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Four Ways to Transform the Consumerization of IT

By Daniel Burrus, CEO of Burrus Research

It used to be that any change in an organization would flow from the top down—from the executives to the front line workers. But today, especially when it comes to the consumerization of IT, the change process is quite different. What we have been seeing in the past few years is a "bottom-up" approach, where the end user (the employee) is pressuring the C-suite leaders to change. This new paradigm is extremely disruptive for the leaders. Not only is the change coming in the opposite direction from what the executives are used to, but it's also coming so fast that many leaders are unsure what to do.

What's really behind this consumerization of IT trend? In a word...mobility. Because of advances in bandwidth, storage, and processing power, the tools an average consumer can purchase are extremely powerful. Even as recent as five years ago, technology tools for the consumer weren't that impressive and didn't have much business application. As such, leaders simply had to make mandates like "no video games on your work computer" or "don't bring your personal computer or outside CD-ROMs to work," and the problem was solved (or so they thought).

But that was then, and this is now. Today the average person can purchase, understand, and easily implement an array of new technologies designed to make work and life easier. Consider this. A recent survey found that...

- 45 percent of employees felt that their personal consumer devices and software are more useful than the tools and applications provided by their IT departments.
- 43 percent of employees felt comfortable and capable in making their own purchasing decisions to apply technology tools for work.
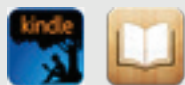- 27 percent were willing to pay for their own devices and applications to use at work.

TECHNOLOGY NEWS HIGHLIGHTS

Flexible Displays

Japanese researchers recently began shipping samples of a new, optically clear sheet made from wood microfibers. Because it's made from the same chemical constituents as conventional paper, it can be mass produced using essentially the same processes. The difference is that the cellulose nanofibers are much smaller – only one 20,000th the diameter of a human hair – and therefore, more densely packed.

The result is a transparent paper with high strength and high foldability that doesn't shrink at high temperatures. A mass production test facility is already operational, with plans to commercialize the product as early as 2016. Target applications include flexible organic electroluminescent (OEL) displays.

For information: Oji Holdings Corporation, 7-5, Ginza 4-chome, Chuo-ku, Tokyo 104-0061, Japan; phone: +81-3-3563-1111; fax: +81-3-3563-1135; Web site: **www.ojiholding.co.jp/english/**

Mitsubishi Chemical Corporation, 1-1 Marunouchi 1-chome, Chiyo-da-ku, Tokyo 100-8251, Japan; phone: +81-03-6748-7300; Web site: **www.m-kagaku.co.jp/index_en.htm**

New Invisibility Cloak

Until recently, cloaking devices that could render objects invisible were limited to the realm of fantasy or science fiction. Over the last few years, scientists have reported marginal success using bulky metamaterials to divert incoming waves around an object. Now, a new material that's only a few micrometers thick has been shown to effectively cloak an 18 centimeter rod by canceling out the waves as they scatter off of it.

The new method – called mantle cloaking – uses a metascreen made by attaching ultrathin copper strips to a flexible polycarbonate, fishnet substrate. When irradiated with microwaves, energy fields from the object and the cloak interfere with each other to create a transparent effect.

The technology works best with microwaves at a frequency of 3.6GHz. It could also be used for wavelengths in the visible spectrum, however the size of the object must be scaled to match the wavelength, so at this point in their research it would only be effective on micrometer-sized objects at optical frequencies.

For information: Andrea Alu, University of Texas, Department of Electrical and Computer Engineering, Cockrell School of Engineering, 1 University Station,C0803, Austin, TX 78712; phone: 512-471-5922; fax: 512-471-6598; email: alu@mail.utexas.edu; Web site: www.utexas.edu

Clean Hands Monitor

Hospital-acquired infections (HAIs) cause approximately 100,000 deaths each year in the United States alone, many of which may be avoidable through better hand-washing. Recently a new product was introduced that can tell healthcare workers if they are properly sanitizing their hands according to Centers for Disease Control (CDC) specifications.

The wristband device contains a radio-frequency identification (RFID) reader, which detects RFID tags at hand-washing stations, outside patient rooms, and on certain types of equipment to alert workers to clean their hands. A built-in accelerometer monitors hand movements to determine how much time has been spent washing, and buzzes once if it's adequate, three times if it's not. Data can also be collected through a microUSB at the end of each shift to analyze the hand-washing routines of individual employees.

In the future, the company is considering expanding their marketing to the food service industry as well as consumers for teaching children proper hand-washing techniques.

For information: IntelligentM, Sarasota, FL; Web site: www.intelligentm.com
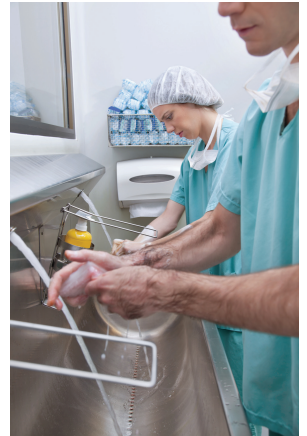
Meet "Chef Robot"

Business owners in China are quickly embracing the era of inexpensive robots. From factories to restaurants, mechanical avatars are replacing workers and changing the country's economic landscape.

For example, at a noodle shop in Beijing, diners can watch a robot in a chef's uniform prepare, cut and

cook their dinner right before their eyes. The initial investment of 10,000 yuan (about US$1,600) is equal to approximately one-quarter of a cook's annual salary to do the same job. The farmer-turned-inventor who developed the innovative robots reports that he has sold more than 3,000 since launching his new business in 2010.

Fueled by the fact that wages have been increasing at a rate of 10 to 20 percent annually, automatons are also displacing skilled workers in jobs such as welding, painting, and packaging. Within the next year, the Chinese demand for industrial robots is expected to exceed 32,000.

For information: Zhao Jie, Ministry of Science and Technology of the People's Republic of China, Department of High and New Technology Development and Industrialization, 15B Fuxing Road, Beijing 100862 China; phone: +86-10-5888-1521; Web site: **www.most.gov.cn**

Algae Building

The first building in the world to be powered by algae was recently put into full operation in Hamburg, Germany as part of the International Building Exposition. Retrofitted with a "bioreactor façade" that

is supplemented with solar panels, the BIQ building is a totally self-sufficient, zero-energy design. Panels mounted on the sun-facing sides of the building contain algae, which feeds on carbon dioxide and nutrients supplied hydroponically. The algae are harvested to produce a bio-fuel pulp that can be burned to generate energy. As a side benefit, the panels also provide shade to reduce consumption needs.

The building itself (which consists of 15 apartments) is also based on a flexible, innovative concept in which the layout of the bathroom, kitchen and sleeping areas can be modified by residents according to their needs. Adaptable spaces such as these are viewed to be the wave of the future in housing design.

For information: Jan Wurm, Arup, Europe Research Leader, Joachimstaler Strasse 41, 10623 Berlin, Germany; phone: +49-30-885-9100; email: **research@arup.com**; *Web site:* **www.arup.com**

Pain Relief from Light

From light-generating walls and "just-in-time" road illumination to bilirubin blankets and UV phototherapy for psoriasis, the role of lighting in our everyday lives has undergone some extraordinary transformations in recent years. Many of these innovations are the products of initiatives like PlaceIt

(Platform for Large Area Conformable Electronics by Integration) an EU consortium whose focus includes integrating lighting with textiles for wearable applications.

Now, a product known as Blue Touch Pain Relief Patch has been introduced in Europe, which uses light-emitting diodes (LEDs) embedded in a flexible, wearable pad to provide non-invasive relief from muscular back pain. The technology is based on the fact that specific wavelengths of blue light induce production of nitric oxide (NO) in the skin. This triggers a series of processes that relax muscles and improve circulation to relieve soreness in as few as two 15- to 30-minutes sessions. The new device offers a natural, drug-free alternative to the 37 percent of adults worldwide who suffer from muscle and joint pain.

For information: Philips Lighting, Royal Philips Electronics, Amstelplein 2, Breitner Center, P.O. Box 77900, 1070 MX Amsterdam, The Netherlands; phone: +31-20-59-77777; Web site: www.design.philips.com/about/design/design-portfolio/design_for_healthcare/index.page

Scales in Motion

A project is underway in Norway to install sensors in road surfaces for the purpose of weighing freight-hauling vehicles while they are moving. Known as NonStop, the goal is to make enforcement of load limits more efficient by stopping only those vehicles

that are overweight. The measure will also save fuel for haulers by eliminating unnecessary stops and starts.

Piezoelectric sensors are placed in the roadway that generate an electrical voltage when subjected to pressure from the vehicles above, and automatic number place recognition (ANPR) is used to record the vehicle's registration information. The data is sent to an expert system where it's compared to statutory regulations, vehicle-specific load specifications and the programmed expertise of highway inspectors to determine which trucks should be checked for potential violations. On newer models, the system can also be linked to data transmitters within the vehicle which measure how far it has travelled and the duration of stops along the way, providing additional information that could greatly improve driver safety. The system is currently being tested with plans for a full release by the summer of 2014.

For information: SINTEF Technology and Society, Transport Research, S.P. Andersens veg 5, Frondheim, Norway; phone: +47-926-19416; Web site: www.sintef.no/home/

Personalized Dream Scan

If you're one of the many people who have trouble remembering your dreams, Japanese researchers may have found a way to decode them for you. By monitoring the brain's visual centers during sleep, it may someday be possible to reconstruct dream content, even if it's forgotten upon awakening.

The technique uses a functional magnetic resonance imaging scanner (fMRI) which measures neuronal activity in the brain by detecting changes in localized blood flow. Participants were allowed to doze off and, just as they started to fall asleep, were awakened and asked to describe what they had been "seeing." Over the course of the test, this procedure was repeated a minimum of 200 times at approximately six minute intervals. Responses were categorized and similar images were shown to participants while they were awake, again recording fMRI images of brain activity at the corresponding moment in time.

By matching up the fMRI images with the categories, the computer could be "trained" to pick out the brain signature of each one. In a second round of testing, the system predicted dream visualizations with an accuracy of about 60 percent.

For information: Yukiyasu Kamitani, Advanced Telecommunications Research Institute, Computational Neuroscience Laboratories, Department of Neuroinformatics, 2-2-2 Hikaridai Seika-cho, Soraku-gun, Kyoto 619-0288 Japan; phone: +81-0774-95-1111; Web site: **www.cns.atr.jp/en/**

Four Ways to Transform the Consumerization of IT

Now here's what's really eye-opening: Only 27 percent of executives have begun to address the consumerization issue in a structured way. Now it's easier to see why the consumerization of IT trend is so disruptive.

Realize that this trend is not just in the United States; it's global. In fact, the leaders in the consumerization trend are China and India, followed by Brazil and Mexico. In other words, it's spreading and growing rapidly. So if you're one of the 73 percent of executives who has not addressed this trend yet, you need to do so now.

The Big Boost

What really gave the consumerization of IT a big push was Apple with their game-changing iPhone and iPad. Apple took the concept of a smartphone and raised it to a new level. Additionally, it launched the mobile apps trend, which also started as a consumer oriented offering rather than a business one. Now, with an iPhone or iPad, consumers could have a true multimedia computer in their hand. Of course, competitors quickly came and launched even more consumer oriented powerful tools, making the trend grow quickly.

Armed with these new tools and the widespread deployment of 3G and 4G wireless, improvements in WiFi, and access to the cloud, employees quickly realized, "My personal technology is better than what my employer gives me to use. By using the device I want to use, I can be more productive. And I can use amazingly powerful software tools in the form of apps that are inexpensive or free. They're easy to install, powerful, and focused. If I don't like one, I can easily uninstall it with the push of a button." From the employee's perspective, they know their job and what they need to do better than anyone in IT, so why shouldn't they decide what tools they use and how they use them? From an IT

perspective, it's important to keep in mind that perception is reality to employees.

The "bring your own device" (BYOD) trend is continuing to grow fast! In a Unisys-sponsored research study of 2,660 information workers, researchers found that employees are bringing personal devices into the enterprise at an increasing rate. In fact, 40 percent of the devices they use to access business applications are personally owned—that's a 10 percentage point increase from the previous survey year.

Additionally, the survey concurred with my statement that the increasing penetration of consumer technology in the enterprise is being driven by a desire for mobility. According to the findings, 65 percent of employees surveyed said that mobile devices such as laptops, smart phones, and tablets were their most critical devices for doing work in 2012, and even more so in 2013.

Despite this growing awareness, however, the research found that IT departments are falling further behind in the consumerization race. For example, employees report using their mobile devices for business purposes at twice the rate that IT executives believe to be the case (69 percent usage reported by employees versus 34 percent usage reported by IT executives). In addition, 44 percent of employees report using social media for customer communication, while only 28 percent of employers believe that to be the case.

Stop Reacting and Start Anticipating

Unfortunately, most IT departments tend to be reactionary. They didn't anticipate the consumerization of IT trend even though it was relatively easy to see. And when it hit in full force, they became crisis managers rather than opportunity managers. They viewed the consumerization of IT as a threat and tried to protect and defend the company and the network, never realizing that the consumerization of IT is a Hard Trend. It's not here today and gone tomorrow; it's here today and accelerating tomorrow. Why? Because the trifecta of bandwidth, storage, and processing power is continuing to

march on, giving us even more powerful tools in the consumer market in an inexpensive way…and very quickly.

If you're ready to stop reacting and start seeing the opportunity staring at you right now, here are some steps you can take to turn the consumerization of IT trend into your company's competitive advantage.

1.) **Start a dialogue.** The benefits of the consumerization of IT are clear: It provides greater business agility, faster problem solving and innovation, increased collaboration, increased communication, higher productivity, and overall improved employee satisfaction because people are using the devices they want to use. Additionally, your Gen-Y and Gen-X employees are very techno-savvy and need to use what they consider to be the newest devices so they can feel empowered. All employees like to feel empowered, and the consumerization of IT is empowering the worker. Therefore, survey the people in your own company and find out what's working and what's not working for them technologically. Learn what technologies they are using and trying, and then ask them such things as, "How are you using the device or technology when you travel?" "What do you wish you had that we don't currently provide?" and "What tools do you think are best?" In other words, start the dialogue. Engage your employees so they see IT as a strategic resource rather than a deterrent to technological innovation.

4) **Help your employees stay safe.** Develop some tools to help secure consumer technology, and create secure doorways of entry for your staff. Again, your employees are going to find their own ways around any security features you enact on the network. So why not create a path, a "doorway," to help them get in and work in a secure and productive way.

2.) **Spur innovation with BYOD.** You and I both know that no matter what policies you enact to keep outside technologies away from the enterprise, the employees are going to buy them and bring them into work anyway. So instead of defaulting to "no" when something new comes out, encourage your people to bring their new device to IT to look at it, track it, and provide suggestions for how the company can use it. After all, the next new device may have a huge business use. And if your people are using it, you want to know how they're using it so you can replicate their successes with the technology company-wide. So rather than have employees hide their technology tools from you (which makes IT out to be the "bad guys"), strive to co-create the future with the staff.

3) **Create a list of recommendations to help employees make an informed decision.** After your IT staff analyzes the potential tools, create a list of the ones you recommend employees use, even though the company does not supply that particular item. In other words, if someone wants to get a tablet, an ultra-light laptop, a smart phone, or even an app, they can go to IT and see which ones IT recommends and why. This approach puts you in collaboration with the employees and elevates IT to the status of a trusted advisor.

Opportunity Awaits

The consumerization of IT and BYOD strategies brings change into the organization from a different direction. But it doesn't have to be that way. You can become more innovative and opportunity focused when you lead the change by embracing the trend rather than fighting it. It's time to stop enforcing the status quo and instead look at the new consumer-focused devices and tools from a business perspective. When you anticipate what your employees want and need to do their jobs better and then devise smart and flexible policies for managing and securing those technologies, you'll find that the consumerization of IT can unlock new opportunities and revenue streams for your organization.