

TECHNOTRENDS®

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How Motivated Are We?

**By
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I have just finished speaking in Singapore at the first world summit for Entrepreneur of the Year Award winners. The theme was Access Asia and the focus was on identifying new opportunities in the region, specifically China and India. As I listened to the speakers from Asia, I noticed that one word kept standing out. They all kept referring to the tremendous “hunger” of their people to shape their future, grow their economy and enhance their standard of living. Actions speak louder than words and the actions of millions and millions of people throughout the region clearly show that they see real hope for a better tomorrow for themselves and their country. The young as well as the old are excited, motivated and engaged in rapidly learning and changing so they won’t be left behind. Governments tend to be slow to change, but the governments in China, India and throughout Indonesia see real opportunity and are breaking from tradition and taking unprecedented actions focused on renewal and growth.

How Hungry Are We?

As I listened, I asked myself how hungry are the thousands of American executives who are close to retirement? How hungry are the youth of America? How willing are Americans to work hard to learn new things, change and grow in order to secure a better tomorrow for themselves and the nation? Change is hard if you’re on top and really don’t want to change. However, if you see change as opportunity and you have a reason to have hope for a better tomorrow, change is welcomed and encouraged. I have worked with a wide variety of businesses in many different countries and the motivation throughout Asia is without comparison. If you have ever observed a person from Asia who has moved to the United States and started a business, you know what I mean. They can see by contrast the opportunity the U.S. has to offer and they work hard to realize their dreams. The result is a very high success rate. This same hunger for a better future is a major factor driving Asia’s growth both now and well into the future. The majority of Americans have always had the amazing opportunities freedom and democracy bring. We think we are the best, and we show it. All too often, we spend our time defending and protecting the *status quo* instead of leading change from the inside out. The result is a much lower level of hunger to learn, grow and change in order to take advantage of all the new opportunities that are available to us.

The Young Are The Future

For over twenty years, the education division of Burrus Research has been helping students and educators understand the opportunities the future has to offer. I can tell you from our experience of working in thousands of schools all over the country, that America’s youth are not very hungry. However, we have found that once students can see the tremendous opportunity the future has to offer, they become more optimistic and are eager to learn, grow and change. Adults respond in the same way.

(continued on page 2)

How Motivated Are We? (continued. from p. 1)

Seeing the Future

History has shown that once Americans clearly see future opportunity on a personal level, they develop the hunger and drive needed to shape the future. Often it takes a tragic event such as Pearl Harbor, 9/11 or massive layoffs to mobilize us. The good news is that we don't have to wait. As leaders, we can create hunger in our people by helping them to clearly see the personal opportunities change represents. Yes, I said personal. If we only discuss organizational opportunities, we will never create hunger. If we create a vision that individuals can relate and aspire to, then change is seen as positive and the result is action. Ask yourself: Do I have a strategy to create a personal hunger for my employees or students?

TECHNOLOGY NEWS HIGHLIGHTS

MIND-CONTROLLED WHEELCHAIR

In a project known as MAIA (Mental Augmentation through Determination of Intended Action), a team of European scientists has created a biofeedback device that allows people to guide a tiny robot wheelchair simply by thinking about it. However, the difference between this system and others is that it doesn't require surgical implantation of electrodes or even shaving one's head. Instead, the user wears a cap fitted with electrodes to measure brain activity. Electrical impulses in the brain are measured non-invasively using a technique known as electroencephalography (EEG). Specific thoughts, such as turning the wheelchair to the right, generate signals in specific areas of the brain, which are characterized by changes in the EEG. Once these patterns are established, the MAIA system converts them into the corresponding action whenever they are detected. Trials of MAIA with two subjects yielded success rates of 70 and 75 percent. Testing is scheduled to continue until 2007.

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SOLAR ENERGY BREAKTHROUGH

A group of Canadian scientists recently reported the development of a "paintable" plastic solar cell that boosts efficiency over current nano-engineered cells by five times. Made from an electrically conductive polymer doped with "quantum dots", the material can be dissolved into a liquid without sacrificing performance, making it easy to apply on a variety of surfaces - painted on walls, sprayed on cloth, or printed on paper. The printable solar cell is less expensive and easier to produce than its semiconductor counterparts. In addition, it's far more efficient than current plastic solar cells, which are only capable of absorbing light in the visible spectrum. The revolutionary new material also absorbs infrared rays, and is capable of converting an estimated 30 percent of solar energy into electricity. As a coating for cars, these new solar cells could generate enough power to continually recharge the battery of a hydrogen-powered or hybrid vehicle. They could also be used to automatically charge a variety of handheld devices, eliminating costly batteries and the need for chargers.

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OCTOPUS INSPIRES NEW LENS

Traditional camera lenses cause images to become blurry at the edges because the lenses are curved. Scientists from Case Western Reserve University and the U.S. Naval Research Laboratory have recently discovered a way to create inexpensive, plastic lenses with supersharp focus that eliminate the blurry edges. The scientists found that octopus lenses consist of many thin layers that vary in density so that when light enters each layer, it is bent and focused in a controlled manner. By mimicking the lenses of octopus eyes, the researchers assembled thousands of layers of various densities of superthin plastic to construct a lens that is virtually free of defects, and is small enough to be used on compact cameras and even surgical devices.

For information: Eric Baer, Case Western Reserve University, Department of Macromolecular Science and Engineering, 2100 Adelbert Rd., Kent Hale Smith Building, Cleveland, OH 44106; phone: 216-368-4203; email: eric.baer@case.edu; Web site: www.cwru.edu

SMART FLOORING

Scientists at the University of Edinburgh have developed a smart flooring system to monitor the location of people within buildings. The new technology could be used to pinpoint the location of occupants in an emergency situation or for monitoring of the elderly or children. The system is made of high tech linoleum tiles containing an array of piezoelectric sensors that respond to any force applied to the surface. A computer-generated model of the tiled floor permits surveillance of activity in the room. The tiles are even sensitive enough to detect the breathing and heart rate of a person who has fallen. And unlike video surveillance systems, the piezoelectric sensors can locate people effectively in smoke-filled rooms.

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UNIVERSAL FLU VACCINE

The recent shortages of influenza vaccine and warnings of a possible pandemic have only served to underscore the limitations of the current methods for battling the influenza virus. The need to update formulations annually in order to maintain efficacy is extremely costly. One solution may come from a biopharmaceutical startup company that has developed an experimental drug called Fludase®, which might be effective against most strains of influenza, including animal strains. Fludase is applied topically to the nasal passages and works by blocking the receptors on the cells of the patient, rather than targeting the virus itself. By rendering the cells inaccessible to the viral particles, the virus (regardless of the strain or subtype) cannot replicate and spread. Clinical trials are scheduled to begin this year. Because it's difficult to forecast the precise strains of influenza that will occur each year, the availability of a universal vaccine would allow sufficient supplies to be stockpiled for several years.

For information: NexBio, Inc., 6330 Nancy Ridge Drive, Suite 105, San Diego, CA 92121; phone: 858-452-2631; Web site: www.nexbio.com

CAN YOU HUM A FEW BARS?

How many times have you been in a music store looking for a particular song, but can't remember the title or the artist? You hum a few bars to the sales clerk, and all you get back is a blank stare. Researchers in Germany have come up with a system that will take your recorded humming, whistling, or singing and identify the tune. Called Query by Humming, the new melody recognition technology will soon be available to anyone equipped with a PC, sound card, microphone, and access to the Internet. A 15-second

sample of the inquirer's humming is recorded and processed to reduce background noise. The frequencies are analyzed and divided into notes, each of which is characterized by pitch and duration. This musical phrase is then compared to the system's database of some 2 million songs, and provides the inquirer with the ten most likely matches, along with links to purchase the song, lyrics, and information on the artist. The database contains samples ranging from classical favorites to the latest hits; however, the database can also be customized for specific applications. In addition to human voice recognition, the system has been tested using melodies generated by flute and piano with excellent results.

For information: Fraunhofer Institute for Digital Media Technology, Langewiesener Strasse 22, 98693 Ilmenau, Germany; phone: +49-3677-69-4341; fax: +49-3677-69-4399; Web site: www.idmt.fraunhofer.de

PLASTIC THAT CONDUCTS AND STRETCHES

It conducts electricity as effectively as steel, yet it weighs less than one percent of an equivalent steel component; it can be manufactured for one-thousandth the cost of steel; and, it can be stretched up to three times its own length. What is it? It's called Metal Rubber™, a revolutionary new material that utilizes nanotechnology to produce the first truly conductive, stretchable plastic. Using electrostatic assembly – a molecular layering process – the developers reduced the metal content required to sustain conductivity to approximately one percent. This allowed the polymer to stay stretchy, and also decreased cost and weight. Applications for the new material range from flexible electronic connectors to prosthetic limbs, artificial muscles, and more flexible aircraft wings.

For information: NanoSonic, Inc., 1485 S. Main Street, Blacksburg, VA 24060; phone: 540-953-1785; fax: 540-953-5022; Web site: www.nanosonic.com

HYDROGEN FUEL FROM ORGANIC WASTE

Japanese researchers have developed a new technology for producing pure hydrogen from organic waste. Using a proprietary catalyst along with a sodium hydroxide solution and high temperatures, the method processes materials, such as woodchips, waste paper, and kitchen garbage, to generate high-purity hydrogen usable in fuel cells. With current production methods, the hydrogen produced is typically contaminated with carbon monoxide, which can reduce the life of the fuel cells. As a result, the hydrogen must be refined before it can be used. The new technology not only produces cleaner fuel, it is also less expensive, and reduces waste disposal by utilizing kitchen scrap.

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FROM GARBAGE TO GORGEOUS

The rapid pace of cell phone technology and the rate at which consumers upgrade them has led to a new environmental problem: how to deal with the volumes of waste created by discarded phones. Researchers at the University of Warwick have teamed up with a polymer manufacturer to devise a way to make cell phones that can be recycled. The result is a biodegradable casing that breaks down easily in compost. But, they took the solution one step further. Flower seeds were embedded into the mix and placed in a pot of compost. As the cell phones biodegraded, the flower seeds began to germinate and produced a lovely flower (the first prototype – a dwarf sunflower).

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