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TECHNOTRENDS[®]

NEWSLETTER

*The biggest ideas that are
changing everything*

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Do Not Forget to Communicate

By Daniel Burrus, CEO of Burrus Research

One of the questions I have been getting from businesses across all industries, both at the start of the coronavirus pandemic and now, during the “new normal” we’re facing, is this: How do I communicate to my employees? This was a huge obstacle for the education industry at the start of the pandemic, whether it was an elementary school or an Ivy League university. How do we discuss what to do with our professors, teachers, and administrative staff?

But now that we are in the heat of the post-pandemic new normal, the question remains: How do we communicate to our employees going forward, and better yet, what do we tell them? As you can imagine, emotions are running high in the midst of this global crisis, and there are a multitude of different “pandemic pain” tolerance levels among employees and customers alike. Is there a one-size-fits-all response to this?

In a way, yes there is, and I am here to help you understand what that response is.

Certainty Is the Answer

First and foremost, start with what you do know. Several individuals I spoke to in the education sector around the world were so focused on informing their staff of what they didn’t know just yet that it became a type of frustrating white noise, especially for teachers and professors who were scrambling to find a way to convert even the most tactile courses to

an online format overnight.

Something I teach frequently in my Anticipatory Organization Model is the practice of identifying trends and differentiating between what I call “Hard Trends,” or future certainties that will happen, and “Soft Trends,” or future “maybes” that can be influenced and leveraged to your organization’s benefit.



But what we face today is an entirely new type of disruption: the fallout from a global pandemic.

In traditional times, every organization in every industry can point to elements of the industry that are ripe for disruption thanks to accelerating technological advancements. Sometimes, the industry as a whole is ripe for such technological disruption. But what we face today is an entirely new type of disruption: the fallout from a global pandemic.

Yet in the wake of COVID-19, the principles of my Anticipatory Organization Model proved to be not far off and can be applied to every industry in relation to the most pertinent issue at hand: communication and transparency.

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TECHNOLOGY NEWS HIGHLIGHTS

Ultra-Capacitor Battery

One of the biggest factors limiting the widespread adoption of electric vehicles has been battery technology. In general, traditional batteries take too long to charge, they lose charge/recharge capacity too quickly, and the range they support isn't adequate for long-distance driving. But a new graphene battery aims to address all of these issues.

Ultra-capacitor batteries store energy in an electrical field instead of a chemical electrolyte, so they can charge almost instantly and provide faster cranking. They boast a higher energy density (up to 60 times that of traditional batteries), as well as longer lifetimes of up to 15 years or one million charging cycles. They can also operate over a wider range of temperatures (i.e., -40 degrees to +65 degrees Celsius)

without losing efficiency, are maintenance free and contain no materials that would be harmful to the environment. And they can be used in parallel with traditional batteries to combine the long-term energy benefits of conventional battery storage with the high power and quick response time of ultra-capacitor technology.

The new design utilizes "curved graphene," which improves performance on all levels. In addition to automobiles, ultra-capacitor batteries will be adaptable for industrial, mass transit, and power grid applications to improve quality and better manage power demand.

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Rapid Test for COVID-19

Most experts agree that rapid testing is essential in fighting the COVID-19 pandemic. Recently, a new polymerase chain reaction (PCR) test was developed that can deliver results in as little as 39 minutes, making it the fastest PCR test available. In addition, it's been demonstrated to have a sensitivity (or ability to correctly identify positive tests) of 98%, and a specificity (or ability to correctly identify negative tests) of 100%.

PCR testing detects the actual DNA of the virus and is currently considered to be the gold standard for accuracy, but getting results can take up to a week. Antigen tests, which detect a specific protein on the surface of the virus, are quicker but, according to the CDC, are more likely to miss a diagnosis.

The new test involves a nasal or throat swab that is placed in a test cartridge. It's easy for medical staff to use and could easily be deployed outside of medical facilities in areas like airports or roadside test sites. Each device can process more than 160 tests per day, and the company hopes to reach a capacity for processing one million tests by the end of the year.

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Retail Robots

More and more robots have been finding their way into retail settings, performing a variety of tasks aimed at improving the customer experience, from cleaning up spills to enabling a new level of data collection.

Brick-and-mortar retailers have had to rethink how they can become more agile in supplying the goods and services that customers want now. With the pandemic driving more business online, there is a need to be more responsive to customers when they do visit the store. This means detecting changes in buyer behavior and automatically adjusting ordering as necessary to avoid the out-of-stock situations that drive customers away.

That's where robots can help. By roaming the aisles, they can not only capture what's been purchased, but what would have been purchased if it had been on the shelf. Robots can provide a more holistic picture of the customer's retail experience and deliver valuable data while giving workers more time to interact on a human level. It's just another step in using the Internet of Things (IoT) to improve people's lives.

For information: Harvard Business Review; website: <https://hbr.org/2020/10/what-robots-can-do-for-retail>



Plastic-Eating Enzyme

A super-enzyme has been developed that could eventually break down plastic bottles in a matter of days. The discovery builds on earlier work by the same researchers who engineered PETase, an enzyme that breaks down PET (polyethylene terephthalate) — a thermoplastic used in making carpeting, clothing, and single-use beverage bottles.

By simply mixing PETase with another enzyme (called MHETase) that's found in the same bacterium, the speed of the PETase action doubled. But when the two were combined to create a super-enzyme, the action was increased dramatically by an additional factor of three.

As plastic waste continues to pose a global threat to everything from the deepest oceans to the very air we breathe, finding low-energy solutions for reducing this waste has become an environmental imperative. Future work will focus on developing enzyme “cocktails” that would enable mixed materials to be recycled in a similar way.

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More Durable Concrete

A new additive that prevents concrete from deteriorating during cycles of freezing and thawing could help protect critical infrastructure.

This new antifreeze compound was inspired by a naturally occurring protein found in fish and bacteria that allows them to survive in frigid environments. By clinging to the surface of ice crystals, the proteins prevent those crystals from growing.

Providing similar protections against the freezing and thawing of water that inevitably seeps into porous concrete could substantially improve that material's strength and integrity. But the proteins proved to be ineffective in highly alkaline cement, so researchers looked to a polymer known as PET-PVA, which is used in time-release pharmaceutical capsules.

When tested in samples of varying concentrations through 300 freeze-thaw cycles, concrete samples without the experimental additive deteriorated substantially while those with it did not.

Further testing will be needed to assess how the material will react when exposed to environmental contaminants and vibration. The developers hope that the

patent-pending process could become commercially available within five years.

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Eco-Friendly Pothole Repairs

Potholes cause billions of dollars in vehicle damage every year. They are typically repaired using asphalt — a hydrocarbon-based material that leaches unwanted chemicals into the surrounding soil.

But a team of scientists recently formulated an alternative ceramic mortar using grit from wastewater treatment. The new substance, known as grit-assisted patch (GAP), is reportedly safer for the environment while being just as effective at patching the holes.

Grit is a nonbiodegradable solid that's unsuitable for recycling due to high levels of pathogens and impurities. So the first step in the formulation of GAP was to prevent the dangerous micro-

organisms from growing by mixing the grit with calcium oxide and magnesium oxide to form an alkaline slurry. A weak acid (potassium dihydrogen phosphate) was then added to form a mortar-like compound that can be used to patch asphalt. Experiments on operational roadways are currently underway.

In addition to creating a use for materials that would otherwise be buried in landfills, the researchers believe that GAP will prove to have superior longevity when compared to asphalt patches.

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An Alternative to Air Conditioning

A team of scientists has developed a technology that could replace traditional air conditioning systems while cutting energy requirements by half.

Dubbed Cold Tube, it consists of a system of walls and/or ceiling panels through which cold water is circulated. The walls essentially absorb radiant heat directly from a person

without needing to cool the airspace.

While cooling panels have been around for decades, the Cold Tube approach is unique because it requires no dehumidification.

An airtight membrane within the panels repels humidity to prevent condensation. Because it doesn't work on the basis of cooling the air, the system has many other advantages, too. It can be used indoors even with the windows open, eliminating the problems associated with recirculating air and the germs it carries — a feature that has become even more important during this time of COVID-19.

The technology can also be adapted for outdoor installations such as restaurants and markets. In one outdoor demonstration in Singapore last year, 55 participants reported feeling comfortable or cool even with an ambient air temperature of 86 degrees Fahrenheit (30 degrees Celsius).

The team hopes to unveil a commercially viable product in about two years.

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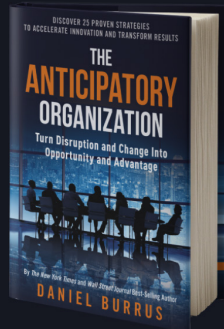
Mapping Wildfires

Software programs used to analyze and project the paths of wildfires are playing a more crucial role than ever as climate change threatens to increase fire activity in many parts of the world. Although computers have been used for years to project possible scenarios based on multiple factors like wind, weather, terrain, types of vegetation, and drought levels, improvements in technology and computing power are making these tools faster and more precise.

Data collection can now be done in real-time using drones, satellites, and infrared cameras. Programs based on complex principles of computational fluid dynamics can now model the real physical forces that drive wildfires. And high-speed communication, coupled with cloud-based computing power, enables information to be transferred faster than ever while allowing for continual updates of the underlying algorithms.

In the end, the goal is to help first responders by providing more accurate projections as early as possible.

For information: WiFire; website: <https://firemap.sdsc.edu/> FlamMap; website: <https://www.firelab.org/project/flammap>



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Do Not Forget to Communicate

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Colleges Can Leverage Hard Trends and Soft Trends

Many schools are now at a crossroads. Some are operating a hybrid online/onsite model, some remain fully remote, and several are open five days a week. No matter which model they decided to embrace, all school administrators met with contention from parents, students, and educators in one way or another based on that decision.

That contention is a result of poor communication. What schools should do is take a moment to identify the Hard Trends they face in all this, such as the reality that this pandemic will end and also that online education is growing every day, regardless of COVID-19, and communicate those trends to all involved. Thereafter, schools can identify the Soft Trends and create a plan that endorses what they communicate.

For example, colleges that need students on campus can still have them on campus, but perhaps ensure that all classes that can be easily taught remotely remain remote; that dining services operate more like restaurants with curbside pickup; and that students further minimize contact in facilities outside of their living quarters.

Convenience Stores Put Certainties Into Motion

Outside of the education industry, in-person businesses have also struggled to figure out how to stay open in a pandemic. Even when settling on a plan, many missed the

mark in effectively communicating that plan to their customers and have therefore found it difficult to regain the trust broken by the coronavirus.

As a leader and a business owner, the more information you can give your customers, the more trust you reinstate in them; however, communicating certainties is just talking without taking action. Taking bold steps toward leveraging and implementing those certainties is what we need, now more than ever.

To divulge a very specific example, I was recently interviewed by an individual from an industry that I have worked with over the years: convenience stores. Years ago, I spoke to a national conference of all convenience store owners, and since then, several owners occasionally reach out to interview me for articles and blogs.

At the start of COVID-19, a few actually reached out looking for advice instead, as they assumed they were going to need to lay their people off due to the drop in customers' needs for gas, their biggest money maker. In each case, the assumption was that they would have to either close down completely or drop down to a skeleton crew, and they wanted advice about the best way to explain this to their employees.

Pivot Your Business

I responded to these store owners by pointing out that they already accurately identified a Hard Trend: There are not going to be more people coming in for gas, supplies and usual purchases. But I encouraged them to consider how they could pivot to meet consumers' changing needs. Instead of clinging to their identity as a convenience store, for example, they

could reposition themselves as a necessity store simply by revising the mix products offered for sale.

For example, before the pandemic, a convenience store might not typically have carried a bulk supply of extra-strength Tylenol. But when panic buying occurs and drug and grocery stores run out of inventory, you can be certain that people will come to you, hoping to find that you have that Tylenol in stock ... or toilet paper ... or hand sanitizer. Perhaps that minimal supply of Tylenol should be increased, along with other similar cold-fighting products. In other words, it pays to take a moment and really look at what you have to offer individuals in a time of crisis.

My response to their questions about how to lay individuals off stunned these convenience store owners: I encouraged them instead to hire people. My reasoning became clear to them when I prompted them to identify what else they could be certain about outside of their industry. One idea came from the reality that in several locations, there were going to be many unemployed Uber and Lyft drivers as a result of restaurants and bars closing, so why not give these erstwhile drivers something to do, such as delivering necessity items to those who do not wish to visit stores in person?

Do Not Let Convenience Comfort You; Be Bold!

Perhaps this idea of transforming an owner's convenience store into a necessity store and building out an in-house Uber Eats of his or her own struck some as too bold — but boldness is exactly what we need right now! Instead of desperately trying to maintain the

status quo by dropping to a skeleton crew and hunkering down, longing for the “good old days,” as many do in the wake of digital disruption during traditional times, you can seize new business opportunities by recognizing that your traditional customers are now new customers in their own right — and, likewise, you can attract entirely new customers who are looking for a backup plan when their grocery stores run out of necessities.

With this approach, you simultaneously “pandemic proof” your business by leveraging the Uber Eats concept and, more importantly, communicate to your employees and customer base that you care about their safety, comfort, and well-being. This will create in them a newfound sense of trust in you that they will never forget, even when the new coronavirus is in our rearview mirrors.

The same concepts of leveraging Hard Trends and Soft Trends and, more importantly, putting them into physical action can be done in the education industry. Schools are already starting to communicate what they are certain about, but they must act on these trends now in order to be there for their educators, parents, and students in this unprecedented time.

Do not let this virus be the end of your business; learn how to become an Anticipatory Leader today, and start turning this time of complete disruption and change into transformative opportunity and advantage!

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