

DANIEL BURRUS'

TECHNO TRENDS

THE BIG IDEAS THAT ARE
CHANGING EVERYTHING

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What's Your Company's Cash Cow?

By Daniel Burrus, CEO of Burrus Research

Most companies begin with a flash of innovation. They come out with a new product or service customers can't live without and make their mark with their "cash cow." Of course, a cash cow is a company's major source of money. They then "milk" the cash cow for all it's worth. If they're smart, they create some additional cash cows, but that isn't always the case.

We saw much of this scenario play out with Google, a company that was very focused on innovation. Their initial cash cow was the advertising dollars around search. And one of the great things that Google did was to keep the pipeline of innovation going by encouraging the Google engineers to spend 20% of their time coming up with new ideas. They even provided resources for the engineers to be creative. The result? It yielded lots of great stuff from Google, including Gmail, Chrome, and many other advances.

Where Has the Innovation Gone?

Predictably, based on hard trends, we can see that the main computer people use has been shifting from a laptop/desktop to a smart phone or tablet. And even though that shift started happening just two short years ago, the reality is that it was very predictable.

So what did Google do? They innovated and copied to a degree and came out with the Android. Unfortunately, it was more copying than innovating. Don't get me wrong...there was some innovation, but it wasn't as high-level of innovation as we had seen in the past.

Know What's Next Magazine



In today's world of technology-driven change, it has never been more important to Know What's Next!

Technology is transforming how we sell, market, communicate, collaborate, innovate and educate.

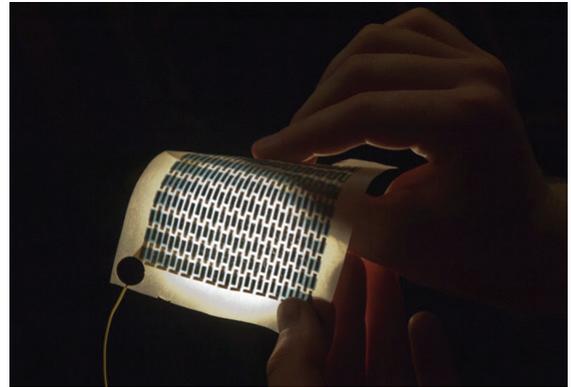
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TECHNOLOGY NEWS HIGHLIGHTS

Paper Solar Cell

Recent research out of Osaka University is looking to expand the use of solar energy by making cells less expensive and easier to manufacture than ever.



The new solar cells are built on a substrate made of wood pulp, using organic photovoltaics and fine silver conductors. They can be produced using current printed circuit technology and are easier to work with than conventional plastic cells.

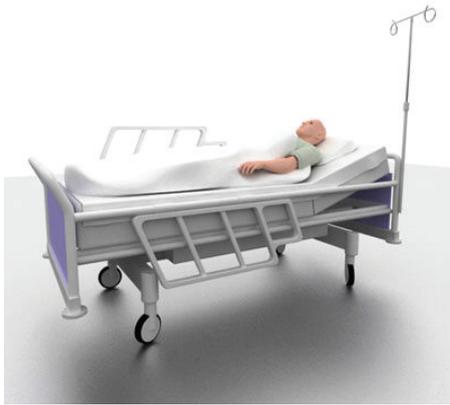
A prototype device measuring only 2cm by 5 mm by 1 mm (0.8 x 0.2 x 0.04 inches) generated sufficient energy to power a light bulb. Lightweight and flexible, the new cells possess clear advantages over currently available technology.

For information: Masaya Nogi, Osaka University, Institute of Scientific and Industrial Research, 8-1 Mihogaoka, Ibaraki 567-0047, Japan; phone: +81-6-6877-5111; Web site: www.osaka-u.ac.jp/en

Infection-Fighting Fabric

The increase in antibiotic-resistant micro-organisms and the growing number of immuno-compromised patients have made hospital-acquired infections a significant problem worldwide. They often occur as a result of contact with hospital gowns and linens, but a new fabric treatment may help to curb the spread of these infections before they can get to patients and staff.

The first step involves the application of enzymes, which serve to improve adhesion of antimicrobial zinc nanoparticles and biopolymers that are deposited under ultrasonic radiation.



The fabric itself also incorporates zinc and chitosan nanoparticles to eliminate bacteria and prevent the growth of new microbes.

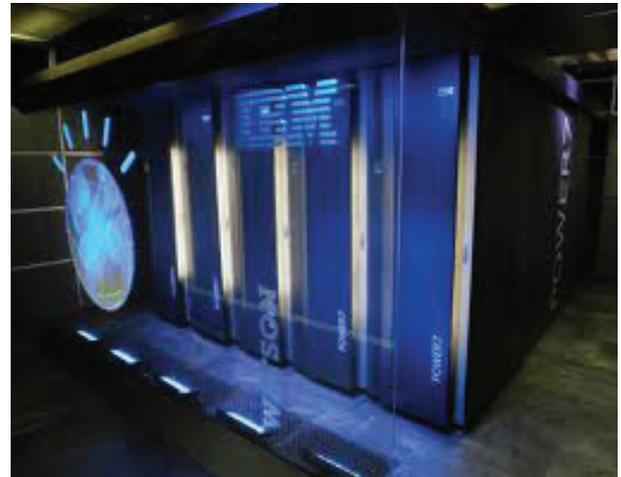
Tests on the new material show that it retains its infection-fighting properties even after 70 laundry cycles. Two installations – one in Italy and one in Romania – are currently manufacturing gowns and linens for testing.

For information: Tzanko Tzanov, Polytechnic University of Catalonia, C. Jordi Girona, 31. 08034 Barcelona, Spain; phone: +34-93-401-6200; Web site: www.upc.edu/?set_language=en

Watson is Moving...to the Cloud

IBM recently announced plans to make Watson (the supercomputer) more widely accessible by turning it into a cloud-based service – in essence, making artificial intelligence more widely available.

The first area to benefit from Watson's machine-learning capabilities will be healthcare, where it is already being used in clinical trials to help oncologists diagnose and treat cancer. In an era when new medical breakthroughs are occurring every day, it's impossible for doctors to keep up



with all of the latest developments. But Watson's ability to comb through volumes of peer-reviewed research and clinical data could improve diagnostic accuracy and increase the range of treatment options offered to patients.

Other areas where Watson will undoubtedly play a role in the future include financial services and government. Users will provide a share of the value they create to pay for the service.

For information: John Gordon, Watson Solutions Marketing Manager, IBM Corporation, 1 New Orchard Road, Armonk, NY 10504; phone: 914-499-1900; Web site: www.ibm.com/us/en/ or www-03.ibm.com/innovation/us/Watson/

Microbial Alchemy

In an unlikely merger of biochemistry and art, two Michigan professors have discovered a bacterium that can turn a toxic liquid into usable, 24-karat gold.

The organism (known as *Cupriavidus metallidurans*) was placed into a bioreactor along with high concentrations of gold chloride, a toxic compound that is found in nature. Before an audience, they transformed the toxin into flakes of pure gold, and in about a week, they produced a gold nugget. While the bacteria were already known to be able to grow in such an environment, this experiment illustrated



that they're about 25 times more efficient than previously reported.

The researchers contend that at this point in time it would be cost-prohibitive to develop the process on a larger scale. Instead, their goal was to raise awareness about the impact of science and biological engineering from the standpoint of ethics, the economy and the environment.

For information: Kazem Kashefi, Michigan State University, Microbiology and Molecular Genetics, 2215 Biomedical Physical Sciences, East Lansing, MI 48824; phone: 517-884-5292; fax: 517-353-8957; email: kashefi@msu.edu; Web site: www.mmg.msu.edu

Next Gen Robotics

The next generation of industrial robots is smarter, safer and more adaptive than the conventional automatons we have come to know. Best of all, they're affordable enough for even small-scale manufacturing, and are designed not to simply replace human workers, but to make them more efficient.

One example is Baxter – a six-foot, 300-pound machine that can let you know, by the expression on his “face,” how he’s performing and what he’s planning to do next. Unlike most industrial robots that are expensive to program and incapable of deviating from their prescribed task, a worker can teach Baxter a new task



simply by moving one of his massive arms through the motions. Built-in sonar sensors and motors detect and respond to touch, making the limb light as a feather and just as easy to move. He can also be taught to recognize an object simply by holding it in front of one of its several cameras.

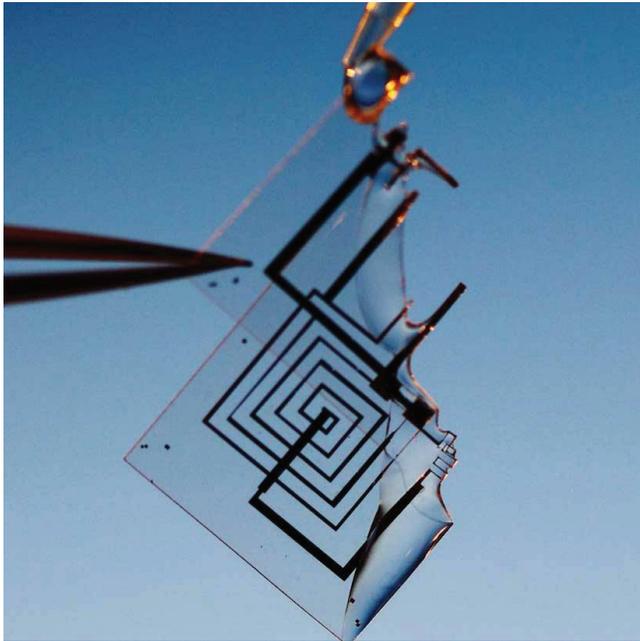
Many experts agree that manufacturing jobs are outsourced because finding cheap human labor to perform low-skill tasks is easier than making automation more flexible. At a cost of only \$22,000, robots like Baxter could reverse that trend in the long term by bringing the cost-saving benefits of automation to a broader range of industries.

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Dissolvable Electronics

Modern electronic devices may be obsolete before they leave the shelf, but unfortunately, they last for decades (or longer) in landfills and recycling centers

when the next best thing comes along. Now, a new approach to electronic design could provide an eco-friendly solution for technology obsolescence.



Known as “transient electronics,” the innovative platform utilizes circuits made from silkworm cocoons, porous silicon and magnesium. The components are so thin that they are totally soluble, even in minute amounts of water. And by adjusting the properties of the proteins in the silk, the circuits can be made to degrade over a range of intervals – from a few weeks to several years.

The technology has been tested on mice for use as a biomedical implant doped with antibiotics to treat an infected surgical site. Within three weeks, the implant was barely detectable and the infection had subsided. Other items that have been built include transistors, temperature sensors, antennas and digital cameras.

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Optical Cable...and Beyond...



In the seemingly never-ending quest for faster data, optical cable recently passed the petabit (that's 1000 terabits or 1,000,000 gigabits) per second milestone. At this rate, it is capable of transmitting 5,000 two-hour, high definition videos over a distance of 50 km in one second. The new fiber was a joint development effort in which the number of cores was increased to 12 to handle the increased capacity. Interference, which would normally be a problem due to crosstalk between fibers, is minimized by precise positioning of the lights paths.

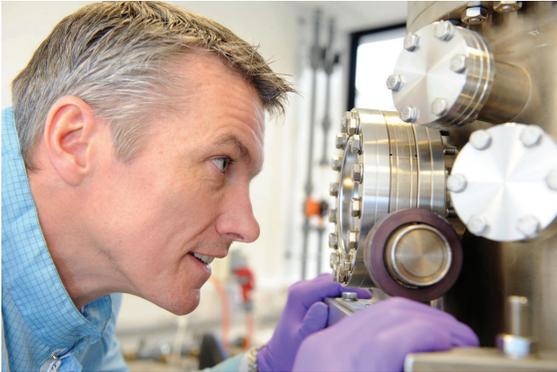
For information: Nippon Telegraph and Telephone Corp., 3-1, Otemachi 2-chome, Chiyoda-ku, Tokyo 100-8116, Japan; Web site: www.ntt.co.jp/index_e.html

In yet another development, engineers have designed a new technology that can transmit data at a rate of 100 terabits through air. It works by bouncing light off a liquid crystal to create a coil. Multiple coils can then nest inside of each other, passing through the same space simultaneously.

For information: Alan Willner, University of Southern California, Optical Communications Laboratory, EEB500, 3740 McClintock Avenue, Los Angeles, CA 90089; phone: 213-740-4664; fax: 213-740-8729; email: willner@usc.edu; Web site: www.usc.edu or www.oclab.usc.edu

Solar Charger

Scientists in the U.K. have designed an organic solar cell that can recharge a lithium-ion battery directly using a lightweight, credit-card sized device - a breakthrough that could change the way we use mobile devices.



One of the drawbacks of organic photovoltaic (OPV) technology has traditionally been low-output voltage in low light conditions. The new design addresses this problem and goes even further, generating up to 7 volts - more than enough to power a standard lithium-ion battery. It works in full sun or partial shade, indoors or outdoors, making it ideal for keeping all of your personal electronic devices “topped off” and ready to go.

For information: Tim Jones, Warwick University, Department of Chemistry, Gibbet Hill, Coventry CV4 7AL, U.K.; phone: +44(0)24-76-523653; fax: +44(0)24-76-524112; email: t.s.jones@warwick.ac.uk; Web site: www.warwick.ac.uk/fac/sci/chemistry

Your Company's Cash Cow

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Where Google was falling behind, of course, was in social media. Facebook had cornered that market. And this was where it looks like some mistakes started to occur, because Google shifted their focus from “innovation” to “beating the competition.”

One of the problems of focusing on the competition is that you end up competing with them. In contrast, when you focus on innovation, you become the competition. That's a big difference.

Realize that when you try to copy someone, you can never really catch up, because the leader is constantly innovating. Unless you manage to jump ahead in a big way, you're always behind. And that's what happened when Google released Google+, their counter to Facebook. It's too much copying and trying to catch up with Facebook and not enough innovating.

Unfortunately, the company was so focused on social media that all of the engineers were told to put their innovation around social. In other words, they were told to spend 20% of their time focused on innovation, so long as that innovation was aimed at social media. This mandate, of course, diluted the innovation engine. A better approach would have been to jump ahead—to look where social media is going and innovate there to create a new bouncing baby cash cow.

The Future of the Web

Where is the web and social media going? Well, it started with search, what I call Web 1.0. Of course, Yahoo started that long before Google, giving us access to information. Then Web 2.0 came along with the key focus being content sharing and social media.

Back in 1993 I wrote about this shift in my book Technotrends, and I said that when our devices (phones and computers) become true communication age devices, so that we can use them for informing and communicating (think smart phone), then we'd have another revolution. And, of course, that's exactly what Apple helped to spur

when they came out with the iPhone and gave us a true communication/information age device. They combined the information age and communication age.

What's next? If you look ahead, which is what I'd like Google to do, you'll see that we're embarking on Web 3.0, which is all about immersion. It's the 3D experience. But I'm not talking about 3D as we've known it for years, where you have to put on fancy glasses. That's too cumbersome.

I'm talking about using our main computers, tablets, smart phones, and games and having a fully-immersed 3D experience where you go into environments (think X-Box gaming), as well as having things sticking out at you, like when you wear the 3D glasses. As it turns out, you can have that experience on smart devices right now, without having to wear glasses. It's already happening in the gaming world.

So let's turn this around to Google. What innovation is waiting for them to seize? How about a 3D web browser? That would be innovative. That would be a cash cow!

Why? Because web pages right now are like a flat piece of paper, except they have a hyperlink and perhaps an embedded video. So we can watch a video, but it's a flat video—it's not 3D. But what if we had a 3D browser and didn't just look at a web page, but actually went into it and experienced it? Now that changes the game.

Let's then look ahead even more. After Web 3.0 is Web 4.0, which is all about intelligence—the personal assistant. Apple has already started this with Siri, where

you can talk to your smart phone and get answers. And, of course, Siri will get smarter over the years.

Could Google have done what Apple did? Yes. In fact, they already had the ability to do so with their mapping feature, where you could type in "Where is a restaurant in Del Mar, California?" and then Google would send you to a website. Imagine if they would have made it something you talk to...and that responds to you in voice.

The point is that Apple innovated outside of their core. Because they were focused not just on one thing—not just on smart phones or tablets—but rather on innovation, they were able to jump ahead. They were looking in front of them rather than at what everyone else was doing.

By the way, Google did come out with their e-personal assistant. So what are they doing? They're playing the catch-up game...yet again.

Crank Up the Innovation Engine

What I'd like to see Google and all companies do is to get back on the innovation bandwagon. Everything isn't social. Yes, social is big, but there's far more to it than that.

So here's the moral to all this: Don't just milk your cash cow. True success comes when you create some new bouncing baby cash cows, and you do that by keeping your focus on innovation. We're in a new world of exponential transformational change. The playing field has been leveled, and the game is changing. It's time to stop playing the old game and start defining the new one.



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