



Views You Can Use

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For more than a half-century, the global economy revolved around the United States. Now, the situation is changing in a shift that some analysts say the world has not seen since the Industrial Revolution, as developing countries become good investment opportunities and sources for emerging markets. You will hear much more about this critical topic and what it means for education in my keynote at the Model Schools Conference on June 30-July 3 in Washington, D.C. I hope to see you there.

Please help us focus U.S. education on what is most important for students to know by taking our NESS survey.

Sincerely,
Bill Daggett

Economic Trends

Your New Boss Is Based in — China?

With the recent rise of multinational corporations based in the developing world, U.S. workers increasingly are finding that their employers are from countries such as China and Mexico. The Chinese computer maker Lenovo, which purchased IBM's personal computer business in 2005, is one well-known example. Since then, a number of similar acquisitions have taken place. In late 2005, Mexican bank Banorte bought INB Financial of McAllen, Texas. In January 2007, the same bank bought UniTeller, a U.S.-based remittances company. Also in January, Russia's Evraz coal and steel producer acquired Oregon Steel Mills in Portland, Ore. And last June, Brazil's Gerdau Group acquired Sheffield Steel of Sand Springs, Okla. "The change is from globalization going one way to globalization going every way. It's as much about what developing countries are doing as developed countries," said Mark Foster, a London-based Accenture consultant.

Source: www.usatoday.com/money/world/2007-02-07-emerging-markets-usat_x.htm

Depending on the Developing World

The billions of dollars the United States borrows annually from foreign lenders to finance the gap between its national savings rate and its consumption increasingly is coming from developing nations. Through November, the most recent data available, more than 29% of the \$806 billion in net securities purchases came from developing countries compared with just 5% in 1998, according to Bank of America. The borrowed money, largely raised by selling U.S. Treasury securities, enables Americans to continue consuming beyond their means. The most significant danger of the world's wealthiest nation depending on loans from some of the poorest countries is that an unexpected economic crisis — such as a

sustained oil price decline that affects Middle Eastern oil producers — could cause emerging nations to reduce or eliminate purchases of dollar-denominated assets.

Source: www.usatoday.com/money/world/2007-02-07-emerging-markets-usat_x.htm

Biotechnology Trends

A Foot Ahead of the Rest

The Proprio Foot,™ the world's first intelligent foot prosthetic based on artificial intelligence and the latest in biomechanical research, is the closest to the real thing to date. The motion analysis information of the artificial foot is processed by a specialized form of artificial intelligence called Terrain Logic™ that rebuilds the sense of position or awareness in the body or space (proprioception) lost after an amputation. The prosthetic also has a muscle-mimicking motor. Sensors in the ankle sample movement more than 1,000 times a second to determine walking speed and transmit the data to an attached computer. That signals a piston to move the foot to match the other foot's pace.

Source: <http://bionics.ossur.com/pages/312>

Detecting Cancer in Saliva

Only about half of the 30,000 people in the United States diagnosed with oral cancer will survive five years, because this type of cancer is often detected at a late stage and spreads quickly. But researchers at the University of California, Los Angeles, have developed the first standardized saliva test that can diagnose oral cancer long before telltale lesions appear. The test detects oral cancer by scanning a sample for certain “messenger RNA” (mRNA) molecules that can indicate a developing tumor. The test is 85% accurate (the widely used blood test has about the same accuracy) and results come back in 24 hours. The test was based on breakthrough work in oral cancer that helped researchers prove that there is RNA associated with diseases in saliva. The researchers are looking to simplify the test for home use and standard dentist office equipment.

Source: www.today.ucla.edu/news/061024_research-beat

Genetically Altered Cells for Better Artificial Skin

Burn researchers at the University of Cincinnati have created genetically modified skin cells that, when added to cultured skin substitutes, may help fight off potentially lethal infections in patients with severe burns. The skin cells were genetically altered to produce higher levels of an antibacterial protein known as human beta defensin 4 (HBD4). Over the past decade, artificial skin made from scaffolds of collagen, the molecule that gives skin its structure and elasticity, have drastically improved burn victims' chances of survival. Still, skin substitutes are vulnerable to infection. It can take a week or two for blood vessels, which carry the immune system's infection-fighting machinery, to connect to the newly growing dermis. Adding the genetically modified cells to bioengineered skin substitutes would provide an important defense system boost during the initial grafting period, when the skin is most susceptible to infection.

Source: <http://healthnews.uc.edu/news/?/4153/>

Nanotechnology

“Listening in” on Cancer

Researchers at the University of California, Riverside, are developing nanodevices that can “listen” to the subtle cues that cancerous cells emit. The research is based in part on microelectrical arrays, thin metal plates about the size of a human hair in diameter that are used to sense the electrical activity from different types of cells. The technique allows scientists to differentiate cells from various parts of the body as well as cancerous cells from healthy ones. The researchers also are developing drug-delivery systems based on nanotubes in conjunction with the microelectrical array devices. They already have identified electrical activity differences in certain cells and have created a library of different signature patterns. The objective of the research is to replace the standard practice of injecting what often are toxic dyes into cells to find out which ones are cancerous. The project is part of the National Cancer Institute’s \$144.3 million five-year initiative to incorporate nanotechnology in cancer research.

Sources: www.physorg.com/news7980.html
www.cancer.gov/newscenter/pressreleases/CentersofCancerNanotechExcellence

Nanomaterials Include Risk

The size, type, and dispersion of nanomaterials could all play a role in how various nanomaterials impact human health and the environment, according to researchers at Rensselaer Polytechnic Institute. The researchers found that while carbon nanotubes inhibited growth in mammalian heart cells, they sustained the growth of *Escherichia coli* (*E. coli*), one of the main species of bacteria that lives in the lower intestines of mammals. The seemingly contradictory findings highlight the need for society to better grasp the impacts these infinitesimally small particles could have when released into the environment or the human body, the researchers said.

Source: <http://news.rpi.edu/update.do>

Economics by the Numbers

With many developing countries on the upswing economically, large corporations such as General Electric and Procter & Gamble have focused much more attention on emerging markets outside the United States, particularly in Asia, Latin America, parts of the Middle East, and Africa.

- If the developing world continues its current economic growth, the ranks of the global middle class are expected to triple by 2030 to 1.2 billion, according to the World Bank.
- Today, more than half of the world’s middle class, the class of citizens that fuels the economic engine of capitalism, resides in developing countries. By 2030, 92% will call the developing world home.
- Over the past several years, Procter & Gamble has added about one billion consumers to those users who have ever used or purchased its products.
- P & G expects to add another one billion consumers within the next three to five years, with most of them coming from developing markets.
- This year, P & G’s developing-country sales outpaced its overall 8% sales growth. Sales of Crest toothpaste, for example, rose more than 10% in Russia, while Duracell batteries posted a 20% gain in Latin America.
- Likewise, two-thirds of PepsiCo revenue growth is coming from the company’s international operations, with 60% of that from emerging markets.
- By 2010, GE wants emerging markets to account for 30% of its sales, twice the current level.

Source: www.usatoday.com/money/world/2007-02-07-emerging-markets-usat_x.htm