



# TECHNO

THE BIG IDEAS THAT  
ARE CHANGING EVERYTHING

# TRENDS

## USE TECHNOLOGY TO SHAPE YOUR COMPANY'S FUTURE

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



Between smart phones, smart pads, apps, cloud computing, and the myriad of other technological advances and transformations occurring today, many company leaders are wondering how to navigate it all. Historically, CEOs and other C-suite executives are used to having control over everything within the company's walls. As such, they are not happy with the increased focus on such things as cloud computing; yet that's precisely what their company's staff is using when they use their personal computers to search Google or access other cloud-based applications.

This dislike for today's new technology is understandable. It is, after all, outside of the control of the corporate veil the executives have worked so hard to develop and secure. But let's face it...things like apps, SaaS, social media, smart phones, smart pads, and a host of other cloud computing options that your employees use, both at home and increasingly at work, are here to stay. Consider this: In early 2010, there were 150,000 apps just in the Apple store. Then that number increased to 200,000 apps. Now we're close to 300,000 apps with billions of downloads. So it's growing fast, with no indication of slowing down.

As a strategic consultant to large organizations, I'm amazed at how many executives are not embracing this paradigm shift. *continued on page 2*

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## TECHNOLOGY TO CHANGE YOUR COMPANY'S FUTURE *(continued from page 1)*

As a leader, you have to ask yourself, "Will there be more in the cloud options, including audio, video, storage, and apps, next year than there is this year? The answer is a resounding "Yes!" That means you can't ignore it. Many of your own people are using cloud-based services right now. And if they're using them, being more productive at home than they are in the workplace, and doing things that are more advanced on their smart phones and smart pads (at least in their minds), then your company has a problem. You can't have people thinking the company is archaic in terms of technology or that the executive team is trying to hold people back. Instead, you need to be helping your people to move forward.

Granted, it's human nature to protect and defend the status quo, and there are some security concerns with the emerging technologies. But at the same time, you have to remember the old adage that states, "It's easier to ride a horse in the direction that it's going." In this case, the horses of technology are going in a new direction at a pace and speed we've never seen before. It's time for executives to pay attention to this and do more than just go along for the ride.

Case in point: In January 1993, IBM knew the future of its company and it was the most admired company on the planet. But the horses of technology changed direction. By the end of 1993, IBM was getting close to going out of business. It missed the shift. But IBM is not an isolated case. Many other companies have missed the shift. Think about it...when was the last time you bought something from Polaroid?

Today's gigantic technological shift is already taking place, and the last people who should miss it are today's business leaders. The shift is here, it's easy to see, and it's as plain as day. Therefore, it's time to start directing the horse on the journey. The question is, "How?" Next month I will share tips and strategies on how to redefine and embrace the future.

### TECHNOLOGY NEWS HIGHLIGHTS

#### SUPERCHARGED WI-FI

The FCC recently opened up a new block of frequencies that promises to bring low-cost, high-speed data access to the masses. Known as "white space," the unused bands were created when television converted to digital signals. Because they are low frequency waves (in the 700 MHz range), they can travel greater distances, through buildings and across hilly terrain more reliably. The expansion will extend broadband signals to rural areas that were previously bypassed by creating wireless regional area networks (WRANs). It also opens the door to WiFi networks that can cover an entire university campus without the need to find a "hotspot." The last time the FCC released a significant block of spectrum, it revolutionized consumer electronics with products like garage door openers, cordless phones and baby monitors. This latest move is expected to generate upwards of \$7 billion in economic value by enabling further innovations not only in wireless Internet services, but in the development of smart electric grids and remote health monitoring.

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#### BETTER FACIAL RECOGNITION

At an international competition conducted by the National Institute of Standards and Technology, one facial recognition system outperformed the rest by a factor of ten, setting a new standard for accuracy in this fast-growing field. The new system identifies unique facial characteristics such as eyes, mouth and nose, but ignores things like contours that can change with age or weight variations. As a result, it can correctly identify individuals from photos that are decades old. The technique also approximates a face in 3D so that it can recognize a subject even if they are photographed from a different angle. When tested against a database of 1.6 million pictures, the percentage of error was only 0.3 percent, as compared with the next best system, which had a 2.5 percent error rate. As they become more and more accurate, the market for facial recognition systems is expected to proliferate at a fast pace for use in crime investigations and immigration control, as well as monitoring entrance and exit points in high security facilities.

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## NANOSCALE POWER SUPPLIES

Quantum dots – tiny particles with diameters of only ten to fifty atoms – may someday transform everyday electronic devices from cell phones to computers. Breakthrough research has shown that the particles can be used to generate large voltages through a property known as piezoelectric effect. The researchers found that illuminating the dots with light creates negative and positive charges that reside on the surface. This generates a large electrical field within the dot, which in turn, causes rapid expansion and contraction (within a trillionth of a second). In addition, they were able to control the size of the vibrations and the charges generated. This energy could conceivably be used to power electronic devices while making them faster, cheaper and smaller. Other possible applications include using quantum dots to measure blood pressure inside the human body by injecting them into the bloodstream, shining a laser on them and analyzing the vibrations.

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## RECYCLING MAGNETS

Magnetized alloys known as rare-earth magnets are essential components in today's computers, air conditioners and hybrid car motors. Because they contain rare metals, recycling them can be a very cost-effective way to keep up with increasing demand. But the very strong magnetic fields that make them so useful also make it difficult to extract them from other metallic parts in automobiles and appliances. A new device, which should be available before year-end, is designed to make this process easier by neutralizing the magnetic forces in rare-earth magnets. It essentially forces particles within the alloy to reverse directions by applying opposite fields. The first application reverses 90 percent of the particles; a second application forces 80 percent of them back again. The process is repeated until half of the elemental particles are oriented in one direction and half in the other, leaving the alloy with no magnetic strength. Air conditioner and computer hard drive magnets take about ten seconds to demagnetize, while automobile magnets require about two minutes.

*For information: Magnet Force Co., Ltd., 20-12 Enoki-cho, Suita-City, Osaka 564-0053, Japan; phone: +81-6-6378-8484; fax: +81-6-6378-8488; Web site: [www.magnetforce.co.jp/en.html](http://www.magnetforce.co.jp/en.html)*

## PLASTICS FROM FRUIT

The concept of sustainability is all about using whatever waste products may be available to develop useful products. In Malaysia, one waste product that is available in abundance is tropical fruit skins, and researchers have developed a way to turn them into plastics for packaging. The product – known as Fruitplast – is made from the skins of local fruits such as bananas, rambutans and chempedak. In comparison to many bio-degradable plastics which are eight times more expensive than petroleum-based products, Fruitplast actually costs about 10 percent less than its non-biodegradable counterparts. It retains its durability for up to two years (provided it is not exposed to soil and weather) but will biodegrade within three to six months when subjected to the elements. The market for such products to be used in plastic bags and other packaging is forecast to be growing at a rate of 30 percent per year.

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## “PRINTED” PROSTHETICS

3D printing has revolutionized a wide array of industries from designer jewelry to jet engine parts. Now an engineer and an orthopedic surgeon have teamed up to put this technology to work creating custom-tailored prosthetic limbs. A camera scans the patient's limb and generates a detailed image, which is transmitted to a computer. Once the design is complete, a 3D printer is used to create a plastic shell, which can be wrapped in any flexible material including leather and metal. It can even be customized with a tattoo. Best of all, the new artificial limbs cost only about one-tenth as much as traditional prosthetics, and can incorporate sophisticated features such as locking knees and flexing ankles.

For information: Scott Summit, Bespoke Innovations, Inc., 10 South Park Street, Suite 7, San Francisco, CA 94107; phone: 415-439-0139; Web site: [www.bespokeinnovations.com](http://www.bespokeinnovations.com)

## ONSTAR UPDATE

GM's telecommunications service is expanding to include new features for linking drivers to their cars and their friends. The updated system will enable users to lock, unlock and start their car remotely, as well as check for mechanical or electrical problems through a smartphone application. Other enhancements are planned which allow you to update your Facebook status and listen to text messages while driving. GM recently opened OnStar to independent software developers to create a host of voice-activated applications that can be uploaded into vehicles. The system will retain all of the safety and security features that have made it a popular option on GM vehicles since 1996.

For information: OnStar, 400 Renaissance Center, Detroit, MI 48265; phone: 888-466-7827; Web site: [www.onstar.com](http://www.onstar.com)

## VOICE-CONTROLLED ELECTRONICS

A device has been developed that permits any appliance equipped with a remote to be controlled using only your voice. It uses a proprietary module that recognizes up to 300 pre-programmed words. Commands are converted to infrared signals that can be used to turn on an air conditioner or change channels on a television. The system can also be used for emergency, short-distance wireless communication. Originally intended for use in the home by elderly and disabled persons, the technology can also be deployed in hospitals and other care facilities as a nurse-call system. It's expected to become available early next year and will be marketed through home electronics retailers at a price of about 50,000 yen (about \$600US).

For information: RayTron, Inc., 1-4-19 Sen-cho, Osaka City, Japan; Web site: [www.raytron.co.jp/](http://www.raytron.co.jp/) (Japanese only)

## WORLD'S LARGEST SOLAR THERMAL PLANT

The California Energy Commission recently approved the Blythe Solar Power Project – a 1,000-megawatt complex to be constructed in the Mojave Desert. The plant will cover 9.3 square miles and will be constructed using long rows of parabolic troughs, designed to focus sunlight on liquid-filled tubes suspended over mirrors. The steam that is created is then used to drive a turbine, which generates electricity. At peak operation, the complex will produce enough power to supply 800,000 homes. The project will be built in four phases and is expected to create 604 construction jobs and 221 permanent jobs in an area where unemployment hit 15 percent this summer. The commission is in the process of reviewing other solar farm projects which, if approved, would be capable of producing an additional 2,800-megawatts – the equivalent of several nuclear power plants.

For information: California Energy Commission, 1516 Ninth Street, Sacramento, CA 95814; phone: 916-654-4287; email: [renewable@energy.state.ca.us](mailto:renewable@energy.state.ca.us); Web site: [www.energy.ca.gov](http://www.energy.ca.gov)

## CERAMIC BONE REPAIR

A recent study shows that certain ceramic particles can stimulate bone growth nearly as well as traditional grafts that utilize a patient's own bone. Researchers compared porous ceramic particles with natural bone and another commercially available product in a laboratory experiment on mice, dogs and sheep. They found that calcium phosphate particles attracted stem cells and encouraged tissue growth to form new, strong bone. Although the mechanisms are not completely understood, performance of the grafts appear to be linked with the microstructure of the material used.

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