects. One promising new initiative is Viva Technology, a bilingual pre-engineering outreach program that has been piloted in a dozen metro areas and adopted by the Los Angeles Unified School District. The components that make Viva Technology a winner -- parental engagement, role models, hands-on inquiry and emphasizing the value of math -- should be adopted in Hispanic communities across the country.

•Build Hispanic capacity in science and engineering. The factors that lead to Hispanic degree completion in these fields are well known. They include committed faculty, effective mentors, strong peer support, rigorous and relevant content, financial assistance and effective transition to the job market. Although we know what works, Hispanic attrition in science and engineering has remained at 50 percent or more for years. Stopping this leakage alone would create huge benefits, but it will occur only when the nation's higher education establishment makes homegrown talent a commanding priority.

Growing the Hispanic technical workforce is a not a choice, but an imperative

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