



TECHNO

THE BIG IDEAS THAT
ARE CHANGING EVERYTHING

TRENDS

THE FUTURE OF REAL ESTATE & MORTGAGE LENDING

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



In the past month, I have given speeches to some of the nation's top Real Estate agents, and a few days later, to executives from the largest

Mortgage companies. As you might guess, none of them were very happy. This isn't hard to understand when you consider that in Nevada, one in eight homes are in foreclosure, and soon mortgage lenders will own 25% of all the homes in the entire United States. Every day the news gets worse with no end in sight. In both audiences, the mind set was a mirror image of their entire industry - crisis.

I asked both groups; "Is the dramatic downturn in the housing market and the accelerating rate of foreclosures a permanent change or a cyclical change?" I could see on their faces a sigh of relief when they all agreed that what they were experiencing was a cyclical change.

What I did with a single question was help them to see light at the end of the tunnel - there will definitely be an end to the current situation.

Next I asked; "Will people continue to both want and need to buy and/or sell homes?" Once again they said yes! *continued on page 2*

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Daniel Burrus has developed Competitive Advantage - an interactive session that raises the bar on take-home value and dramatically increases the impact of his presentation is less than a half-day. For more information, visit www.Burrus.com/ca

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REAL ESTATE & MORTGAGE LENDING *(continued from page 1)*

Will they need an agent and a mortgage? Yes! At this point, in both cases, you could feel the energy shifting in the room. I asked the agents if there were opportunities in helping lenders liquidate foreclosures. This question seemed to open their minds to look for hidden opportunities they could act on today. And, when you have a room full of top sales professionals who have a mindset of opportunity instead of crisis, positive ideas begin to flow. I asked the mortgage lenders if they wanted to own 25% of the homes in the entire United States due to foreclosures on their loans? No, they all responded.

Will the value of homes go back up again if we look beyond two to five years? Yes they agreed. To stimulate their thinking further, I suggested that they provide an option to refinance mortgages by extending them to forty or even fifty years giving the homeowner the ability to keep making payments – a lower payment they can afford – and more time for their house to regain its value. Lenders could even add a mandatory life insurance and/or unemployment insurance policy. Continuing to collect billions of dollars in mortgage payments might be better than experiencing billions of dollars in losses.

As with the real estate agents, the room started buzzing with positive energy. The suggestions stimulated their thinking and their crisis mentality started shifting to identifying new opportunities.

Are daily bad news headlines keeping you from seeing the unlimited possibilities that are right in front of you? Ask yourself if the challenges you are experiencing cyclical or permanent. Look for opportunities. The more you look, the more you will find.

TECHNOLOGY NEWS HIGHLIGHTS

ORGANIC “HARD DRIVE”

Japanese scientists recently announced a way to encode messages into living DNA, a discovery that could someday lead to organic computers capable of “healing” themselves when damaged. As a tribute to Einstein, the characters $E=mc^2$ 1905 were converted to binary and built into artificial strands of DNA. These strands were then spliced into the genome of *Bacillus subtilis* and read back days later by analyzing the genetic sequence. Because the organism chosen has a very slow mutation rate, the data should stay intact for long periods of time – perhaps millions of years. And, they have the equivalent of 1000 copies of War and Peace on the head of a pin. Although the process is slow, taking days to complete, it may still prove to be a viable means of storing vast amounts of information, provided it does not need to be accessed quickly. The method could also be used to tag plants, insects or pharmaceuticals.

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ROBOTIC “MUSCLE”

German researchers have developed a simple, mechanical muscle that will make robotic arms less expensive and safer to operate. Called DOHELIX, it consists of a small electric motor, a drive shaft, and a cord. The cord attaches to two moving parts in the same way as a tendon connects two muscles. It then wraps around a shaft at its midpoint, forming a kind of double helix when the drive shaft turns. The system is cheaper and more energy efficient than gears, and has a tensile force many orders of magnitude greater than its own weight. It can also be adapted to a variety of applications, from micrometer-sized muscles to cranes. The ISELLA robotic arm uses two of these drives for each articulated joint to provide redundancy and prevent uncontrolled movements. With a total of ten such “muscles,” it is expected to be as flexible as a human arm. ISELLA may be available in as little as two years.

For information: Harald Staab, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Nobelstrasse 12, 70569 Stuttgart, Germany; phone: +49-711-970-1432; Web site: www.ipa.fraunhofer.de

MILLIWAVE ANTENNA

A new antenna has been developed that will enable devices such as computers, televisions and cameras to transmit data wirelessly at speeds of up to 1 Gigabit per second across distances of more than 30 feet (10 meters) without the need for bulky, external antennas. Current internal antenna designs for milliwave communications suffer from poor reception due

to their close proximity to the semiconductor. The new design uses a gold wire that forms a triangle between the signal-receiver chip, the wiring board, and a metal board. This permits it to receive signals more efficiently and triples the range without increasing the overall size of the chip package.

For information: Toshiba, 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/index.htm

ANTIMICROBIAL FABRIC

A new breakthrough process in textile production could make fighting the flu as easy as getting dressed. The process, called electrospinning, uses a polymer solution and a high voltage electric field to form nanofibers 1000 times smaller than a human hair. The fibers are then coated with nanoparticles of silver, gold or other metals to give them antibacterial and anti-pollution properties. The smaller the fibers, the more effective the nanoparticles are because of the increased surface area. The same process has recently been used to apply metals to cotton by dipping positively charged fabric into a solution of negatively charged ions. Some of these materials – the first to qualify as genuine nanotextiles – were featured in a recent fashion show. The garments, which were part of a clothing line called “Glitterati,” included silver-infused fabrics to ward off bacteria and viruses as well as palladium-coated fibers that break down harmful air pollutants.

For information: Juan Hinestroza, Cornell University, Department of Fiber Science and Apparel Design, 242 M Van Rensselaer Hall, Ithaca, NY 14853; phone: 607-255-7600; email: jh433@cornell.edu; Web site: www.cornell.edu

FUEL CELL RACECAR

The Fusion Hydrogen 999 recently set the land speed record for a production-based hydrogen-powered car, reaching a speed of 207.297 miles per hours at Utah’s Bonneville Salt Flats. A collaboration between Ford, Roush Racing, Ballard Power Systems and Ohio State University, the concept car represents yet another step toward commercially viable fuel cell technology for the transportation sector.

For information: Gerhard Schmidt, Ford Motor Company, P.O. Box 6248, Dearborn, MI 48126; phone: 800-392-3673; Web site: www.media.ford.com

WORLD’S FIRST DIESEL-HYBRID TRAIN

The Kiha E200, which is now in service near Tokyo, is the world’s first hybrid railcar to be put into commercial use. Powered by lithium batteries on the roof of each car, a traditional diesel engine is also available to provide extra power automatically when needed. Braking energy is used to recharge the batteries whenever the train slows down. The E200 cuts fuel consumption by 10 percent and reduces emissions by up to 60 percent. Engine noise is also reduced by as much as 30 decibels.

For information: East Japan Railway Company, 2-2, Yoyogi 2-chome, Shbuya-ku, Tokyo 151-8578, Japan; phone: +81-3-5334-11151; fax: +81-2-5334-1110; Web site: www.jreast.co.jp/e/

INSECT SPIES

The Defense Advanced Research Projects Agency (DARPA) recently revealed plans to use cyborg insects equipped with sensors, cameras and global positioning systems for covert spy operations. Called HI-MEMS (hybrid insect microelectromechanical systems), the program proposes to introduce nanoscale electronics in moths and horned beetles during the early stages of their development. As they grow, MEMS implants would enable them to be navigated and controlled using mechanical or visual image modulation, ultrasonic pulses or pheromone ejectors. Other research currently under way includes embedding microphones for audio surveillance and gas sensors for chemical warfare testing.

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HI-RES INKJET PRINTER

A new inkjet printer has been developed that could make it possible to manufacture complex nanodevices using

conductive polymers, carbon nanotubes and even DNA. Unlike conventional inkjet printers, which have limited resolution of approximately 25 micrometers, the new device can print individual dots as small as 250 nanometers in diameter. This is largely due to the fact that the fluids are pulled rather than pushed through the nozzle – an approach known as electrohydrodynamic inkjet (e-inkjet) printing. Droplets are created by electric fields between the nozzle tip and the substrate. Ions within the fluid can break away to form droplets that are smaller than the diameter of the nozzle. As the field guides the droplet toward the substrate, accuracy is also improved. The new technology could someday be used to fabricate ultra small biomedical devices or nanoscale electronics.

For information: John Rogers, University of Illinois at Urbana-Champaign, F.S. Materials Research Lab, 104 S. Goodwin Ave., MRL 2005, Urbana, IL 61801; phone: 217-244-4979; email: jrogers@express.cites.uiuc.edu; Web site: www.uiuc.edu

DIAMONDROID DISPLAYS

Flat panel manufacturers are continually looking for ways to improve image quality, field of view and power consumption. It was hoped that field emission devices (FEDs) based on carbon nanotubes would someday be able to replace liquid crystal and plasma displays, but they have proven to be difficult to work with and too expensive to be practical for large-scale manufacturing. Now, a new technology under investigation uses diamondoids, which may be more suitable for commercial production. Tetramantane diamondoids consist of four hydrocarbon molecules with a carbon-carbon cage structure that is identical to a diamond crystal. Their ability to spontaneously emit many electrons within a short period of time makes them excellent candidates for use in FEDs. Because they require little or no turn on voltage efficiency, noise level and functional life are greatly improved. They can also be purified easily and will self-assemble uniformly over large surfaces, making them easier to work with than nanotubes.

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LIGHT-POWERED PISTON

Physicists at Berkeley Lab have developed a molecule that moves up and down like a piston when exposed to light. Eventually it's possible that several such molecules could be strung together to create nanoscale switches or machines. They could also be used to fabricate a "smart" surface that changes properties when illuminated with different light stimuli. The heart of the microscopic piston is an azobenzene molecule to which the researchers attached four "legs." They then placed thousands of these molecules on a sheet of gold and exposed it to ultraviolet light. Using scanning tunnel microscopy (STM), they were able to see the molecules lift themselves off the surface. And, when exposed to a second beam of light, they laid back down. Eventually they hope to harness this action to do work at a molecular level.

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BIODIESEL FROM PLANTS

Japanese researchers have applied for an international patent on a method for making biodiesel fuel from plant materials such as grass cuttings and wood chips. Genetically modified microbes are added to the plant fibers to create butanol, a biofuel that can be mixed with light oil for use in diesel engines. Tests have confirmed that the biodiesel had a negligible effect on performance, and the cost of production is expected to be comparable to that of bioethanol for gas-powered vehicles.

For information: Research Institute of Innovative Technology for the Earth, Tokyo, Japan: Web site: www.rite.or.jp/index_e.html

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