

The Wall Street Journal

2012 Technology Innovation Awards

■ GOLD WINNER

Printechnologies GmbH, Germany. A technology called Touchcode, which enables publishers, consumer-product companies and event promoters to include invisible codes on printed items that can be read on any device with a touch screen. The codes can link to videos, games, recipes or other online features; a concert ticket printed with Touchcode could instantly take you to a clip of the performer singing. Printechnologies is also the Winner of the Wireless category.

■ SILVER WINNER

Pure Storage Inc., U.S. A data-storage system that uses flash memory instead of disk drives to hold information in corporate data centers. The company uses lower-cost flash memory chips, combined with its own software, to both improve the performance of the chips and squeeze in more data. As a result, Pure says, its FlashArray storage systems cost roughly the same as comparable disk storage, while delivering flash's greater speed and efficiency. Pure Storage is also the winner of the Computing-Systems category.

■ BRONZE WINNER

Vidacare Corp., U.S. The OnControl Bone Marrow System, which allows doctors to more quickly and precisely take samples from inside the bone. One of the aims is to lessen the pain of bone-marrow biopsies, which are used to detect and monitor such conditions as leukemia and other cancers of the blood. Vidacare is also the winner of the Medical-Devices category.

Computing Systems

WINNER

Pure Storage Inc., U.S. A data-storage system that uses flash memory instead of disk drives to hold information in corporate data centers. The company uses lower-cost flash memory chips, combined with its own software, to both improve the performance of the chips and squeezes in more data. As a result, Pure says, its FlashArray storage systems cost roughly the same as comparable disk storage, while delivering flash's greater speed and efficiency. Pure Storage is the Silver winner for the overall contest.

RUNNER-UP

Cloudera Inc., U.S. An enterprise version of the open-source database software Hadoop.

Consumer Electronics

WINNER

AfterShokz, U.S. Sports headphones that loop over the ears like other headphones but send sound waves through the listener's cheekbones. By transmitting music directly to the inner ear, the headphones will not block out sirens or warning shouts, thus making it safer to walk, run or bike on busy streets.

Education Technology

WINNER

HP Labs, India. The VideoBook educational system, which collects videos from YouTube and other online sources to enrich digital texts. The technology uses software to identify

the key topics in digital text and then searches the Web for appropriate videos—say, an online lecture, an experiment or a graphic demonstrating a math concept. After ranking each video for relevance to the subject, it displays the text and the most relevant videos side by side.

Energy

WINNER

Nest Labs, U.S. A programmable thermostat, which learns from users' preferences to automatically maintain and adjust home temperatures. The device also senses when there is no activity in the home—when owners are at work or on vacation—and resets the temperature to a preset energy-savings level.

RUNNER-UP

Industrial Technology Research Institute, Taiwan. A solar-energy technology that concentrates sunlight by directing it sideways to small solar cells at the edge of a panel.

RUNNER-UP

Texas Instruments Inc., U.S. An integrated circuit that harvests energy from a variety of sources, including temperature differences and indoor light, to power remote sensors and other devices.

Environment

WINNER

Van Den Noort Innovations, Netherlands. Design of a tsunami barrier that automatically deploys when destructive waves approach. The firm's "Twinwing Tsunami Barrier" lays flat on the sea bed and is activated when waters recede from the shore in advance of destructive waves. The receding "negative tsunami" causes one wing of the barrier to swing up and trap a pool of water. As the "positive tsunami" wave approaches, a second, larger wing is deployed to block and reflect the wave back out to sea—all without human intervention.

RUNNER-UP

Picarro Inc., U.S. The Picarro Surveyor, which combines precision instruments and web-based software to quickly and accurately detect natural-gas leaks.

RUNNER-UP

Kurion Inc., U.S. A mobile system for removing radioactive materials from contaminated liquids and turning that waste into glass for safe, permanent storage.

Health-Care IT

WINNER

Operation ASHA, India. A treatment for tuberculosis. The nonprofit organization uses grass-roots human effort, combined with fingerprint and computer technology, to ensure that disadvantaged patients take the full course of medicine, a crucial step in reducing the emergence of drug-resistant forms of TB.

Information Security

WINNER

FireEye, U.S. An advanced malware protection system that guards against the latest in cyber attacks. The Mal-

ware Protection System first identifies oddities in email attachments, shared files or websites, flagging anything that looks suspicious. Suspect programs are tested in a virtual environment to see if they're in fact harmful. If so, the threats are isolated and disabled.

RUNNER-UP

Palo Alto Networks Inc., U.S. Antimalware software that detects and blocks attack by routing threats to a cloud-based virtual environment where they can be trapped and analyzed.

RUNNER-UP

CloudPassage Inc., U.S. Software for securing cloud-based servers.

Manufacturing Technology

WINNER

MesoCoat, U.S. The CermaClad metal-coating process, which uses high-intensity light to fuse anti-corrosion nanomaterials to metal pipes. The company says the technology, which entered the market earlier this year, will have production rates 40 times faster than typical metal-cladding techniques at 20% of the cost.

RUNNER-UP

Industrial Technology Research Institute, Taiwan. A plasma-jet coating process for applying transparent conductive materials to touch-screen displays and photovoltaic products.

RUNNERS-UP

Novartis Pharma AG, Switzerland, and the **Massachusetts Institute of Technology**, U.S. A continuous-manufacturing method in which all steps of pharmaceutical production—from chemical synthesis to making pills—are performed in one integrated end-to-end process.

Materials And Other Base Technologies

WINNER

Genomatica, U.S. A process for making basic chemicals using bioengineered microorganisms. Since June 2011, the company has been producing butanediol, a chemical used in making spandex clothing, athletic shoes and other products, at a demonstration plant in Decatur, Ill.

RUNNERS-UP

Pacific Northwest National Laboratory and Archer Daniels Midland Co., U.S. A new process for producing propylene glycol, a chemical used in common, household products, from corn, soybeans or other oilseed crops instead of petroleum.

RUNNER-UP

Dow Chemical Co., U.S. A new flame retardant used in polystyrene foam insulation that replaces an older chemical, hexabromocyclododecane (HBCD), which is toxic and harmful to the environment.

Medical Devices

WINNER

Vidacare Corp., U.S. The OnControl Bone Marrow System, which allows doctors to more quickly and precisely take samples from inside the bone. One of the aims is to lessen the pain of bone-marrow biopsies, which are used

to detect and monitor such conditions as leukemia and other cancers of the blood. Vidacare is also the overall Bronze winner of the contest.

RUNNER-UP

MELA Sciences Inc., U.S. MelaFind, which aims to help doctors more accurately and easily detect skin lesions that could be cancerous. Using laser light, MelaFind can scan skin to a depth of 2.5 millimeters and uses computer algorithms to analyze moles and provide physicians with information about their shape and composition.

RUNNER-UP

ApniCure Inc., U.S. Winx, an FDA-approved device to treat sleep apnea. Rather than wearing a mask that forces air up the nose, the current gold-standard treatment, Winx creates a vacuum using a mouthpiece that stabilizes the tongue and increases the size of the airway, improving breathing.

Medicine And Biotech

WINNER

Vertex Pharmaceuticals Inc., U.S. Kalydeco, which treats cystic fibrosis in patients with a particular genetic mutation by restoring the functioning of a protein that doesn't work. The disease leads to a buildup of mucus in the lungs and other organs and can be fatal.

RUNNER-UP

3D Biomatix, U.S. A cell-culture plate that allows researchers to grow cells in a three-dimensional environment that mimics the human body. Allowing cells to grow more like they do in the human body could make drug testing more accurate.

RUNNER-UP

Fibrocell Science Inc., U.S. A personalized cell therapy to treat "smile line" wrinkles and potentially other aesthetic skin issues, such as acne and burn scars.

Network And Internet Technologies

WINNER

CloudFlare Inc., U.S. Technologies designed to improve the performance of websites, whether they are being accessed via a mobile device or a personal computer. It was CloudFlare's second consecutive win in this category.

Physical Security

WINNER

Axis Communications, Sweden. Lightfinder technology, which makes it possible for digital cameras to capture detailed images at night—in color—without additional lighting. Analog security cameras, by contrast, capture only black-and-white images, which are less useful for identifying culprits.

Semiconductors And Electronics

WINNER

MC10 Inc., U.S. A method for making extremely thin, flexible electronic devices that can stretch and bend. MC10 creates flexible electronics using techniques developed by co-founder Dr. John A. Rogers from the University

of Illinois at Urbana-Champaign. First it makes chips one-fifth the width of a human hair, which are then transferred to a stretchable rubberlike polymer and connected by tiny wires. This creates a mesh that is flexible enough to bend or stretch with the underlying material, which protects the delicate circuitry from the stresses of the natural world.

RUNNERS-UP

Thin Film Electronics ASA, Norway, and **Palo Alto Research Center**, U.S. The first printed electronic circuit with rewritable memory.

RUNNER-UP

Solar Junction, U.S. A new solar-cell technology that achieves greater efficiencies for concentrated solar photovoltaics.

Software

WINNER

Appcelerator Inc., U.S. A package of tools for building applications that run on different mobile devices or websites without a lot of additional coding. With Appcelerator Titanium, developers can make an app that runs on an iPhone, iPad or Android device or on a website in less time and at lower cost than if they had to write programs for each device.

RUNNER-UP

Blue Jeans Network, U.S. A cloud-based videoconferencing service able to connect big room-based systems and consumer services like Google Inc. and Skype.

RUNNER-UP

Delphix, U.S. Database virtualization software that cuts database storage costs.

Technology Design

WINNER

Ergologistics LLC, U.S. Lift'n Buddy, a lifting device that is small and light enough to be stowed in the back of a delivery truck, but is able to raise up to 500 pounds from the floor to the height of a counter. Lift'n Buddy uses the frame of a common hand truck and adds a battery-powered motor that raises and lowers a platform. It can also be operated with a remote control.

Transportation

WINNER

ATDynamics Inc., U.S. A simple origami-like apparatus that fits to the back of most tractor-trailers, reducing drag and improving average fuel efficiency by 6%.

Wireless

WINNER

Printechnologies, Germany. A technology called Touchcode, which enables publishers, consumer-product companies and event promoters to include invisible codes on printed items that can be read on any device with a touch screen. The codes can link to videos, games, recipes or other online features; a concert ticket printed with Touchcode could instantly take you to a clip of the performer singing. Printechnologies is the overall Gold winner of the contest.