

Hurry, We're Losing the High-Tech Race

Computer science holds the broadest and longest-term potential

By Alan Zeichick – *Alan Zeichick is editor-in-chief of SD Times, a technology newspaper published twice monthly by Oyster Bay-based BZ Media LLC, a publishing firm.*

IT WAS A PLEASANT break from the cold: Earlier this month, I was attending a technology conference on the Hawaiian island of Oahu. Sponsored by the governor in conjunction with the state's economic and tourism departments, the event was designed to highlight the accomplishments of technology firms, to discuss partnerships between business and the University of Hawaii and to explain new economic incentives for high-tech start-ups.

During dinner, I chatted with an aide to Gov. Benjamin Cayetano. She talked about a biotechnology industrial park being established on Oahu, astronomical laboratories on the Big Island, the huge Maui supercomputer center, aquaculture farms, telecommunications and defense.

"What about information technology and software development?" I asked.

She looked surprised at such a simple question. "It's part of everything," she replied. "Software is fundamental to all these initiatives."

Hawaii gets it: Computer science is the key to the future of high-tech economic development. And while that state's government is throwing open its checkbook to pay for an aggressive high-tech growth program that builds atop research into computing, New York is mired in indecision. Albany can't decide how much should be invested, or in which parts of the state. The state hasn't even determined which technology sector should receive special attention among the three main choices now available: biotechnology, laser technology and computer science.

Gov. George Pataki provided an indication of where dollars might be headed if he had his way during his recent State of the State speech. "On Long Island," he said, "we will build on the strengths of institutions like the Cold Spring Harbor Laboratory and Long Island's nationally ranked cluster of biotech firms, to create new medical treatments, devices and processes."

Biotechnology is the favorite choice right now in the Senate. The Assembly has proposals in different areas, including laser technology and computer science. Some of these plans would spread dollars across the state in different programs and geographical areas. This is not focused enough.

Investment into computer science should be at the heart of the state's high-technology growth plans, and a big portion of it should be on Long Island, which already has a strong base of companies that are successful in this field.

Certainly biotech is popular, even chic, with recent breakthroughs in fields such as genetic testing, stem-cell research and cloning. Researchers are developing not only pure science, but practical applications such as highly targeted medicines and diagnosis. Even in a slowing economy, consumers need health care, making this a huge global market with no end in sight for research, prevention, diagnosis, prescription and treatment and with giant pharmaceutical companies waiting to capitalize on every innovation.

In laser research, the cutting-edge field of photonics offers tremendous economic potential, though admittedly it doesn't capture the voting public's attention the same way that stem cells or cloned sheep do. On the other hand, photonics is more a part of our everyday lives. Precision optics and lasers are at the heart of everything from DVD players to diagnostic imaging to high-speed computer networks to missile-defense systems. Computers are inside all these devices, from the DVD players and the diagnostic medical scanners to the luxury automobiles and the "smart" bombs. You'll not only find chips, but dozens of specialized embedded processors, smaller than a dime, that control every aspect of a high-tech device's functioning.

Computers are also essential to biotechnology, filling databases with genetic data and digital maps. And that's just for starters.

One indicator of the value of computer science, across the entire spectrum of high technology, may be found in patents. Guess which company applied for and received the most U.S. patents in 2001? It wasn't a biotech firm or a laser company. It was IBM, a bastion of computer-science research, with 3,411 patents. That's not a statistical anomaly - the giant Armonk, N.Y., company has led in patents for nine consecutive years, before either biotech or optics were the hot topic at cocktail parties and venture-capital conferences.

Patents are important: Not only do they protect intellectual property, but they also represent a tangible asset, one that can be sold or licensed to other companies. That's the value of research. And, remember, research into computer science is at the heart of every high-technology market, as Gov. Cayetano knows well - perhaps better than Gov. Pataki.

As New York officials continue to ponder which technology to invest in, computer science is the one that will have the broadest and longest-term potential - not only on its own merits, as Long Island success stories such as Computer Associates show, but because research is integral to advanced technology. Let's use targeted grants to fund research, both in the private sector and through our local universities, while encouraging private-public partnerships that will keep our graduates here with lucrative jobs. This would add to the strong base of intellectual capital already on Long Island. Let's use loans and tax incentives both to inspire high-tech start-ups and to encourage out-of-state companies to create high-tech opportunities right here, not in Silicon Valley, not in Atlanta, not on Oahu.

Long Island is nearly halfway around the world from the Hawaiian archipelago. But that remote state is showing us the way. We may not have their wonderful weather, but with companies such as IBM, Xerox, Computer Associates and others, we have a strong base and commitment to computer technology. Let's build our own future on that strong base.

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