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**“CAROCP is Mission Driven - Market Smart!”**

CALIFORNIA ASSOCIATION OF REGIONAL OCCUPATIONAL CENTERS AND PROGRAMS

# CAROCP Market Watch

A Trends & Forecasting Report

## **“To be, or not to be: that is the question”**

*All Industry Sectors*

To be or not to be *competitive* is the bigger question raised by author Mark J. Penn in his study of “Numbers Junkies” from this 2007 book “Microtrends.” Historians of the English language note that our country was founded on humanities. Demonstrating proper usage of the English language and having knowledge of the arts was a sign of status for early settlers. The focus on language arts and humanities permeates throughout the evolution of our public education system. We live in a society where we take pride in admitting to having read Shakespeare and where it is acceptable to not know the difference between terms such as mean and median, or atom and element. Penn

points out that “we study less and less math and science and focus more attention in fields like psychology at the university level.” In the 2003-04 school year, STEM (Science, Technology, Engineering, and Math) degrees made up 27 percent of awarded degrees, down from 32 percent ten years ago. Many of today’s jobs in the STEM arena are being filled by foreigners. At the time of writing, Penn noted that Harvard had about 77 math majors, out of 6,700 undergraduates, and at Yale the number was only 38. “That means that this year, these two universities will graduate fewer than fifty people who really understand the ins and outs of higher math.” In contrast, Shakespeare is not as popular as

Niels Bohr, a Nobel Prize winning physicist, is in China and India. Math and science is “cool” in India and China and viewed as a means to a better future.

Sadly, in the United States, it isn’t cool to be interested in math and science, but due to popular culture there is hope. The U.S. is experiencing a “growing and intense” fascination with math, science, medicine, and technology through television. At least 15 of the most popular, successful prime-time shows heavily feature math, science, medicine and technology according to *Popular Science*. The appeal *Continued on page 4*

## **You Might be Wearing Your Next Computer**

*Information Technology Sector*

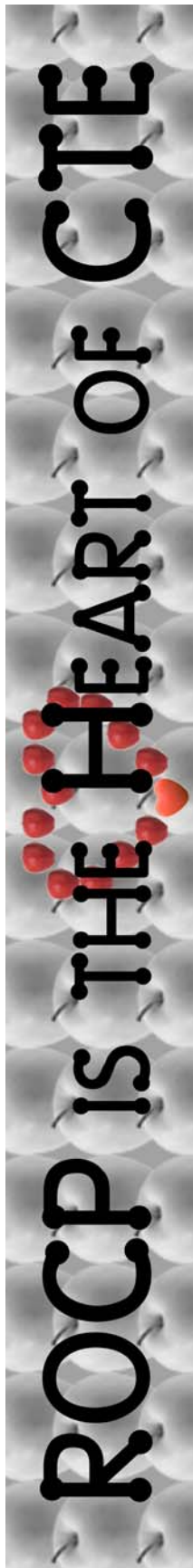
As computers get smaller, the possibilities get much larger. “From clothes riddled with sensors to name-tags that detect our moods, computing’s next wave could unleash small devices that increasingly augment everyday activities with digital intelligence.” A variety of practical devices are being invented that have

implications in numerous markets. For example, flexible digital threads can be woven into clothing to monitor a person’s posture and then prompt the person via a PC or mobile device to straighten-up. This could be a significant development for medical professionals in the treatment *Continued on page 4*

**Inside this issue:**

Caution, Natives at Play	2
Soft Skills for Techies	2
To Be or Not To Be?	3
Green Fuel is Growing	3





## Caution, Natives at Play

*Information Technology Sectors*

The “digital natives” that is - teens and tweens who flock to MySpace, Facebook and other social networking sites. With ages barely into the double digits, these “digital natives” are growing up with the Internet.

Actual public spaces -- the parks and playgrounds their parents enjoyed as children -- are being replaced by virtual spaces of Massive Multiplayer Online Role-Playing Games, social networking Web sites, instant messenger platforms and video-music swapping sites.

By the age of 7, most children have used a cell phone, mastered TV-on-demand and played computer games. By 13, they are surfing the Internet for educational purposes as well as not such educational en-

deavors. The library is becoming a meeting place rather than an educational resource. This generation has mastered the art of multitasking through life with an arsenal of electronic devices.

The playground for this young and wired generation is a virtual space wherein they play games, experiment with self-expression, and socialize with friends. In contrast, parents and teachers, if they're online at all, use the Internet to get work done, buy airline tickets or do their online banking.

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## Soft Skills for Techies

*Information Technology, Engineering and Design Industry Sectors*

Wikipedia defines soft skills as “the cluster of personality traits, social graces, facility with language, personal habits, friendliness, and optimism that mark people to varying degrees. Soft skills complement hard skills, which are the technical requirements of the job.” Three forces driving the need for technical professionals, to broaden their skill sets are: 1) profitability, 2) increasing competition, and 3) globalization.

To maintain a competitive edge, companies need to operate more efficiently and effectively and show a positive return on technology resources and investments. Recently, over 250 technical leaders were surveyed, and they responded that the lack of soft skills was a large factor in project failure. When technical skills are complemented by soft skills, personal productivity, collaboration and synergy are increased thereby increasing project success rates that sustain competitiveness and profitability. One executive from a Fortune 500 tech firm noted that they are now making a concerted effort to hire information technology employees with a solid command of people skills. Today's em-

ployers expect techies to be full partners in carrying out the mission of the organization.

The soft skills most often needed by technical professionals include communication skills such as face-to-face communications, nonverbal communication, and active listening skills; interpersonal skills such as self-awareness, social awareness, conflict management, and diversity awareness. Instructors need to teach soft skills and relevant, real-world examples and direct step-by-step approaches work best for linear-thinking, task oriented techies. Role-playing can be an effective strategy for reinforcing soft skills, but remember, it can take the techie out of his/her comfort zone. The more soft skills training that can be incorporated into technical education programs, the more successful graduates will be on the job and the more he or she will be in demand. Gone are the days when techies could treat a customer like “just another dumb user.”

Techniques May 2007

## Shopping on the “Fly”

*Hospitality, Tourism and Recreation; Marketing, Sales and Service Sectors*

Many airports are looking more like malls. Flyers are as likely to find a Brooks Brothers or Victoria’s Secret as an overpriced donut cart. Weary road warriors can spend layovers in a spa as well as a bar. And if you forget something for the kids, your choices are no longer limited to a few racks of marked-up gift store knickknacks – name-brand toy stores are cropping up in terminals nationwide.

Airports have had to improve security procedures and accommodate travelers for longer periods of time since the 9/11 terrorist attacks. Retailers like to locate stores in places where there are lots of people, and airports offer a constantly changing, captive audience. For instance, 107 million passengers are expected to visit the three New York area airports this year.

“What’s important about air-

port traffic is the volume of travelers,” said Daniel Butler, Vice President of Merchandising and Retail Operations at the National Retail Federation. “It’s...new traffic every day.” With travelers urged to arrive more than two hours before flights to clear security, the captive audience in terminals shot up.

Since 9/11, people are spending a lot more time at airports, but are they willing to stop and buy things they then have to carry on with them? Many airport retailers address shoppers’ concerns about what to do with the stuff they buy by offering free shipping. Others find they sell smaller items such as ties or jewelry that don’t cause carry-on problems.

“If you look at what they’re selling predominantly at those locations, it’s the cash-and-carry items,” Butler said.

“They also do a lot of things that are giftable.”

While airports see stores as a revenue opportunity, travelers view them as a convenience.

“When there’s a layover it definitely makes it convenient,” said Art Foley, of Columbus, Ohio, on his way to catch a flight at Newark recently. “It makes it more pleasurable to have those (stores) there versus 10 years ago when there was nothing [*sic*] to shop at in an airport.”

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“The great hope is for commercial development of cellulosic ethanol, produced from handy field waste...”

## Green Fuel is Growing

*Agriculture and Natural Resources; Energy and Utilities; Transportation Sectors*

A convergence of factors - recent innovations, consumers fed up with high gasoline prices, and a now-obvious environmental crisis - may finally be creating a tipping point for the development of alternative fuels. Auto manufacturers are pushing hybrid, diesel, natural gas, electric and other systems through R&D programs as fast as they can. Although gasoline will remain a dominant fuel until at least 2050, over that time multiple technologies will slowly chip away at that dominance.

**Battery Power** - Hybrid cars,

which mate battery-powered electric motors with internal-combustion engines, are available now from Honda, Toyota and Ford, and most other manufacturers have models on the way. Hybrids get between 45 and 50 miles per gallon. All-electric cars, could drive on electricity alone for about 40 miles. Both produce half the amount of the greenhouse-gas emissions of 30mpg sedans.

**Diesel** - Formerly dirty and noisy, diesel is enjoying an eco-friendly second act. The cleaned-up fuel lets auto-makers introduce new systems

to scrub smog-forming nitrogen oxides that are emitted as part of diesel exhaust, along with filters to trap diesel’s sooty, carcinogenic particles. Diesel cars have always delivered 20 to 40 percent better mileage than gasoline models. They also emit about one third less carbon dioxide.

**Ethanol** - Ethanol is ethyl alcohol, brewed in the U.S. mainly from corn. The idea has been that this starch-based kind of ethanol could replace petroleum with an endlessly renewable fuel. The great hope is *Continued on page 4*

## Trends & Forecasting

Kit Alvarez  
Colton-Redlands-Yucaipa ROP  
kit\_alvarez@cry-rop.org

Cindy Prentice  
Baldy View ROP  
cindy\_prentice@bvrop.k12.ca.us

## Green Fuel

*continued from page 3*

for commercial development of cellulosic ethanol, produced from handy field waste, such as corn stover, switchgrass or wood pulp. Researchers, however, haven't yet figured out a cheap way to produce it.

**Biodiesel** - Cleaner-burning than ethanol, with vastly better fuel economy, biodiesel could soon move beyond the fryer-grease fringe. Made largely from soybean oil or recycled cooking oil, biodiesel runs fine in unmodified diesel engines at up to a 20 percent blend with 80 percent petroleum diesel. Pure liquid biodiesel thickens at low temperatures, however, creating challenges for cold-climate storage operation.

**Hydrogen-fuel-cell Cars** - Employ an electrochemical converter that combines hydrogen and oxygen to create electricity that powers a motor, with heat and water as the by-products.

**Natural Gas** - Extracted from oil fields and natural-gas fields found around the world, burns cleaner than other fossil fuels and produces up to 30 percent less carbon dioxide than petroleum. Natural-gas is the cleanest internal-combustion fuel ever tested by the Environmental Protection Agency. It's less polluting than any gasoline or even hybrid model, and it consumes on average 0.1 barrel of petroleum annually (in engine oil), compared with 6.9 (gasoline and oil) for the Civic Hybrid and 10.4 for the conventional Civic. Natural gas, widely available from domestic sources, might reduce dependence on foreign oil.

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<<http://www.POPSCI.com>> .

## "To be, or not to be"

*continued from page 1*

goes beyond shows that feature medical science, blood spatter patterns, and deducing bullet trajectories like *CSI*, *House*, and *NCIS*. *Numb3rs*, is capturing an audience of 11 million each week. The audience was tested to determine what piqued their interest. The results indicated that the viewers went wild for the math explanations, and that the reason given was that the explanations made them feel smart. Using and understanding numbers is becoming a fascination as we use them more and more daily, especially in combination with technology and science. Given all of the numbers fascination, we can hope that America can leverage popular culture to reverse the anti-science and anti-math trend that security, technology, engineering, and bio-medical experts fear to maintain a competitive edge in today's global marketplace.

Penn, Mark J. Mircotrends: The Small Forces Behind Tomorrow's Big Changes. New York: Twelve, 2007.

## Wearing Your Next Computer

*continued from page 1*

of individuals recovering back injuries or other related ailments. Another example of wearable computers takes Maxwell Smart's shoe phone to the next level. A tiny sensor can be implanted into the shoes of first responders to provide real-time location tracking, or dead reckoning in places that satellite navigation systems can't reach or track with precision. Firefighters and first responders will be able to get and use real-time data in life and death decision making. Another invention involves embedding sensors into the gloves of snowboarders so that with the faintest squeeze of their fingers, they can control their portable music devices without glancing away from the snowy slope.

Graduate students at the Massachusetts Institute of Technology have developed a name badge type of device that collects motion and speech pattern data. The data can be sent wirelessly to a computer or phone

to give the wearers tips. This might be especially helpful if the wearer is a sales representative meeting with a potential client. Another use for the badge is in the study of how groups form and interact, or social network analysis. Corporations often have huge budgets to figure out what consumers want. One MIT graduate reported that the devices were tested on 25 bank employees at a branch and the results provided fascinating insight about alternative ways that the office might be laid out. It is estimated that badges will cost under \$100 each, and they have the ability to be incorporated into a person's name badge. So, in the not too distant future, you could be wearing your next computer.

14 October 2007

<<http://www.earthlink.com>> .