



TECHNO

THE BIG IDEAS THAT
ARE CHANGING EVERYTHING

TRENDS

MAKE YOUR COMMODITIES STAND OUT - DE-COMMODITIZE (PART I)

BY DANIEL BURRUS, CEO OF BURRUS RESEARCH



No matter what industry you're in, chances are you have a few products or services in your line that are commodities.

From food and beverage items to household products to daily services, commodities are everywhere and make bottom line profits harder and harder to attain.

Companies that sell commodities typically must offer low prices and deal with slim margins. Why? Because the customers' perception of the product or service is one of ambivalence. In the customers' mind, the product or service is just like everyone else's, so there's no reason to pay more for it. Whether the item is water, car brakes, an electric utility service, copy paper, or one of the millions of other commoditized offerings, customers believe what they get from one company is identical to what they can get from another.

So what's a business to do? The answer is to de-commoditize...but not just once...continuously!

For example, suppose you sell flashlights. To customers, a flashlight is a flashlight and you can only charge so much for one. But what if you made your flashlight last twice as long? Now you can charge more for it. However, don't stop there. Later you can add more unique aspects to your flashlight such as *cont on page 2*

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DE-COMMODITIZE *(continued from page 1)*

making it half the size or twice as bright. Now you can continue charging more for your flashlight.

Here's another example: Water is water...until you put it in a bottle. Once you put water in a bottle, you can charge for it. You can then put the water in a fancier bottle and charge some more. You can also add some vitamins to it, give it a fancy name, and charge even more. Now you've taken a commodity and you've de-commoditized it.

The fact is that every product and service can be de-commoditized repeatedly. Unfortunately, most businesses don't do this. Instead, they come up with a new product or service and they milk it. They make their money on it and let the product or service become a commodity.

Realize that the minute you come up with something new, a competitor will copy it. As they do so, your de-commoditized and innovative product or service slowly becomes a commodity. The margins get thinner as time goes on. You find yourself competing more on price and eventually remove the product or service from your line.

Here's a better approach: Instead of letting the margins get thinner and riding them down, you can get more efficient and effective. You can think creatively about your product or service so you can repackage it, redefine it, revamp it, or somehow make it unique in the marketplace again.

FOLLOW TRENDS

Pay close attention to the trends going on in your industry and with your customers. Based on the direction of change that you can see, what future trends can you identify? If you can accurately pinpoint where your industry or customers will be in the next few months or years (or what your customers will want), you can de-commoditize your offering and get that business.

For example, the product 7UP was a commodity for many years. 7UP and the other products like it are basically bubbly, clear flavored sugar water. For many years, 7UP was dealing with shrinking margins and lower sales. People were drinking less soda and more water and other non-carbonated drinks. Recognizing the trend for customers to want healthier drink options, 7UP de-commoditized their soda by taking out all the artificial flavorings and ingredients and making their product natural. After they launched their new "natural" campaign, sales of 7UP increased.

But, as is the nature of commoditization, over time competitors will start copying what 7UP did and the soda will become a commodity again. So instead of riding it back down again to decreasing sales and low margins, 7UP can take the next step and make all their natural ingredients organic. But rather than do what other companies do with the organic label, which is to stretch the definition, 7UP raised the bar and did organic the way it should be done. Now they're de-commoditizing again. And as trends with their customers continue to change, so too should the soda.

Next month, I will share two additional suggestions and examples on how to make your products stand out in the marketplace again.

TECHNOLOGY NEWS HIGHLIGHTS

AUTO BODY THAT STORES ELECTRIC POWER

A new material has been developed that integrates structural properties with power storage capabilities – an invention that could eliminate the need for batteries as we know them. The multifunctional composite is made from carbon fiber and polymers. It's rigid enough to provide structural support, providing the same strength and stiffness as steel at only a quarter of the weight. Yet, it's flexible enough to store electricity in the form of ions, which can be discharged as needed. The potential applications for the new product are far-reaching and significant. If storage density is adequate, for example, it could replace lithium ion batteries which are getting more expensive as lithium supplies dwindle. Used for automobile bodies, it might eliminate the need for supplemental batteries and reduce weight at the same time. It's estimated that using the material to replace the battery pack in a Chevy Volt, for example, would shave 375 pounds off the total weight. Likewise, laptops, mp3 players, cell phones and other electronic devices could be powered directly from their enclosures. Further work is needed to ensure that the material can perform over the necessary range of operational temperatures and to

develop appropriate interfaces for connection to a variety of systems. Cost is also an issue that will need to be addressed before widespread adoption will be practical.

For information: Alexander Bismarck, Imperial College of London, Department of Chemical Engineering, Polymer and Composite Engineering Group, South Kensington Campus, London SW7 2AZ, United Kingdom; email: a.bismarck@imperial.ac.uk; Web site: www3.imperial.ac.uk.

NANOTUBE TRANSISTORS

In order for computing power to continue its phenomenal rate of growth, scientists are continually looking for ways to shrink transistors while increasing their power. The problem is, many fear that we have pushed silicon to its limits of performance. Nanotubes are the next obvious alternative, but using them to fabricate transistors has turned out to be a challenge. Now researchers have found a way to overcome the electrical and physical barriers to build a nanotube alternative that is half the size of today's silicon transistors. The next step will be to determine whether they can be manipulated reliably enough to build devices on a scale suitable for commercialization.

For information: Aaron Franklin, IBM Watson Research Center, P. O. Box 218, 1101 Kitchawan Road, Route 134, Yorktown Heights, NY 10598; email: aaronf@us.ibm.com; Web site: www.watson.ibm.com

SMART SHIRT

A data-logging shirt for baseball pitchers that can analyze the mechanics of their movements and help prevent injuries is the result of a capstone project by students at Northeastern University. The snug-fitting compression shirt has sensors embedded in the fabric to monitor when a player becomes fatigued and loses consistency. When a pitcher's mechanics worsen, the likelihood of tearing the ulnar collateral ligament (UCL) increases dramatically. UCL injuries cost upwards of \$54 million per year in salary losses. The lightweight shirt does not interfere with the pitcher's motion and is even washable.

For information: Northeastern University, College of Engineering, 230 Snell Engineering Center, 360 Huntington Avenue, Boston, MA 02115; phone: 617-373-2152; fax: 617-375-8504; Web site: www.coe.neu.edu/coe/index.html

CRUDE FROM COAL

Turning coal into oil is nothing new, but scientists have now found a way to do it less expensively than ever using micro-fluidic reactors. The process starts with Texas lignite coal which costs less than \$18 per ton. For a total cost of about \$28 per barrel, they can produce light, synthetic crude. As an added benefit, the refining methods also utilize carbon dioxide rather than releasing it into the atmosphere. With current prices for imported crude hovering around \$85 per barrel, this inexpensive alternative should go a long way in reducing our dependency on foreign oil imports. It is estimated that the world's coal reserves hold the energy equivalent of four trillion barrels of oil – enough to last for centuries. Although traditional refineries can be used to convert the crude into gasoline, micro-refineries (which can be built at about one-fifth the cost) are even more efficient for processing. A small-scale, prototype micro-refinery is planned to be operational by the end of this year to conduct further testing.

For information: Brian Dennis, University of Texas at Arlington, Mechanical and Aerospace Engineering, 701 S. Nedderman Drive, Arlington, TX 76019; phone: 817-272-7279; email: dennisb@uta.edu; Web site: www.uta.edu

HYDROGEN-PRODUCING "LEAVES"

In their search for more efficient ways to produce hydrogen, scientists are taking cues from nature, in particular, the process by which plants produce food – photosynthesis. The leaves of plants are designed to harness the sun's energy very effectively and use it to create hydrogen ions from water molecules. This process is the result of a complex and elaborate network of veins that guide light deep into the leaf. Recently a method was developed to mimic this architecture and create artificial "leaves" which could be used as a future source of energy. Leaves were treated with dilute hydrochloric acid, which replaced the magnesium in the chlorophyll with hydrogen. They were then treated with titanium trichloride to replace the hydrogen with titanium. The remaining plant material was burned away by heating them to 500 degrees Celsius, leaving a titanium framework of the leaves' natural structures. When exposed to sunlight, they absorbed more than twice as much light and produced three times as much hydrogen as commercially available forms of titanium dioxide that are commonly used in solar cells.

For information: Tongxiang Fan, Shanghai Jiao Tong University, State Key Laboratory of Metal Matrix Composites, 1954 Hua Shan Road, Shanghai 200030, China; phone: +86-21-6293-2054; fax: +86-21-6282-2012; email: sklmmc@mail.sjtu.edu.cn; Web site: www2.sjtu.edu.cn/newweb/english/research/index_statelabs.htm

GOOD-BYE GAME CONTROLLERS

A new add-on for the Xbox 360 gaming console may soon make game controllers obsolete. Dubbed Natal, the 3-D camera-based device will allow a video game to be controlled using only body movements and voice commands, making the gaming experience more natural and life-like. The software algorithm is based on an expert system that analyzes the position of up to 31 body parts using infrared sensing technology. Natal is “trained” to distinguish basic human anatomy so that it can determine the location of appendages even when they are hidden from view of the camera. It can latch onto the shape of a new user in about 160 milliseconds and can recognize any body pose within 10 milliseconds. Best of all, it consumes less than 15 percent of the Xbox computing resources, so it won’t bog down the hardware.

For information: Alex Kipman, Program Manager, Microsoft Corporation, 1 Microsoft Way, Redmond, WA 98052; phone: 800-642-7676; Web site: www.microsoft.com

FUEL-EFFICIENT PAINT

A new coating for ships is designed to reduce drag and improve fuel efficiency by as much as 4 percent. Inspired by tunas and dolphins, whose skin is covered by a thick layer of mucous, the revolutionary paint turns to a gel when exposed to water. The gel creates a smoother surface by reducing surface irregularities to 100 microns as compared to 150 microns for existing hull paints. Although the new material is three times more expensive than most commercially available products, it is estimated that the initial cost will be recovered in fuel savings during the first year.

For information: Nippon Paint Co. Ltd., 2-1-2, Oyodo-kita, Kita-ku, Osaka 531-8511, Japan; phone: +81-6-6458-1111; Web site: www.nipponpaint.co.jp

ARTIFICIAL NOSE

Until now, quality control of coffee – one of the most consumed beverages in the world – has relied on the highly-subjective senses of human taste and smell. But recently, chemists developed a new analyzer that acts like an “electronic nose” to detect subtle variations in aroma as well as roasting time and temperature. The detector, which consists of 36 nanoporous pigments arranged in a six-by-six array on a polymer film about 1 centimeter square, acts like a digital litmus paper. Each pigment reacts with a specific compound and indicates its presence and concentration by changing color. This generates a pattern that provides a unique fingerprint of the coffee vapors. In a test on ten commercially available brands (both ground and whole bean), the electronic nose correctly distinguished between all of them. The device will help coffee producers instantly assess the quality of individual batches more accurately and efficiently.

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SMART BOWLING BALL

Australian researchers have been working on ways to help bowlers improve their form. Using a regular bowling ball, fitted with strain gauges in the thumb and finger holes, they measured pressures and forces of bowlers' grips to identify the characteristics of successful shots. The work is part of the Sports Engineering and Technology program. Their ultimate goal is to integrate research on athletic performance with biomechanics, sensory perception, advanced materials and rapid manufacturing processes for the design and mass customization of personalized sports products.

For information: Franz Fuss, Royal Melbourne Institute of Technology, Aerospace Mechanical and Manufacturing Engineering, P. O. Box 71, Bundoora, Victoria 3083, Australia; email: franz.fuss@rmit.edu.au; Web site: www.rmit.edu.au

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