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The biggest ideas that are changing everything

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Discover New Opportunities Never Before Available

By Daniel Burrus, CEO of Burrus Research

Disruption is a central component of the Anticipatory Organization Model, which focuses closely on how Anticipatory Organizations and individuals can look at it and see enormous opportunities.

The untimely situation we currently face with COVID-19 is no exception; not only has every industry been touched by the coronavirus pandemic and subsequent lockdown, every country has. There is literally no safe haven from this disease, and businesses both large and small have found themselves in a predicament unlike ever before.

However, much like they do with digital disruption, Anticipatory Leaders leverage disruption of any kind by way of realigning their focus and, especially in the case of the COVID-19 pandemic, develop a new product or service to benefit humankind or to help wage war on this terrible illness.

> *Traditionally, there are three common reasons industries get stuck*

Being an Anticipatory Leader during this crisis allows you to anticipate what's to come and thus not have to wait for the next big disruption to innovate and transform your industry. Traditionally, there are three common reasons industries get stuck, and during a global pandemic, they still prove to be obstacles.

Here are said three obstacles, as well as both some real examples of companies overcoming them and ideas for companies in specific industries that have undoubtedly been disrupted and had production halted due to the coronavirus pandemic.

1. Stagnation

You may have felt a strong sense of growth before the COVID-19 pandemic; however, once lockdowns were put in place, that positivity about the future was greatly challenged, possibly sending you and your organization into stagnation.

I implore you to continue to innovate and become an Anticipatory Organization during this time. Resting on your laurels rarely works during conventional times, and it will surely be trouble during uncertain times. Let's say you own a screen printing company that was deemed nonessential. How can you still push innovation in the face of uncertainty and become a positive disruptor in your industry during a lockdown?

I have a feeling you can! A screen printing company has the ability to transition from making corporate and college apparel such as t-shirts and hoodies to making much-needed PPE like face masks. In addition to creating the physical protective gear, it's possible for the company to, in even the smallest ways, improve mental health by way of perhaps screen printing fun graphics and artwork on said masks to help bring a smile to the faces of those in these dark times.

2. Customer Frustration

The message is clear: We are all uncomfortable being locked down, disallowed to visit our favorite restaurant or partake in our usual

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TECHNOLOGY NEWS HIGHLIGHTS

Unhackable Global Positioning

Scientists are looking at ways of using quantum materials to develop a new navigational tool that will be more reliable than current GPS systems. Traditional GPS relies on sensing the earth's core magnetic field. Unfortunately, the "core field" is constantly changing, causing the north and south magnetic poles to move over time. Alternatives like star navigation are of limited value because stars are not visible in daylight. Observing ground features is another option, but one that can be easily hacked. However, there is another magnetic field – known as the "crustal field" – which has the advantage of being consistent, albeit very low amplitude.

That's where quantum materials come into play. Researchers have found that subatomic voids within tiny diamonds occur when a carbon atom is replaced by a nitrogen atom. When exposed to a green laser, these vacancies fluoresce, and the pattern of fluorescence changes with small variations in a magnetic field, making these materials useful as magnetometers to detect the small magnetic variations in the crustal field.

The crustal field can be mapped by aircraft flying over the area or by satellite if the airspace is off limits. The major advantage of such a system is that the crustal field and the magnetometers are highly stable and not dependent on the availability of GPS satellites. A prototype is expected within the next year; however, testing indicates that this type of navigational system will be capable of locating an aircraft with 13 meters (about 40 feet) of its position anywhere on earth.

For information: Air Force Research Laboratory; Web site: https://afresearchlab.com/

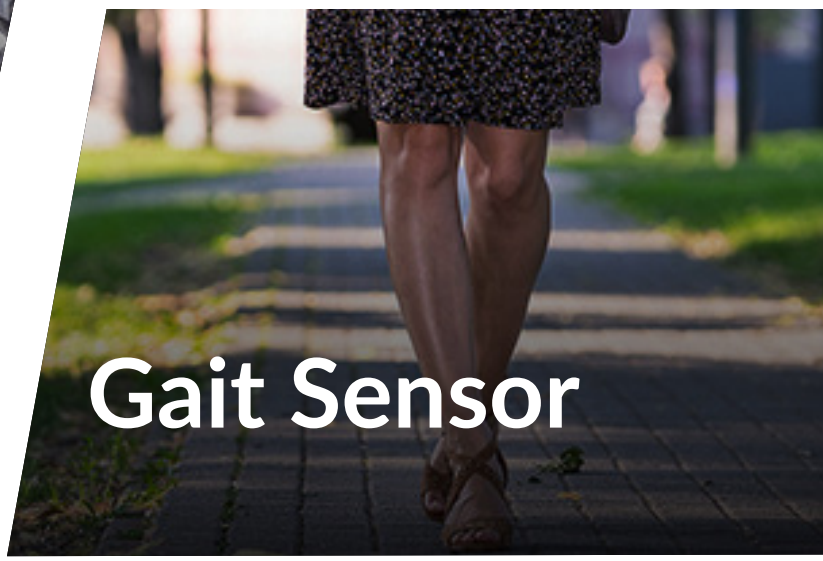
Nanoparticle Detox

New research on synthetic nanoparticles that mimic red blood cells (RBCs) has led to some significant discoveries regarding ways to eliminate toxins from the body.

RBCs are useful not only for transporting oxygen within the body but also for clearing harmful substances. In previous research, it was shown that spherical nanoparticles made from a biodegradable polymer and coated with a membrane harvested from real blood cells could absorb toxins and prevent them from attaching to healthy cells.

Recently, the team experimented further by changing the shape of the nanoparticles and injecting them into mice infected with Staphylococcus aureus bacteria. Results showed that spherical coated particles did not have a significant impact on life expectancy. Football-shaped, coated nanoparticles survived up to seven times longer than uncoated spherical-shaped particles. And both Frisbee-shaped and football-shaped particles appeared to extend life expectancy in one-third and one-half of the mice, respectively. The researchers believe that the football shape allows the cells to move more readily through the blood stream, making them more effective at removing toxins.

For information: Jordan Green, Johns Hopkins University, Institute for Nanobiotechnology, 3400 North Charles, Croft Hall 100, Baltimore, MD 21218; phone: 410-516-5634; email: inbt.jhu.edu; Web site: https://inbt.jhu.edu/



Gait Sensor

Like fingerprints, gait analysis has been used as a unique biometric identifier in security applications. Now, researchers are using it as a means of monitoring mood and health using remote sensors to measure tiny floor vibrations.

Earlier gait sensing systems required outfitting subjects with a wearable device or having them walk on special mats. The new approach exploits the fact that the entire structure of a building can pick up faint vibrations from people walking across a floor. Remote sensors are then used to detect footsteps.

The sensors are so sensitive that they can detect a person's heartbeat when they sit in a chair three feet (one meter) away, and can monitor footsteps up to 60 feet (20 meters) away.

Sensors are distributed throughout an area and automatically adjust sensitivity as the signals get stronger or weaker. Software algorithms utilize machine learning to

distinguish individual patterns, and once "learned," a person's gait can be recognized in any setting.

Walking patterns can reveal a lot about a person's well-being. For example, a change in balance could be indicative of a neurological condition, and provide caregivers with an early warning of the potential for falls.

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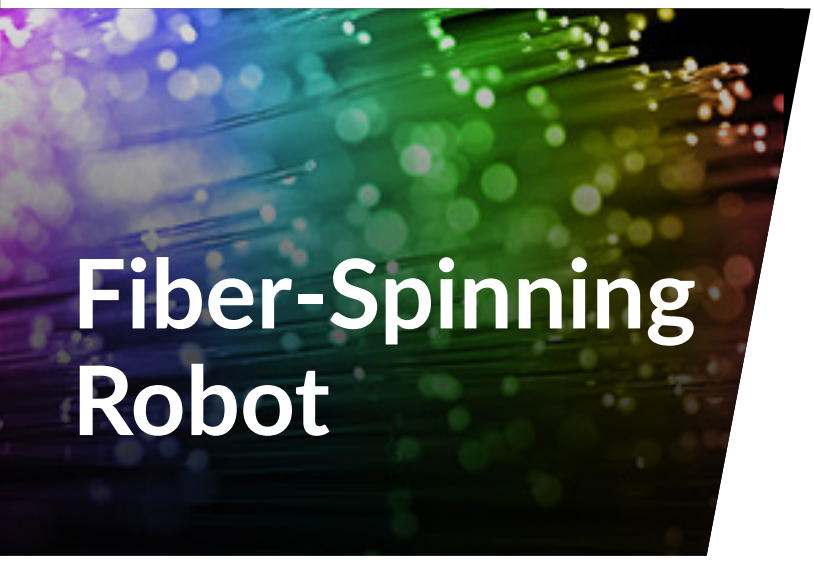


Fiber-Spinning Robot

Facebook has developed a robot that's designed to make expanding Internet access easier and cheaper. Called Bombyx (Latin for silkworm), the machine can crawl along medium-voltage power lines and weave fiber optic cable around them.

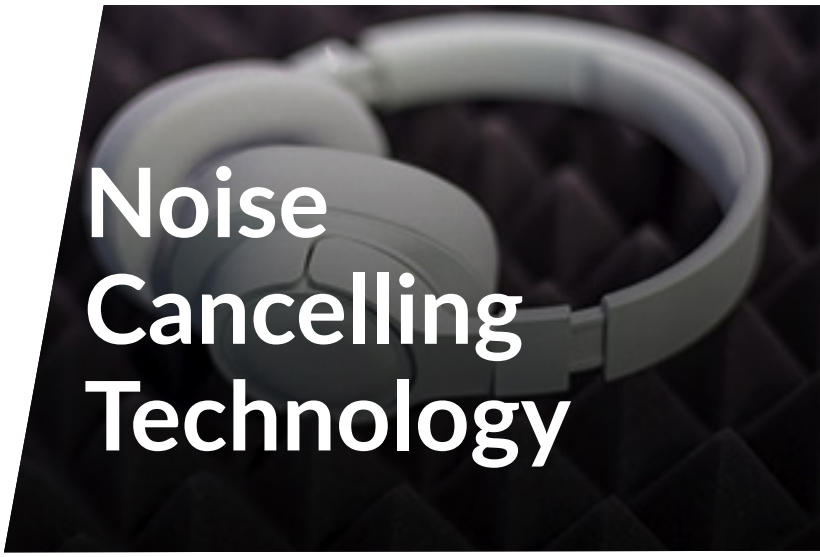
The robots can access areas that humans can't, such as remote areas and power lines that stretch high above a river, and there's no need to cut power during installation.

Even the cable itself is different, with a diameter of only 4 mm as compared to 7 to 13 mm for traditional fiber. Weight is also drastically reduced from 250 to only 28 pounds per kilometer.

The pandemic has exposed a digital divide that will require a both/and solution, but as carriers continue to roll out wireless networks, many users are still left without Internet because of the high cost. Fiber optic has much higher bandwidth, and by using existing power infrastructures, the cost of installation can be greatly reduced.

Facebook plans to license the technology next year when they will launch a program that uses partner companies to manufacture and sell the robots.

For information: Facebook, 1601 Willow Road, Menlo Park, CA 94025; phone: 650-308-7300; Web site: https://about.fb.com/



Noise Cancelling Technology

For millions of people who live in large cities, there is a definite trade-off between opening their windows to enjoy fresh air and having to listen to the constant noise of traffic, jackhammers and sirens. But researchers in Singapore have developed a system that acts like a pair of giant noise-cancelling headphones to quiet an entire apartment.

It consists of an array of 24 small speakers

that reduce incoming noise by up to 10 decibels. (It's worth noting here that, since the decibel scale is logarithmic, every ten decibels represents an intensity level of ten times.) A microphone outside the window detects repetitive sound waves and determines the proper frequency needed to neutralize them. The speakers then emit "anti" waves to cancel them out.

Currently, the system is optimized to handle sounds between 300 and 1000 Hertz. That means that human voices are not filtered as well as things like traffic, trains, jets and construction equipment. It's also not good at handling sporadic noises like firecrackers and car horns.

Balancing the size of the speakers with the aesthetics of the system, as well as how much it blocks ventilation, is a next step in the design process.

For information: Bhan Lam, Nanyang Technological University, School of Electrical and Electronic Engineering, Block S2.1, 50 Nanyang Avenue, Singapore 639798; phone: +65-6790-5367; fax: +65-6793-3318; Web site: https://www.ntu.edu.sg/Pages/home.aspx or http://www.eee.ntu.edu.sg/NewsnEvents/Pages/2018/Noise-cancelling-device-by-NTU-EEE-scientists-halves-noise-pollution-through-open-windows-30April2018a.aspx

Transparent Surgical Masks

While face masks may be a part of our future for some time to come, there is no denying that they can hinder communication and human interaction. But it turns out that a group of Swiss scientists realized this long before COVID-19 and have been working on perfecting the design of a completely transparent mask for two years now.

Obviously, you can't just take a transparent plastic and fabricate a mask. It needs to be breathable, comfortable to wear and eco-friendly. So they developed a biomass material that meets all of the criteria while being totally transparent, resistant and porous.

Called Hello Mask, the transparent face covering is made of a polymer with fibers only 100 nanometers apart to filter out viruses and bacteria while letting air through.

The material is also 99 percent biodegradable. The company plans to market the product to the general public in 2021.

For information: HMCARE, Campus Biotech Innovation Park, Av. De Secheron 15, 1202 Geneva, Switzerland; Web site: https://hmcare.ch/

Emissions-Free Cement

Cement is the most widely used construction material in the world, and

producing it accounts for an estimated 8 percent of total greenhouse gas emissions.

Put another way, if it were a country, cement production would be the third largest producer of carbon dioxide. But a new method for manufacturing cement could cut these emissions to zero.

Traditional cement is made by heating limestone with sand and clay at high heat, which is achieved by burning coal. So, carbon dioxide is produced in two ways – by the burning of the coal and by gas released from the limestone.

The new process uses electricity to split water molecules into an acid (hydrogen gas) and a base (oxygen gas).

The pulverized limestone is dissolved in the acid, releasing high-purity carbon dioxide, and calcium hydroxide (lime), which precipitates out to be processed into cement.

In contrast to the highly contaminated carbon dioxide released by conventional cement production, the pure stream of carbon dioxide can be captured to produce fuel, carbonated beverages or dry ice.

Hydrogen and oxygen, which are also emitted in the process, can be recombined in a fuel cell to fuel the process, leaving nothing but water as a by-product.

For information: Massachusetts Institute of Technology, Department of Materials Science and Engineering, 77 Massachusetts Avenue, Cambridge, MA 02139; phone: 617-253-3300; fax: 617-253-1175; email: dmse@mit.edu; Web site: https://dmse.mit.edu/ or http://news.mit.edu/2019/carbon-dioxide-emissions-free-cement-0916

Electric Semis

In the race to capture the market for electric semi-trucks, many companies are getting closer to putting battery and/or fuel cell vehicles on the road. One North American company recently announced that they will be rolling electric heavy-duty trucks off the line in 2021.

Nikola's first release will be a battery electric version (BEV) of their Tre, a cab-over design that will be built on an Iveco chassis.

The Euro-style semi will feature a fully digital cockpit and a 300-mile-plus range. A fuel cell version (FCEV) will follow about a year later.

The first five prototypes are currently being built and tested in Germany, but the trucks will ultimately be manufactured at their new plant in Arizona, beginning with very limited quantities and ramping up to a level of 35,000 per year by as early as 2023.

For information: Nikola Corporation, 4141 E. Broadway Road, Phoenix, AZ 85040; Web site: https://nikolamotor.com/

Discover New Opportunities Never Before Available

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gym routine. Many customers will feel like canceling their memberships out of frustration and distancing themselves from their favorite establishments, so you must find a way to engage them. We are all in this together; observe your customers' behavior and create opportunities via a way to still serve them, even with your doors closed.

Don't focus on the obstacles of being shut down; focus on how you can innovate and still serve your loyal customer base despite having to close. For example, think of how a self-defense gym can continue to host daily classes remotely via Zoom to keep its members engaged and satisfied.

Aside from teaching classes remotely, the same self-defense gym could take this opportunity to introduce a new product and offer new classes to their students, such as courses in injury prevention while practicing self-defense or instruction on how to eat healthier with meal plans.

3. Slow-to-Launch Products

With now being a better time than any to pay attention to the Hard Trends, separating them from the Soft Trends and becoming Anticipatory in order to continue innovation in a time possibly void of progress, if you have identified a product or service that can help the world, don't dawdle.

Be sure to reassign your workforce, employees or coworkers to focus on said product or service exclusively to get it out now rather than later. An example: A company that hosts 5K fun runs that has to shut down all its spring and summer events might create an app that allows individuals to compete in a "remote 5K" by logging in and still participating in a 5K. Doing this would allow the company to still host the event in some way, whereas if it delayed or ignored this opportunity, someone else would heed it.

With wearable technology dominating the fitness industry already before the coronavirus crisis and now even more so, given the number of individuals out of work and looking for something to improve their lives, the companies that create these devices have taken note and expedited the release of new products quickly. Fitbit is a great example, as during April the company rolled out a set of new features that help its users learn how to protect themselves from COVID-19 and, more important, for working out and self-betterment, to reduce stress during the quarantine.

Industries That Are Experiencing Disruption

Everything from Disney World and its in-person experiences to the music industry and summer music festivals are experiencing tremendous uncertainty presently. But again, with that uncertainty comes great opportunity combined with digital technology, as can be seen with recording artist Travis Scott and his virtual Fortnite concert, breaking records and redefining what can be done when there seems to be no hope for going "back to normal."

Want to know some specific industries for which this global pandemic has created obvious opportunities for disruption and possibly paved the way for a more cost-effective and efficient future? Here are three that come to mind, along with some examples as to how these industries have already seized new opportunities in this pandemic and overcome some seemingly impossible roadblocks:

Sports Entertainment. Prior to COVID-19, there was already a boom of esports, with everything from basketball to racing, so will this pandemic be the final disruptive straw to push the sports industry over the edge to where esports officially becomes the new

mainstay of tomorrow? Or better yet, will "crowd-less" games and races become a more cost-effective way to run things?

Here's a real-world example of sports entertainment innovation that already happened in the NFL: the annual draft. This year it was supposed to be hosted in Las Vegas, new home of the Raiders organization, and staged right on the Bellagio fountains. Given the nationwide quarantine, this was abruptly canceled; however, the draft was not.

Using Zoom Video Communications in conjunction with its broadcast, the NFL hosted the very first remote NFL draft in history. It even broadcast fans on the TV screen behind the commissioner, who was appearing live from his basement, to help keep that "audience" feel to the event. Only time will tell if, come this fall, the NFL hosts its first "crowd-less" games in the history of the league.

Real Estate. One indisputable fact of this pandemic is that working remotely is possible, cuts down on pollution and saves companies money by cutting down on office space. Realtors already work remotely, but how do they show homes remotely? There have already been some virtual tours accomplished with the use of Virtual Reality (VR); will this be the new way of seeing a home after the pandemic?

Prior to COVID-19, there were several commercial buildings sitting mostly vacant due to the fact that remote work is on the rise. Now, given the situation we find ourselves in worldwide, many of those buildings are completely empty, giving way to the question: Couldn't those buildings be converted into temporary hospitals?

They definitely could, as many exposition centers at fairgrounds and even convention centers, such as the Javits Convention Center in New York, the area initially most affected in our country by the coronavirus, being converted into an overflow hospital for those who have become ill. Think of the positive impact real estate investors with vacant commercial properties could make by way of opening smaller, more local overflow impromptu hospitals.

Higher Education. Many professors I've spoken to since the start of the global pandemic have quickly converted to online teaching by using Zoom and other video media. Several colleges are completely online; however, even more are not. Will this be the push to use more affordable, online education technology to cut down on student debt?

Yet, despite courses going online, I've heard from both students and professors that many are disappointed in the reality that spring commencement were called off or rescheduled. However, much like the NFL draft, many universities pivoted and explored virtual commencements.

For example, Carroll University, the first four-year university ever to open in Wisconsin, holds commencement on the front lawn of its historic landmark building Main Hall every May. This year, for the first time in the college's nearly 174-year history, was canceled. But instead of just writing 2020 off as a bad year, they had their first virtual commencement in college history, ushering in hundreds of new graduates in a historic way.

Take a few minutes to consider your industry (or one that interests you)—are there opportunities and a need for positive disruption during this pandemic?

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