



# TECHNO TRENDS

THE BIG IDEAS THAT ARE CHANGING EVERYTHING

## What Should Today's Managers Really Be Managing? (Part II)

By Daniel Burrus, CEO of Burrus Research



Last month, we discussed why managing perception is important and how perception is even more important than reality. I also introduced the idea that managing distractions is equally important. My answer to those challenges was to become an opportunity manager and plug into the future.

This month, I would like to focus on the importance of unplugging and recharging on a regular basis so that you can be continuously creative and innovative.

Unplugging leads to better results in all areas of life. Realize that your mind is always working on a subconscious level to solve your business problems. No matter what you're doing, your subconscious is at work. Have you ever noticed that your best business ideas tend to come when you're working on or doing something else, whether walking the dog, woodworking, or playing with your kids? Great ideas often do not occur when you're in the midst of trying to come up with one. It's when you're in one of those other realities that many business issues get solved. However, if you never unplug, you develop something called "blur," when all the realities blend together and your mind never gets a chance to rest and recharge.

The good news is that you can be a responsible employee or executive and still have a life. But since there are no guidelines on how to do that, you have to create them for yourself, for your team, and for your organization.

OCTOBER 2011

VOL. XXVII, NO. 10

- ELECTRIC ROADS
- DESIGNER GENES
- SUPER SAND
- TRANSPARENT BATTERIES
- INORGANIC "LIFE"
- SOLAR BUDGET PLAN
- ROBOT FARMING
- SYNTHETIC MEAT
- ROBOT "LINGO"

### WIRED MAGAZINE & DANIEL BURRUS

Daniel Burrus was handpicked by Wired Magazine as an expert to blog about and discuss innovation during the week of October 10, 2011 on the Change Innovation Blog. You can still read and comment on Daniel Burrus' posts for Wired Magazine at [www.wired.com/changeaccelerators](http://www.wired.com/changeaccelerators)

### FOLLOW DAN BURRUS

-  [www.Twitter.com/DanielBurrus](http://www.Twitter.com/DanielBurrus)
-  [www.Facebook.com/DanielBurrus](http://www.Facebook.com/DanielBurrus)
-  [www.linkedin.com/in/DanielBurrus](http://www.linkedin.com/in/DanielBurrus)

continued on page 2

PUBLISHED BY:

**burrus**  
research

800-827-6770  
[www.burrus.com](http://www.burrus.com)

## Today's Managers *(continued from page 1)*

First, it's time to stop thinking in terms of just productivity. While you may think that working all the time means you're more productive, you have to ask yourself if that's really the case. Maybe you're not able to be as creative and innovative as you need to be. Maybe you're not tapping into the fresh perspective that unplugging yields you.

Next, be disciplined and create strict guidelines for yourself. At a certain time in the evening, close the laptop and turn the phone off. Detail when you're allowed to work and when you're not. This may seem extreme at first, but even though we're adults, we often act like children and need the same rules and guidelines that kids do.

If your kids have an X-Box, a Playstation, a computer with unlimited Internet access, and a Facebook and MySpace account, and if they can use these things whenever they want, they tend to act like the little monkey that keeps pushing the button that gives him food. That's why parents set rules: "Do your homework before you play." "Only one hour of TV after school." "Turn off the computer at 9 p.m." Because you want well-rounded kids, you encourage certain behaviors and activities. You send your kids to sports and dance lessons, help them learn a new language or how to play an instrument, and make sure they have enough time for rest. You know that your child will not be well-rounded if you let them decide what to do, as they'll tend to focus on just a few things. Adults are no different. That's why you need to come up with your own guidelines in terms of when to plug in and when to unplug.

So is there a time to be thinking strategically, a time to be mapping out that next project, and a time to focus on innovation? Or are you going to get to those things "someday" because you're constantly checking emails or troubleshooting?

Granted, you may not be able to change everyone else and get them to unplug, but you can start by changing yourself and then grow it outward. Can't change the world? Then don't. Can't change your company? That's okay. Start with yourself and then bring it to your team. They'll bring it to their team, who will bring it to their customers, who will bring it to another group. Very soon, you and many others will start realizing the real benefit of taking control of your life, unplugging from work, and harnessing the creativity and innovation you never knew you had.

### Your Future Awaits

At the end of the day, being able to manage perceptions and distractions is just as important as being able to manage people and projects. When you focus on managing what's important, you'll open yourself up to a whole new world of possibilities. So don't wait for your future to unfold randomly, only to end up in a place you don't want to be. Instead, invest the time into yourself and watch your success grow.

## TECHNOLOGY NEWS HIGHLIGHTS

### Electric Roads

A new technology is currently in development that could reduce the size (and cost) of batteries used in electric vehicles by up to 80 percent. Drawing inspiration from hobby slot cars, the new technique is based on transferring power to the vehicle from electrical coils in the road itself. The big difference is that the new method requires no physical contact between the car and the source of electricity. The system – known as High Capacity Wireless Power Transfer (HCWPT) – relies on the principle of induction in which current is carried from a transmitter coil to a receiver coil via a magnetic field. In laboratory tests, it is capable of transferring up to 5 watts of power across a 10-inch gap with an efficiency of 90 percent. That's comparable to the efficiency of a plug-in charger. The next step is to achieve similar performance when the receiver coil is moving at highway speeds of up to 70 miles per hour.

The ultimate goal is to have transmitter coils placed in the pavement at intervals of a few feet, enabling electric vehicles to charge "on-the-go". In addition to being highly reliable (due to the lack of moving parts and cords) the technology is also unaffected by snow, rain, dirt or chemicals.

*For information: Hunter Wu, Utah State University, Energy Dynamics Laboratory, 1695 North Research Park Way, North Logan, UT 84341; phone: 435-713-3800; Web site: [www.energydynamicslab.com](http://www.energydynamicslab.com)*

## Designer Genes

Yale researchers recently announced that they have successfully modified a genome to construct a totally new organism with a new genetic code. The process involves removing all occurrences of a specific amino acid sequence (codons) and replacing them with a new one using the scientific equivalent of a word processor's "search-and-replace" command.

The technique was demonstrated using *Escherichia coli* (E.coli). The cell membranes were first opened up by exposing the bacteria to an electric current. This allowed some of the new DNA sequences to be incorporated into the genome structure. When selected bacteria were paired for reproduction, the number of new sequences gradually increased from generation to generation until nearly all of the target codons were replaced. The ability to design organisms with new functions using high throughput, automated methods has profound implications for many applications from new drugs to new biofuels. The goal of methods like this is also to ensure safe and programmable control of such organisms.

*For information: Farren Isaacs, Yale University, Biology Department, 219 Prospect Street, New Haven, CT 06511; phone: 203-432-3783; email: farren.isaacs@yale.edu; Web site: [www.yale.edu](http://www.yale.edu)*

## Super Sand

For thousands of years, sand has been used to filter and clean polluted water. In fact, the World Health Organization (WHO) recognizes sand filtration as a method for purifying water in developing countries around the world. Now, a research team in Australia has found a way to enhance its natural filtering properties by coating it with a graphite-oxide nanomaterial. The coating serves to increase the surface area of the sand, effectively increasing its ability to remove contaminants. In comparison experiments, untreated sand became saturated after ten minutes while the "super sand" continued to absorb impurities for 50 minutes or more. It's also relatively inexpensive to produce since the graphite-oxide can be synthesized from mining by-products using room temperature processes. It is estimated that access to cleaner water could prevent 500,000 deaths from malaria, 860,000 deaths from malnutrition, and 1.4 million deaths from diarrhea every year.

*For information: Mainak Majumder, Monash University, Department of Mechanical Engineering, Building 31, Victoria 3800, Australia; phone: +61-3-9905-6255; email: mainak.majumder@monash.edu; Web site: [www.monash.edu.au](http://www.monash.edu.au)*

## Transparent Batteries

Recent advances in materials engineering have made it possible to create transparent versions of many electronic components – from solar cells to touch panels. Now, scientists at Stanford have found a way to make batteries transparent too, paving the way for a whole host of see-through electronic devices. The batteries are constructed by building an electrode grid on top of a clear polymer, using parts that are only 30 microns in size. The whole assembly is then encased in plastic. Because humans cannot distinguish objects smaller than 50 microns (without the aid of a microscope), the battery appears transparent to the naked eye. Future applications of transparent technologies may someday lead to "invisible" devices that could overlay computer-generated images on real objects (i.e. augmented reality).

*For information: Yi Cui, Stanford University, Materials Science and Engineering, 476 Lomita Mall, McCullough 343, Stanford, CA 94305; phone: 650-723-4613; email: yicui@stanford.edu; Web site: [www.stanford.edu](http://www.stanford.edu)*

## Inorganic "Life"

We typically think of evolution – the process by which something adapts to its environment – as a process that is unique to living organisms. But what if evolution wasn't confined to carbon-based life forms? What if it was also possible for other forms of matter to evolve? That's what one team of researchers has set out to demonstrate. They've started by creating inorganic molecules that can control complex chemical reactions similar to living cells. The next step is to make those molecules self-replicate and adapt so that, for example, they can survive in environments where they would normally decompose.

If successful, they will have succeeded in redefining "life" as we know it by illustrating that non-carbon-based organisms are capable of evolving and that somewhere in the universe, life based on iron or silicon may exist.

*For information: Lee Cronin, Glasgow University, School of Chemistry, Joseph Black Building, University Avenue, Glasgow G12 8QQ, Scotland; phone: +44-0141-330-6650; email: lee.cronin@glasgow.ac.uk; Web site: [www.gla.ac.uk](http://www.gla.ac.uk)*

## Solar Budget Plan

A new photovoltaic (PV) power supply is designed to make solar power more affordable in developing countries. It's based on a concept known as Progressive Purchase™ technology, which works as a “pay-as-you-go” plan. The system utilizes a cloud-based software program to process payments. Users can purchase power using a mobile phone, and receive a code that unlocks the system. It generates a specified number of kilowatt-hours and then shuts down until the user makes another payment. Once the entire system has been paid off, it unlocks permanently. Units should be available for purchase in January 2012 with prices starting at around \$150.

*For information: Simpa Energy India PVT, Ltd., 635-2, 17th H Main, Koramangala 6th Block, Bangalore, Karnataka, 560 095, India; Web site: [www.simpanetworks.com](http://www.simpanetworks.com)*

## Robot Farming

In another step toward automated agriculture, engineers in Belgium have collaborated with a farm equipment manufacturer to develop a self-driving tractor. The autonomous system begins with a GPS that is programmed with a map of the planting area, including any boundaries, waterways, and other non-planting areas. The tractor is then taken into the field and positioned at a designated starting point. After that, the entire process is automatic including adjusting speed and turning radius to compensate for changes in terrain. The hope is that reducing the need for skilled drivers will drive down high operating costs for farmers, and allow them to increase productivity by enabling them to plant more in less time. The system could also be adapted for other farming tasks including fertilizing and harvesting.

*For information: Flanders' Mechantronics Technology Centre, Campus Arenberg, Celestijnenlaan 300D, B-3001 Heverlee, Belgium; phone: +32-16-328050; fax: +32-16-328064; Web site: [www.fmtc.be](http://www.fmtc.be) Kinze Manufacturing, Inc., 2172 M Avenue, Williamsburg, IA 52361; phone: 319-668-1300; Web site: [www.kinzie.com](http://www.kinzie.com)*

## Synthetic Meat

Someday soon you may be able to buy a hamburger made from meat that's been grown in laboratory rather than on a farm. At least, that's the hope of several researcher teams that have been working on ways to cultivate muscle in vitro for the purposes of human consumption. In one experiment, they have successfully produced strips of pig muscle by feeding pig stem cells with fetal serum from horses. The strips of tissue are exercised daily by anchoring them to Velcro and pulling the cells away from the surface. And this is just the beginning. In addition to the standard pork and beef, the process could be applied to more exotic meats as well. Although no one has actually tasted the lab-grown morsels due to regulations that prohibit its consumption, the concept has its merits. Besides eliminating issues with inhumane treatment of livestock, the ability to grow meat in a lab would enable other (perhaps tastier) meats, which are not easily domesticated, to be made available to a wider range of consumers. It could also have a positive impact on the environment. For example, cultured beef is estimated to require 99 percent less land than traditional beef farming methods.

*For information: Mark Post, Maastricht University, Department of Physiology, Universiteitssingel 50, 6229ER Maastricht, The Netherlands; phone: +31-43-388-1085; fax: +31-43-388-4166; email: [m.post@maastrichtuniversity.nl](mailto:m.post@maastrichtuniversity.nl); Web site: [www.maastrichtuniversity.nl](http://www.maastrichtuniversity.nl)*

## Robot “Lingo”

A pair of robots known as Lingodroids has been programmed to make, use and share their own language to describe their environment. Equipped with 360-degree cameras, microphones and speakers, they pair letters to form syllables, then join those syllables to form words. In one experiment, the robots were allowed to navigate a course. When they met in an unfamiliar part of it, one gave it a name (“jaya”) and shared the word with the other robot, who then added it to its own vocabulary. Eventually, they learned to communicate and even share directions.

*For information: Janet Wiles, University of Queensland, Information Technology and Electrical Engineering, Brisbane, St. Lucia, QLD 4072, Australia; phone: +61-7-3365-2902; fax: +61-7-3365-4999; email: [j.wiles@itee.uq.edu.au](mailto:j.wiles@itee.uq.edu.au); Web site: [www.uq.edu.au](http://www.uq.edu.au)*

---

Technotrends is published 12 times a year by Burrus Research, Inc., a research and consulting firm that monitors global advancements in science and technology and their direct impact on business and consumers. Mary Norby, Editor P.O. Box 47, Hartland, WI 53029-0047. To subscribe, call 800-827-6770, or email [office@burrus.com](mailto:office@burrus.com). © 2011 Burrus Research, Inc.

---