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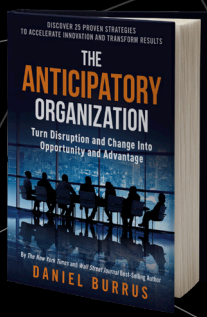
TECHNOTRENDS® NEWSLETTER

The biggest ideas that are changing everything

IN THIS ISSUE

A "Brandless" Form of Anticipation
Healing Touch
Diabetes Implant
Just Add Water…
Monitoring Hand Hygiene
Voting Machine Security?
Inexpensive Graphene
GPS Cyberattack
3D Printed Foot Sensor

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A "Brandless" Form of Anticipation

By Daniel Burrus, CEO of Burrus Research

If you're a consumer who stays on top of retail trends, you've likely come across a line of products that have a somewhat unusual branding and pricing structure.

As the name of the company suggests, Brandless' products are packaged and sold simply for what they are. Hungry for a bag of vegetable chips? Brandless offers a bag of "vegetable chips."

Looking for hand cream to help smooth out dry skin? Brandless has a "hand cream." No manufacturer name or a brand title that's a clever play on words—just whatever happens to be inside the bag, box or some other form of container.

> *Every Brandless product costs $3, no matter if it's coffee or toilet bowl cleanser.*

Further, if you enjoy the "hunt" that comparison shopping can afford, best to take your safari elsewhere. Every Brandless product costs $3, no matter if it's coffee or toilet bowl cleanser.

But Brandless is more than just simplicity in both presentation and cost. It's a powerful illustration of a company that's using a variety of anticipatory organization strategies—a useful example that shows how leveraging both Hard and Soft Trends as well as cycles can lead to success with low risk.

A Brand That's Not a Brand

Of course, in creating a line of products under the heading Brandless, the company is, in fact, creating a brand. In one respect, the brand is simplicity and a straightforward approach—simply labeled products, all of which are priced the same. That's a definite form of branding.

Additionally, the brand represents a departure from the traditional system by which products are brought to market. By bypassing expensive labeling, delivery, marketing and other features that inevitably lead to significant cost increases for consumers—in the case of hand cream, often more than 300 percent--Brandless effectively takes the point for shoppers looking for the least expensive prices possible. That, too, is a type of branding.

But Brandless also incorporates a number of features of my Anticipatory Organization Model that can offer significant competitive advantages. One is what I refer to as the Law of Opposites. By forgoing conventional retail price add ons in favor of flat fees for every item in their product line, Brandless is taking an opposite tack from the vast majority of retailers. That's a form of innovation in an era where innovation is an imperative to identify significant opportunities.

The Leverage of Demographics

Brandless is also taking advantage of another core component of an anticipatory organization, namely, the Hard Trend that demographics represent. At one end of the spectrum are baby boomers who want to make the most of ever increasing life expectancy. And, to enjoy those years as much as possible, they're focused on putting healthy, organic products in and on

continued on page 8



TECHNOLOGY NEWS HIGHLIGHTS

Healing Touch

Researchers have developed a device that can begin healing injuries with a single touch.

The technology, known as Tissue Nanotransfection (TNT), works by reprogramming cells into other types of cells that are needed for healing.

In a laboratory test on mice, the dime-sized device was used to repair injured legs over a three-week period by transforming skin cells into vascular cells to restore blood flow. In another experiment, it was used to convert skin cells into brain cells, restoring brain function in a mouse that had suffered a stroke.

This is the first technology capable of reprogramming cells in a live body. Unlike current cell therapy methods, which introduce a virus and require multiple steps to reprogram damaged cells, TNT transforms cells by injecting them with a completely new genetic code and begins to take effect in seconds.

The technology can easily be deployed in the field and could potentially save the lives of accident victims and injured military personnel by enabling treatment to be initiated on site.

The developers are currently awaiting approval from the U.S. Food and Drug Administration to begin human clinical trials, which is expected within a year.

For information: Chandra Sen, Ohio State University, Center for Regenerative Medicine and Cell Based Therapies, Biomedical Research Tower, Suite 1009, 460 W. 12th Avenue, Columbus, OH 43210; phone: 614-292-5621; email: Sen.16@osu.edu; Web site: https://medicine.osu.edu/regenerativemedicine/pages/index.aspx

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Diabetes Implant

Type 1 diabetes (T1D) is an incurable condition in which the body's immune system destroys insulin-producing cells in the pancreas. T1D accounts for about 10 percent of all diabetes cases, and unlike Type 2 diabetes, it cannot be prevented or reversed by changes in lifestyle. Instead, T1D patients must rely on daily insulin injections to keep their glucose levels within range. Left untreated, diabetes increases the risk of heart attack and stroke by two to three times, and can lead to blindness, kidney failure and neuropathy. By 2030, the World Health Organization has predicted that diabetes will be the seventh leading cause of death worldwide. As a result, researchers have been working hard to find a cure for this potentially debilitating disease.

Clinical trials are now underway using a new device that not only manages insulin levels automatically, but rebuilds the cells needed to produce insulin in the body. Known as PEC-Direct, it's a credit card-sized implant that releases insulin when needed, and also carries pancreatic beta cell precursors, which, once inside the body, mature into endocrine cells to produce their own insulin. The goal is for these cells to eventually replace the need for injections by releasing the hormone automatically.

Products such as this can not only transform the lives of diabetes patients by freeing them from daily insulin injections, but also reduce the risk and cost of long-term complications.

For information: ViaCyte, Inc., 3550 General Atomics Court, San Diego, CA 92121; phone: 858-455-3708; email: info@viacyte.com; Web site: http://viacyte.com/



Just Add Water...

A novel aluminum alloy could provide a portable source of hydrogen fuel, reviving interest in fuel cells as an alternative to batteries and liquid fuels. All you have to do is add water.

The discovery was somewhat accidental as a team of researchers was testing a high-strength aluminum alloy by pouring water on it. Normally aluminum will quickly form an oxidized barrier that stops any reaction; however, in this case, it started to bubble and give off hydrogen. What's more – it kept on reacting.

Previous attempts to harvest hydrogen from aluminum and water required high temperatures and/or the use of catalysts. The reactions were also slow and inefficient, taking hours to achieve 50 percent efficiency. The new alloy produced an order of magnitude with more energy than an equivalent weight of lithium batteries in less than three minutes.

While hydrogen has long been known as the cleanest fuel around, it has never reached its full

potential because of the challenges associated with storage and distribution, which requires high pressures and low temperatures. However, aluminum and water are compact, stable and easy to transport. And unlike batteries, they can be ready for use indefinitely.

For information: Scott Grendahl, U.S. Army Research Laboratory, 2800 Powder Mill Road, Adelphi, MD 20783; phone: 301-394-3590; Web site: http://www.arl.army.mil/www/default.cfm



Monitoring Hand Hygiene

It has been estimated that one in 25 patients admitted to a hospital will acquire an infection. Despite the ubiquity of hand gel dispensers and continuous efforts to educate personnel, poor hand hygiene still remains one of the leading causes. So researchers are looking to technology to find a solution.

In one study, a camera-based system running computer-vision algorithms was used to analyze human movement patterns and measure hand hygiene compliance. The system collected images from two hospital wards overlooking the corridors, patient rooms and gel dispensers. Of the 170 individuals recorded, only 30 used the dispensers properly. The system was then modified to detect healthcare staff and track their hand hygiene exclusively. The results indicated that the algorithm was 75 percent accurate in determining whether staff used the dispensers, compared to human monitoring, which resulted in 63 percent accuracy.

The investigators envision that a system such as this could become part of a more comprehensive "smart hospital" program designed to increase hospital efficiency and improve patient care. This type of surveillance will provide important insights and objective data that sometimes escapes human observers.

For information: Alexandre Alahi, Swiss Federal Institute of Technology, GC C1 383 (Batiment GC), Station 18, CH-1015 Lausanne, Switzerland; phone: +41-21-69-32608; email: alexander.alahi@epfl.edu; Web site: https://www.epfl.ch/index.en.html



Voting Machine Security?

Despite all of the assurances officials have offered claiming that election systems are virtually unhackable, researchers recently proved that it's not only possible to access and alter votes cast on some voting machines – it's not even difficult.

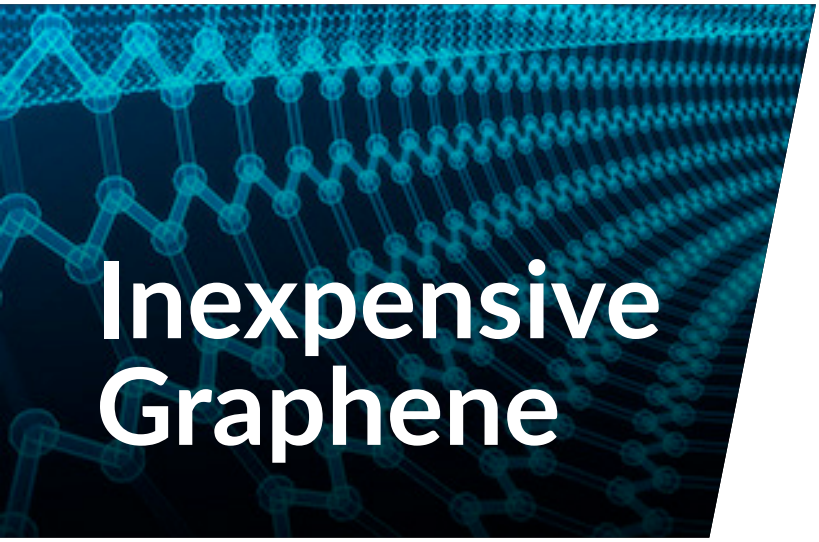
At its 25th annual conference in July of this year, DEF CON hosted the first Voting Machine Hacking Village in which hackers were given access to 30 popular voting machines, purchased from eBay and government auctions. In less than ninety minutes, one of them had been hacked wirelessly. Soon after, other teams succeeded using a variety of methods from prying open mechanical locks on USB ports to simply plugging in a mouse. Some

of the technology exploited has been known since 2003, such as a flaw in Windows XP that allowed access via WiFi.

All in all, the hackathon exposed at least 18 vulnerabilities in e-voting and e-poll book systems that can be studied to improve security going forward. But questions remain as to whether or not these problems can be fixed with software alone. According to some experts, the issue is with the hardware architecture.

One point of interest: This hacking village would not have been possible without the passage of the Digital Millennium Copyright Act in 2015, when the U.S. Copyright Office issued a key rule allowing hacks to e-voting and tabulating systems, with the caveat that those hacks be used only for research purposes.

For information: DEF CON Communications, Inc.; Web site: https://www.defcon.org/



Inexpensive Graphene

Since graphene was first isolated in 2004, over 10,000 scholarly articles have been published about this amazing material. One million times thinner than a human hair, yet 100 times stronger than steel, the two-dimensional material also possesses unmatched thermal and electrical properties that make it useful for countless applications in aircrafts, electronics and biotechnology. But more than a decade since its discovery, the processes for manufacturing it are still too costly and complicated for large-scale commercial use.

Now a cost-effective method for synthesizing graphene has been patented that is straightforward and does not require aggressive oxidation, high-energy mixing or the application of sound energy like current techniques do. Instead, graphite is placed in a water-oil interface where it spreads into individual, overlapping graphene sheets. Best of all, because it does not rely on oxidation, the new process produces pristine graphene rather than graphene oxide, which is the form used in most of the previous research. This pure graphene will have even better mechanical, thermal and electrical performance in comparison to oxidized versions.

The team is currently working on a desalination device that will use the new material in a process known as capacitive deionization (CDI) to remove salt from water. The discovery will likely lead to an expansion of new research into additional applications as well.

For information: Doug Adamson, University of Connecticut, Department of Chemistry, GANTCOMPLX, Unit 3136, Storrs, CT 06269; phone: 860-486-4716; email: douglas.adamson@uconn.edu; Web site: http://uconn.edu/



GPS Cyberattack

Evidence suggests that a new type of cyberweapon may be able to throw GPS-enabled devices off course

– a technique known as "spoofing." If confirmed, experts are concerned that it would make it difficult to guard against rogue operatives diverting self-driving vehicles, hijacking autonomous ships and even preventing guided missiles from hitting their targets.

Earlier this year, in what appeared to be an isolated incident, one ship navigating in the Black Sea found itself 32 kilometers off course. But upon further investigation, it was discovered that at least 20 other ships were affected.

In Moscow, it has also been reported that users of GPS-based phone apps like Pokemon Go experienced problems in the area around the Kremlin in which the app placed them at the airport 32 kilometers away.

While GPS jamming has long been a concern, it's easy enough to detect because the signal is totally lost. In the case of spoofing, it's much more difficult to distinguish because real signals are replaced by misdirection. And some worry that spoofing is getting easier, not only for state operatives but for any reasonably competent hacker.

More research will be needed to come up with a way of authenticating GPS signals. Or we may need to revitalize the World War II-era radio navigation system known as Loran, which requires a large, complex antenna system that could detect and isolate spoofing activity.

Whatever the solution, it would serve us well to remember that technology is a tool, not a replacement for human vigilance.

For information: Todd Humphreys, University of Texas at Austin, Radionavigation Laboratory, WR4141, MC C0600, Austin, TX 78712; phone: 512-471-4489; email: todd.humphreys@mail.utexas.edu; Web site: https://radionavlab.ae.utexas.edu/



3D Printed Foot Sensor

Over the past several years we have reported on a number of new applications for 3D printing to assist clinicians in diagnosing and treating physical conditions. Recently, a new magnet-based 3D printer was used to develop sensors that can track foot movement to better measure, analyze and correct pathological gait patterns.

Kinematic analysis of the foot has improved greatly with the evolution of camera and computer technologies that can track movement in three dimensions. However, most of the studies performed to date analyze only bare feet. Now researchers have developed a novel sensor and shoes modified with "windows," enabling in-shoe measurements to be taken.

A dynamic trial revealed good to excellent repeatability and reliability of intra- and inter-session measurements, indicating that the multi-segment foot analysis is possible even when the subject is wearing shoes. The new system will make it easier to assess and fine-tune treatments for walking abnormalities.

For information: Filip Staes, University of Leuven, Musculoskeletal Rehabilitation Research Group, Department of Rehabilitation Services, Teruursevest 101, Box 1500, B-3001, Heverlee, Belgium; phone: +32-16-329079; email: filip.staes@kuleuven.be; Web site: https://www.kuleuven.be/english

A "Brandless" Form of Anticipation

continued from page 1

themselves—the sort of organic items that fill Brandless' shelves.

Then there are millenials, a group who spends more than $65 billion each year and influences upward of $1 trillion in total consumer spending, according to a recently released study. At the risk of painting a significant segment of the population in one broad stroke, millenials aren't always keen on doing the same things and buying the same products that prior generations did. While the lure of organics cuts across generations, millenials are likely less attached to those brand names that their parents and grandparents loyally bought year after year. Hence, the lure of the "brandless" packaging and message.

The Opportunity of Cycles

However mistaken it would be to dismiss the potential that the Brandless model offers, it would also be inaccurate to suggest that its focus on millenials' buying habits and preferences was singular in its insight. The fact is that millenials are behaving pretty much the same way that every generation in history has behaved—yet another powerful idea that affords enormous opportunity.

Think back to when minivans were first introduced in the early 1980s. At the time, although they were inherently practical—a vehicle designed to transport families, often ones with young children—the question nonetheless persisted: Since their parents had grown up hauling their own young families around in the classic design of a station wagon, would buyers take to the new design?

At the time, my response was: absolutely. My reasoning was simple: the younger generation was starting to have kids, but they didn't want to drive around in the station wagon that had been a mainstay of their garage when they were growing up.

That rejection of things that came before has been repeated for centuries and has continued to this very day. For instance, people of a certain age are attached to sleek, stylish lines in automobiles. Not so with younger buyers.

Just take a look at the number of squared off, boxy cars that are filling the roadways. Once again, a new generation of buyers simply doesn't want to replicate what prior generations embraced.

That's an established, cyclical pattern. And, as the Brandless model shows, recognition and application of the leverage that cycles afford can translate into enormous opportunities.

Everyday Then, Extraordinary Now

Another way to understand the value of cycles on a large organizational scale is to look at them from a more personal, singular perspective—this involving the changing design and appeal of automobiles. But not just in buying a family car—rather, buying and holding onto certain types of cars whose value can change with the generations.

From the sixties into the early 1980s, the parents of baby boomers were collecting classic cars from the 1940s and 1950s. The motivation was simple. Now that they could afford it, they wanted the car that they couldn't manage financially when they were younger. Plus, they were happy reminders of their youth.

That pattern caught my attention. In the 1980s, I began suggesting it was a timely idea to start buying late 1960s and 70s muscle cars. The reason was purely cyclical. Like their parents before them, baby boomers had reached a stage in their lives where they had the financial means to buy cars they once could not afford. If they held onto them long enough, the demand for them would be high, as would the prices they would command. In fact,

that was already happening with their parents who, edging into their eighties and nineties, were cashing in on the cars they had bought and retained years before.

The overriding point is that you can predict what's going to be appealing and of value just by looking at different generations as they pass through different stages. That's precisely what Brandless is doing by targeting the cycle of millenials who are building their buying power and, at the same time, focused on types of items and goods that preceding generations had no interest in. Your organization can anticipate in the same manner by monitoring the cycles that your clients and consumers happen to be in, now and in the future.



Harley Davidson Reacts

A different use of cycles in developing strategy can be seen on an organizational level in a company that, ironically enough, is inherently involved in cycles—Harley-Davidson Motorcycles.

Let's look at baby boomers once more. When they were growing up in the 1960s, they began to enthusiastically embrace motorcycles. But not Harleys. Initially, they preferred bikes from Honda and Yamaha. Although they didn't have as much horsepower as they might have wanted, the quality of Harleys was decidedly lacking.

That changed in the 1990s when, through an aggressive emphasis on improving their products, Harleys blossomed into top notch bikes. The company stock took off. Baby boomers loved the motorcycles, often willing to endure a waiting list to buy one. Further, they bought not only the bikes but also T-shirts and leathers.

Of course, the appeal of a motorcycle gradually wore off as boomers grew older and simply didn't or couldn't ride as often as they used to. And, just as naturally, young people weren't as taken with motorcycles. Further, if by chance they were into biking, they weren't about to ride on the same bike that Dad or Mom had.

What could Harley do? Recently, the company announced a central shift in its strategy which, as they put it, focused on "building" riders and not just motorcycles. The effort focuses on getting people excited about riding through ridership training classes and other programs—including ones focused on women riders and consumers in foreign countries--geared to elicit interest in a changing market whose natural passion for riding has cooled.

The Harley example show how an organization can react to changing cycles—in this case, targeting the consumer him or herself rather than the product, yet another example of going in an opposite organizational direction. In an anticipatory manner, Harley recognized that, if they don't "build" riders, even the best bike on the planet will be irrelevant if there's no one passionate about riding it.

Brandless, Harley and other companies like them demonstrate that, in an era characterized by rapid change, it's also valuable to watch those cycles and trends that have a history of repeating. Just as one-way, linear, exponential change provides opportunities, so, too, can cycles that have occurred in the past and will continue to do so into the future.

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