



# TECHNO

THE BIG IDEAS THAT  
ARE CHANGING EVERYTHING

# TRENDS

## TAKE YOUR BIGGEST PROBLEM...AND SKIP IT

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



Every business has problems that can halt progress and cause the company to stagnate: slow cash flow, out-of-date technology, long sales cycles, etc.

Often when trying to “fix” the problem, the company gets even more mired in the challenge and can’t seem to get past the roadblock. They focus on the problem, shift into crisis management and let it dictate their every move.

A better solution to solving those tough problems is to just skip them. That’s right, skip the problem completely. How can this help? When you confront your roadblock by leaping over it rather than letting it stop you from reaching your goals, you see new solutions that you never realized existed. Realize that this strategy is very different from procrastination or avoidance, because it is based on recognizing the real, underlying problem and making a conscious decision to find a way to move forward instead of being blocked by it.

If you think this solution sounds fanciful and idealistic, think again. It’s actually a great way to free your mind and see the problem in a new light. Consider the following real-life examples of how this strategy has helped companies overcome challenges and make smarter decisions. *continued on page 2*

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## TAKE YOUR BIGGEST PROBLEM...AND SKIP IT *(continued from page 1)*

A small manufacturing business started getting many requests for additional products, but in order to meet the increased demand, the company would have to borrow the capital necessary for a major expansion. The business was relatively new and without a track record, so the bank rejected their loan request. The company skipped the problem by pre-selling the products, and with advanced orders in-hand, they were able to secure the loan.

Several years ago, a pharmaceutical company decided that in order to solve molecular problems faster and accelerate new product development, it would need to triple the number of R&D employees. The problem was that employee costs would also triple, and the company couldn't afford that. The company was able to skip the problem of hiring expensive employees by creating an online scientific forum, wherein the company posts difficult chemical and molecular problems and offers cash to anyone who can solve the problem. By making the site open to any scientist with an Internet connection and posting the problems in over a dozen languages, the company created a global, virtual R&D talent pool, which has found solutions to problems that have literally stumped its own researchers. One of the great beauties of this strategy is that the company pays for the virtual researchers' time and effort only if they come up with a feasible working solution. The amount of money the company pays for a solution depends on the difficulty of the problem. Some of the awards have been as high as \$100,000, although most are in the \$2,000 to \$3,000 bracket. To date, engineers and scientists from Beijing to Moscow have worked at solving the companies' molecular problems without being an employee.

Every problem has a solution, some better than others. The key to breaking through your problem is to realize that there are many paths to a destination.

### TECHNOLOGY NEWS HIGHLIGHTS

#### CELL PHONE TRACKS MOTION

Japanese researchers recently announced plans to develop a sensor using a cell phone to monitor physical activity on a real time basis. The system uses acceleration sensors (like those used in motion-sensing video game systems) to determine whether a person is walking, running, sitting or standing, and is small enough to be embedded into a cell phone. To boost precision, the algorithm employs a "learning" mode, where the wearer alternately walks and runs for six-second intervals. Once configured, it can categorize activity with an accuracy of nearly 100%. The system will be marketed primarily as a method for monitoring the health and safety of children and the elderly.

*For information: NTT DoCoMo, Inc., 2-11-1 Nagata-cho, Chiyoda-ku, Tokyo 100-6150, Japan; Web site: [www.nttdocomo.com](http://www.nttdocomo.com)*

#### NEW THERAPY FOR RHEUMATOID ARTHRITIS

The results of two Phase III clinical trials may offer hope for adults and children suffering from rheumatoid arthritis (RA) and juvenile idiopathic arthritis (JIA). The drug under investigation, tocilizumab, is designed to block the action of interleukin-6, an inflammatory protein, which is found in high concentrations in the joints of RA patients. In one study of 622 patients who had not responded to methotrexate (a commonly prescribed treatment), up to 55 percent reported a 20 percent improvement in symptoms over a period of 24 weeks. The results varied depending on dosage, with the higher dose levels producing higher rates of improvement. In the double blind, randomized phase of another study comprised of 43 children, 80 percent of the patients who received the therapy for a full twelve weeks reported a 30 percent improvement in symptoms over the course of treatment.

*For information: Dr. Josef Smolen, Medical University of Vienna; phone: +43-01-40400-4300; Web site: [www.meduniwien.ac.at/homepage/en/](http://www.meduniwien.ac.at/homepage/en/)*

#### WEATHER ON-THE-GO

A comprehensive new weather-tracking tool was recently released that is specifically designed for handheld devices. Called SWIFT Mobile, the service combines multiple layers of weather data with a global positioning system to give users a customized view of local weather based on their actual location as well as the ability to zoom out to a national map.

SWIFT Mobile tracks multiple weather parameters including animated radar, cloud imagery, wind vectors, severe weather warnings, surface fronts, and forecasts. A geographic information layer provides representations of streets, topography, and city and county outlines. Users can also program their mobile device to receive automatic notification of approaching storm systems. This will be a valuable tool for anyone whose activities are dependent on weather – such as farmers, construction workers, emergency response teams, and pilots. The basic subscription package retails for \$7.95 per month.

*For information: SWIFT Mobile, 2200 W. 66th Street #145, Minneapolis, MN 55423; Web site: [www.swiftmobileweather.com](http://www.swiftmobileweather.com)*

## 3D DATA STORAGE

The world's data storage needs are expanding exponentially, with the average company tripling its capacity every 18 to 24 months. While current laser technologies are continually increasing the amount of data stored by using shorter and shorter wavelengths of light, they are limited by nature of their two-dimensional design. But scientists at GE are looking at new ways of increasing storage capacities using holographic principles. They have developed specialized polycarbonate materials that “write” data to a disk by chemically altering the composition of the material when exposed to specific types of laser light. This method allows them to use the entire volume of the recording medium instead of just the visible surface, permitting 200 times more data to be recorded on the same size disk. Because surface area is no longer a factor, the size and shape of the media can be more flexible. And data retrieval is considerably faster with the use of parallel reading schemes. So what does this mean to the average user? You could someday store your entire movie collection on one DVD. Or you could have your entire medical history stored on a single chip. The new technology is expected to find its way into consumer products by 2012.

*For information: GE Global Research, 1 Research Circle, Niskayuna, NY 12309; Web site: [www.ge.com/research](http://www.ge.com/research)*

## HAIR TEST FOR BREAST CANCER

Results of a recent study indicate that it may be possible to diagnose breast cancer with nearly 90 percent accuracy by examining hair follicles, and a study of 2,000 patients is now underway to confirm initial findings. Twenty strands of untreated scalp hair, a minimum of 30 mm long, are collected from each participant and exposed to a finely focused x-ray beam for thirty seconds. If breast cancer is present, it alters the diffraction pattern of the hair in a specific way. To date, after studying over 800 patients, the test has been shown to have a sensitivity (ability to identify the presence of cancer) of 90 percent, and a specificity (ability to detect the absence of cancer) of 87 percent. Although the technique cannot tell where a tumor is located, its clinical value could be significant, especially as a non-invasive screening tool for monitoring the success of treatment. The test may be available commercially as early as the end of 2008.

*For information: Fermiscan Holdings Limited, Level 5, 48 Hunter Street, Sydney, NSW 2000, Australia; Web site: [www.fermiscan.com.au](http://www.fermiscan.com.au)*

## BLACKER THAN BLACK

A new material was recently developed that absorbs more than 99.9 percent of light, making it the darkest substance known to man. With a total reflective index of only 0.045 percent, the new material is more than three times “darker” than previous attempts at designing an ideal black material. It's made up of vertically aligned carbon nanotubes, meshed together to form an irregular surface that effectively traps light. The material could be used to improve the efficiency of solar and thermal-photo-voltaic collectors, as well as boost the performance of infrared sensors and astronomical radiation detectors.

*For information: Shawn Yu Lin, Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY 12180; phone: 518-276-2978; email: [sylin@rpi.edu](mailto:sylin@rpi.edu); Web site: [www.rpi.edu](http://www.rpi.edu)*

## ROBOT BUSES

An innovative transportation system is being planned to address bottlenecks along the 805 freeway between San Diego and the Mexico border. The plan includes creating a narrow lane on the shoulder for buses and commercial trucks, which will be equipped with advanced lane-keeping sensors and adaptive cruise control. The vehicles will be able to virtually drive themselves at a constant, free-flowing speed, out of the regular flow of traffic and at much narrower intervals to make better use of road space. As a result, volume and throughput can be greatly increased without compromising safety. Initially, the system will be

used for public transportation, but the technology will eventually be available for freight carriers as well.

*For information: Swoop Technology, P. O. Box 3486, Ketchum, ID 83340; phone: 208-725-5561; Web site: [www.swooptechnology.com](http://www.swooptechnology.com)*

## DRUG-PRODUCING GOATS

Transgenic drugs are created by genetically altering plants or animals to produce therapeutic proteins that can be used to treat cancer, heart disease, diabetes, and other chronic diseases. Compared to traditional cell culture methods, transgenic technologies can produce higher volumes at a much lower cost. The first of these compounds to be approved for human use is a drug called ATryn, an anti-clotting compound that is produced in the milk of genetically modified goats. It is currently available in Europe for treating patients at high risk for blood clots during surgery, and has been granted fast track status by the U.S. Food and Drug Administration. Other farm animals that are being used for transgenic drug production include chickens, which can produce a variety of human proteins in their eggs and even create transgenic offspring.

*For information: GTC Biotherapeutics, 175 Crossing Blvd., Framingham, MA 01702; phone: 508-620-9700; Web site: [www.transgenics.com](http://www.transgenics.com); Origen Therapeutics, Inc., 1450 Rollins Road, Burlingame, CA 94010; phone: 650-558-6700; Web site: [www.origentherapeutics.com](http://www.origentherapeutics.com)*

## FAKE FINGERPRINT DETECTOR

In the world of biometric identification, fingerprints were once the most popular means of authenticating users. But the fact that readers could easily be tricked with silicon or gelatin fakes was a major weakness of the technology. A new system has been developed that circumvents this problem by feeding a weak current through a pair of electrodes to measure the conductivity of whatever material is placed on the sensor. The technology is compact enough that it could easily be combined with fingerprint detection circuitry on a single, low-cost chip and built directly into credit cards to enhance security.

*For information: Nippon Telephone and Telegraph; Web site: [www.ntt.co.jp/index\\_e.html](http://www.ntt.co.jp/index_e.html)*

## NEED POWER? JUST ADD WATER!

A unique new portable generator will be available later this year that uses fuel cell technology to provide 270 Watt-hours of power on a single water-activated cartridge. Called HydroPak, the unit is less than nine inches tall and weighs about four pounds (six pounds once you add water). It will generate 25 watts of continuous (50 watts peak) power and produces no harmful emissions, so it can even be run indoors. The suggested retail price is \$400 per unit, and replacement cartridges will sell for \$20.

*For information: Horizon Fuel Cell Technologies Pte. Ltd., 5 Shenton Way, UIC Building #23-03, Singapore 068808; Web site: [www.horizonfuelcell.com](http://www.horizonfuelcell.com)*

## LASER TV

A new category of large format televisions – powered by lasers – promises to deliver the best picture quality yet. Called LaserVue, they will be capable of displaying a wider range of colors (twice as many as current HDTVs) with better clarity and depth of field, and can even provide a true 3D viewing experience. The system uses an array of moveable mirrors, similar to other reflective technologies. The difference comes in the fact that the wavelengths of laser light can be controlled more precisely to yield truer color combinations. The new TVs are also more energy efficient, consuming only half the power of LCD flat panels and one third that of plasma screens. They are projected to hit retailers during the third quarter of this year.

*For information: Mitsubishi Digital Electronics America, Inc., 9351 Jeronimo Road, Irvine, CA 92618; phone: 800-332-2119; Web site: [www.mitsubishi-tv.com](http://www.mitsubishi-tv.com) or [www.believingisseeing.tv](http://www.believingisseeing.tv)*

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