



TECHNO

THE BIG IDEAS THAT
ARE CHANGING EVERYTHING

TRENDS

THINKING BEFORE DOING

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



A few days ago, I met with the top executives of a Fortune 100 company. (These executives were very busy as you might imagine.) It was not easy for them to devote an entire day to step back and examine what I call "The New Big Picture" and the rapidly emerging risks and opportunities associated with seeing it.

I started out by asking them if they thought the big three auto executives and all of their direct reports had been very busy the past five years. They all laughed as they agreed. Being too busy to think strategically about future risk and opportunity is often at the center of our biggest problems.

NOT THINKING

It seems the big three auto executives weren't thinking when they all flew separately to Washington in private jets. Driving to Washington in each of their company's most fuel-efficient car might have sent more of a "we're working on it" message.

Not having a detailed spending plan for the billions of dollars they were requesting was another example of not thinking. Having a detailed plan as to how they would spend the money would have at the very least provided confidence. *continued on page 2*

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THINKING BEFORE DOING *(continued from page 1)*

Not connecting the rapid increase in automobile ownership in both China and India to the resulting increase in the demand and price of fuel was another amazing mistake. The irony in this becomes clear when you consider all of them were actually selling cars in those markets and were excited about the unprecedented increase in demand for cars. More cars mean more fuel, who would have thought of that?

The point is that being busy and not thinking can get you into big trouble.

During my meeting, one of the executives posed the following question. "If our government was to give the automakers the money, what do you think they should do with it?"

I suggested that everyone was focused on the wrong problem. The reason for the bailout was to prevent massive layoffs. The reason people aren't buying the big three's cars isn't because the big three is low on cash. It is because the majority of the cars they make are gas hogs and many of the people who want to buy a car can't get loans because of the financial crisis. Giving the big three money won't solve the financial crisis and it will take years to redesign and build fuel-efficient cars. In other words, they will still have to lay off masses of people. It would be better for the government to give anyone who wants to buy a car a subsidy reducing the price of the car by up to \$10,000, less for lower end cars. This would keep cars selling and workers working.

I know you are all very busy doing a lot of things as we face a growing recession. Let's make sure we take the time to think about the risks and the opportunities, the present and the future before we do too much.

TECHNOLOGY NEWS HIGHLIGHTS

ROBOTIC SUIT

The developer of the Hybrid Assistive Limb (HAL) robotic suit recently announced plans to begin marketing the product in Denmark and Northern Europe in 2009. A consortium for leasing the devices will include hospitals, local governments, and social welfare facilities. HAL is designed to assist and enhance a person's own movements using what is known as a Bio-Cybernic Control System. First, it senses electrical impulses in the muscles. Next, it analyzes how much power will be needed to assist the wearer in completing the movement. Finally, it generates the necessary torque to activate the limbs. The cybernetic suits went into mass production in Japan in October and currently lease for about \$2,000US (200,000 yen) per month.

For information: Cyberdyne, Inc., D25-1, Gakuen Minami, Tsukuba-shi, Ibaraki 305-0818, Japan; phone: +81-29-869-8446; fax: +81-29-869-8442; Web site: www.cyberdyne.jp/english/index.html

REVOLUTIONARY SOLAR DISH

A prototype of a new thermal solar collector design was recently demonstrated that is so efficient it can set a plank of wood on fire. Built by a team of students at MIT, the innovative device concentrates solar rays by a factor of 1,000 times. In addition, the panels can be fabricated from inexpensive materials that are readily available, making them rapidly scalable for both large- and small-scale applications. The 12-foot diameter dish uses mirrored aluminum tubing and strips of mirrored glass to focus sunlight. Water within a center coil is instantly vaporized into steam, which could be used to heat buildings or generate electricity.

For information: Spencer Ahrens, RawSolar; Web site: www.raw-solar.com

GOVERNMENT ENCOURAGES JOINT R & D

Japan's Trade Ministry is looking at new ways to encourage research and development, especially in the field of environmental and energy conservation. By establishing a new class of corporation, they hope to reduce the tax burden for participating firms during the initial phases of a project. The proposed plan would also allow the research unit to be turned into a stock company once the technology is ready for commercialization. The goal is to make it easier for firms to collaborate on complementary technologies and bring cutting-edge innovations to market more quickly.

For information: Ministry of Economy, Trade and Industry (METI), 1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901, Japan; Web site: www.meti.go.jp/english/index.html

AIR-POWERED CAR

A decades-old technology will soon be hitting the streets in the form of a revolutionary new car that can average 106 miles per gallon. The compressed air vehicle, or CAV for short, will be able to cruise up to 60 miles at a speed of 35 miles per hour on nothing but compressed air and a pint of fuel. On the highway, a small motor compresses outside air to boost speeds and increase the range up to 800 miles on a single tank of gas, diesel, biodiesel, ethanol, or vegetable oil. The air tank can also be recharged by plugging it into an electric outlet when not in use. The developer plans to license the manufacturing rights – including a turnkey assembly plant, tools, machinery, and training – to companies throughout the U.S. for \$15 million. The number of plants in each state will be based on the total number of drivers. The factories will be set up to produce 8,000 vehicles per year starting as early as 2011. List price is expected to be around \$20,000.

For information: Zero Pollution Motors, 116 Canaan Road, New Paltz, NY 12561; Web site: www.zeropollutionmotors.com

SUPERSTRONG CONCRETE

A new compound has been developed that increases the strength of concrete by thirty percent. A polymerized version of maleic acid, it reduces the ratio of water needed when mixing the cement. This means that less water remains after curing, so the concrete is stronger than traditional materials. The dispersant works by negatively charging individual particles of cement. This causes them to repel each other and makes the cement more fluid. As a result, it flows well with a water ratio as low as 12 percent, compared to a typical water-cement ratio of 50 to 60 percent.

For information: Takenaka Corporation, 1-13, 4-chome, Hommachi, Chuo-ku, Osaka, Japan; Web site: www.takenaka.co.jp/takenaka-e/index.html

STOPPING VIRUSES AND WORMS IN THEIR TRACKS

The number of viruses flooding the Internet is growing every day, and today's anti-virus software cannot guarantee protection from the latest "malware." The main problem is that there is always a window between the time when malicious software is detected and the availability of an update to prevent it, so computer villains are always a step ahead of users. But a new program called "Korset" was recently unveiled that could make anti-virus software obsolete. The open-source solution has been developed for Linux, the operating system used by most Web and email servers. It's designed to monitor and track the behavior of the programs running on the system to predict how the software should work. If it senses abnormal activity, Korset will shut the program down before any damage occurs. In addition to being more effective at isolating problems, the new approach is more efficient so it doesn't slow down the system's performance. The developers have also created a "vaccine" to protect specific applications that will soon be available in mainstream products like Microsoft Outlook.

For information: Avishai Wool, Tel Aviv University, School of Electrical Engineering, Ramat Aviv 69978, Israel; phone: +972-3-640-6316; fax: +972-3-640-5027; email: yash@eng.tau.ac.il; Web site: www.eng.tau.ac.il

TV CLARITY ON YOUR CELL PHONE

A special image processing chip is currently under development that will enable users to play real-time video on their cell phone LCD with the same clarity as LCD TVs. LCDs have inherently slow response times, and in order to be able to display moving objects without looking like a blur requires sophisticated software and hardware platform. But because size is at a premium in portable devices, it isn't practical to utilize the same enhanced switching circuitry that is used in larger devices. So engineers have found a way to modify the algorithm and simplify the process so that it will require only a 2 to 3 percent increase in size over current cell phone chips. They hope to have a commercial version of the product available within three years.

For information: Toshiba Corporation, 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan; phone: +81-3-3457-4511; fax: +81-3-3456-1631; Web site: www.toshiba.co.jp/worldwide/

DRUG STARVES PROSTATE CANCERS

Clinical trials are currently underway to test a new drug that is designed to stop the growth of prostate tumors

by depriving them of testosterone. Unlike the drugs used for “chemical castration,” which stop the production of testosterone only in the testes, the new drug – called Abiraterone – penetrates all cell types, so the tumor itself cannot produce the hormone either. It does so by disabling an enzyme that is necessary for the production of testosterone and other compounds that encourage tumor growth. Preliminary results showed that tumors shrank in five of eight patients and blood concentrations of antigens typically produced by growing cancers dropped by 30 percent in more than half of the cases. If further tests are successful, the drug could be available in as little as two years.

For information: Johann deBono, Royal Marsden Hospital, Fulham Road, London SW3 6JJ, United Kingdom; Web site: www.royalmarsden.org

EYE CONTROL

A new technology is currently under development that will enable a user to control electronic devices simply by moving their eyes. It's based on the fact that the human eye is much like a battery, with the pupil being positively charged and the white of the eye being negatively charged. When the eyeball moves, it generates electrical signals that can be detected using electrodes around the periphery of the eyes, a property that is already being used in medicine to communicate with severely paralyzed patients. However, the aim of the new device is to build the sensors into headphones so that the signals can be used to control a music player. For example, move your eyes from left to right and the unit turns on; roll them and the volume increases.

For information: Masao Fukumoto, NTT DoCoMo Inc., 2-11-1 Nagato-cho, Chiyoda-ku, Tokyo 100-6150, Japan; phone: +81-0120-005-250; Web site: www.nttdocomo.co.jp/english/

MAGNETIC TREATMENT FOR DEPRESSION

The U.S. Food and Drug Administration recently approved a noninvasive brain stimulator to treat depression. Called NeuroStar, the device uses transcranial magnetic stimulation (TMS) to trigger a chain reaction in deep areas of the brain where mood is controlled. The therapy is specifically indicated for patients who have tried one antidepressant with no relief. It is not recommended for those who are highly resistant to pharmaceutical treatments. Out of the 164 patients studied, about 24 percent showed significant improvement after six weeks of therapy.

For information: Neuronetics, Inc., One Great Valley Parkway, Suite 2, Malvern, PA 19355; phone: 877-600-7555; fax: 610-640-4206; Web site: www.neurostartms.com

ROBOTIC SNAKE

An innovative robot design makes it possible for search and rescue cameras to “snake” through building rubble and send back images. The Active Scope camera is a hose-shaped device 2.5 cm (approximately one inch) in diameter and up to 8 meters (25 feet) long. Rings of bristles fitted with small vibrating motors advance the device forward. The direction can be controlled by twisting the hose left or right. It can even climb a step up to 20 cm high and maneuver up an incline as steep as 20 degrees. The system is currently undergoing testing at building collapse sites. Other applications for the device include inspecting factories and bridges.

For information: Tohoku University, 28 Kawauchi, Aoba-ku, Sendai 980-8576, Japan; Web site: www.tohoku.ac.jp/english/

ONLINE ART COMMUNITY

A New York-based social networking site is designed for anyone who loves art. By linking collectors, galleries and curators through images, video clips, and an online forum for exchanging ideas and information, it gives new and established artists a global audience for their work. In addition, it provides art lovers with a convenient way to browse the works of their favorite artists (and perhaps discover some new favorites) through virtual art fairs and museum shows.

For information: Web site: www.ArtCloud.com

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