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TECHNOTRENDS[®] NEWSLETTER

*The biggest ideas that are
changing everything*

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12 Competencies for Future Success and Advantage

By Daniel Burrus, CEO of Burrus Research

Even as I write this article, jobs in industries ranging from entertainment and media to manufacturing and medicine are being transformed by artificial intelligence (AI) and its many iterations. Many people don't even know they are already in a competition with AI and that several facets of their job are already being accomplished by a digital application or intelligent machine. Workers will not be able to outpace these machines simply by working longer hours or moving faster on the assembly line.

The Science and Art of Every Profession

There is a science and an art to every profession. In school, we learn the science side of our profession. When we graduate, we begin to learn the art side of our profession.

It's likely that when you see the word "art" you are used to applying it to business and careers in movie making, designing, engineering, marketing and mass media, to name a few. However, there is an art side to everything, encompassing competencies that many refer to as the "soft skills."

For example, cardiothoracic surgeons spend nearly a decade in college, medical school and beyond absorbing everything they can about the human heart, the human body, and how to safely operate on a living person of any age. Every single cardiothoracic surgeon learns those same pieces of information; a veritable how-to process that is heavily regulated and improved upon every year to ensure everyone who earns the qualifications to operate on someone's heart adheres to a best practice procedure.

But even amid that educational system of

checks and balances, there is an art side to this as well. After graduation, they begin to develop soft skills, such as creative problem-solving and effective collaboration, to name a few. Over time, each and every cardiothoracic surgeon refines their own unique approach to the process, whether it is how they hold their tools during surgery, how they solve problems, or their bedside manner in keeping a patient confident in their skills. This is similar for every profession.



For humans to thrive in the future, we need to get much better at doing what humans do best.

AI Will Have Science Covered

Increasingly, the science side of our careers will become increasingly autonomous, and at some point, intelligent automated systems will be able to do the science part of our jobs better than us. The good news is that AI will struggle with the art side: the 12 competencies I'm sharing in this article. For humans to thrive in the future, we need to get much better at doing what humans do best.

12 Competencies for Future Success and Advantage

One major way to learn how to grow your abilities in leveraging the "soft skills" of any career is by understanding my 12 competencies for future success and advantage. While I delve much further into these concepts in my books and teach them

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TECHNOLOGY NEWS HIGHLIGHTS

Net-Zero Carbon Fuel

Transportation accounts for nearly one-fourth of carbon emissions globally, and in line with their goal to reach net-zero carbon by 2040, Amazon has already made a commitment to electric delivery vehicles. But it also recently invested in a new startup that will enable larger cargo ships, trucks and jets to be “decarbonized” by converting hydrogen and waste CO2 into “electrofuel.”

The method uses renewable power to generate “green” hydrogen from water. CO2 captured from fuel production plants (such as ethanol plants) is combined with the hydrogen in a specialized reactor. The resulting “syngas” can be used to synthesize high-value marine, jet and

diesel fuels that can be used in existing cargo vehicles. Although they will still emit CO2, the process adds no additional greenhouse gases to the atmosphere because it utilizes waste CO2 in the manufacturing process.

The next step will be to develop a means for pulling CO2 directly from the atmosphere, which will bring down the cost and enable more flexibility in locating reactors close to solar, wind and other renewable power sources. Commercial volumes of the new fuel will be available within several years.

For information: Infinium, 2020 L Street, Suite 120, Sacramento, CA 95811; phone: 916-824-3830; email: info@infiniumco.com; website: [Infinium Electrofuels – Fuels from Green Power and CO2 \(infiniumco.com\)](http://Infinium Electrofuels – Fuels from Green Power and CO2 (infiniumco.com))

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BUSINESS LEADER IMPERATIVES
How Anticipatory Leaders are turning disruption and change into opportunity and advantage.

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Smartwatches as COVID-19 Detectors

Although these preliminary results are far from conclusive, and are not necessarily limited to COVID-19, augmenting traditional testing with noninvasive monitoring devices could provide for earlier detection and more timely intervention, leading to better outcomes.

For information: Mount Sinai COVID-19 Informatics Center: website: [Warrior Watch Study](#) | Mount Sinai - New York or Stanford University School of Medicine: website: [Smartwatch can detect early signs of illness](#) | [News Center](#) | [Stanford Medicine](#)

Smartwatch manufacturers are looking closer at data that suggests wearing a device that measures heart rate variability (HRV) may identify COVID-19 several days before a person experiences symptoms.

If so, activity tracking devices could play an important role in slowing the spread of the disease by indicating when individuals should consider self-isolating.

HRV is a measure of the variation in the interval between heartbeats. These fluctuations are normal and occur in response to things like respiration, blood pressure, sleep cycles, stress and anxiety. When HRV is reduced, it can signal a variety of issues, including a reduction in the body's immune response.

One study followed about 300 healthcare workers who wore Apple Watches equipped with an app to monitor HRV for a period of five months.

A retrospective review of the data revealed that those who tested positive for COVID-19 during that period showed significant changes in HRV up to a week before the onset of symptoms. Another study, using a variety of fitness tracking devices, found that changes in resting heart rate occurred up to nine and a half days prior to symptoms.



Self-Watering Soil

A newly developed type of soil that harvests water from ambient air could make it possible to farm virtually anywhere and reduce water usage during droughts. It contains super-moisture-absorbing gels that pull water from the air at night, when it's cooler and more humid.

During the day, solar energy heats the soil, causing it to release the moisture. Each gram of gel can absorb 3 to 4 grams of water; between 0.1 and 1 kilogram of the experimental soil can support 1 square meter of farmland, depending on the crop being grown.

The researchers compared moisture retention in the new soil to a sandy soil mixture. After four weeks, the water-

harvesting soil had retained about 40 percent of its water while the sandy soil retained only 20 percent.

They then planted radishes in each type to evaluate growth. The hydrogel soil was watered once initially to encourage germination, but the sandy soil was irrigated multiple times during the first four days to give the plants the opportunity to get established. After two weeks, the hydrogel radishes had survived without further watering, but none of the sandy soil radishes had survived.

Breakthroughs such as this will enable agriculture in areas where water is scarce and the power networks needed for irrigation are nonexistent. The technology could also be used to develop drinking water systems and to provide cooling for solar panels.

For information: Guihua Yu, University of Texas, Cockrell School of Engineering, Austin, TX 78712; phone: 512-232-5276; email: ghyu@austin.utexas.edu; website: [Home - Yu Research Group \(utexas.edu\)](#) or [Self-Watering Soil Could Transform Farming - UT News \(utexas.edu\)](#)

superconducting (HTS) technology to reach speeds of 620 kilometers per hour (385 mph).

Maglev (magnetic levitation) trains operate using two sets of magnets — one that elevates the train above the track and one that propels it forward. With no friction and no moving parts, maglev trains have the potential to achieve much higher speeds than conventional rail. They are also quieter and smoother.

China has had high-speed maglev in operation since 2003. Covering a distance of about 30 kilometers (19 miles), the Shanghai Transrapid tops out at 430 kilometers per hour (270 mph). Last year, a 174-kilometer (108-mile) line was opened between Beijing and Ziangjiahau in preparation for the 2022 Winter Olympics. According to the designers, the HTS train could become operational in three to 10 years.

For information: He Chuan, Southwest Jiaotong University, 111 N 1st Section, 2nd Ring Road, Sha Xi Mei, Shi Yi Tiao Jie, Jinnui District, Chengdu, Sichuan, China; website: [Debut of the world's first high-temp maglev prototype at SWJTU - Southwest Jiaotong University](#)



High-Speed Train

A prototype for China's new maglev train was recently unveiled in Sichuan province. The locomotive features high-temperature



Spinach Biosensor

Engineers at MIT are looking at ways to turn living plants into nanobionic sensors that can detect biological and environmental

hazards and send a signal to alert farmers. One of them — a newly engineered spinach plant — can identify arsenic levels in soil more accurately than existing tools.

The technique uses inexpensive nanoparticles (50,000 times smaller than a human hair) embedded directly into the plants to act as sensors for a variety of chemicals, including hormones that are generated by the plant itself when it is stressed.

Many of these compounds show up in the plant before the condition can be detected by visual inspection. The plants would be separated from food crops but placed in the same type of environment, and the nanoparticles can be programmed to generate a variety of electronic signals.

These new plants can also aid in developing new crop varieties by allowing researchers to directly measure what happens within the plants under changing climate conditions. They could even be turned into living light-emitters to illuminate areas that are off the grid.

For information: Michael Strano, Massachusetts Institute of Technology, Department of Chemical Engineering, 77 Massachusetts Avenue, Cambridge, MA 02139; phone: 617-324-4323; fax: 617-258-8224; email: strano@mit.edu; website: [MIT - Massachusetts Institute of Technology](#) or [Strano Research Group - Department of Chemical Engineering at MIT](#)

environment — from laundry detergents alone is staggering.

It has been estimated that Americans run 35 billion loads of laundry every year, and most of those use cleaning agents that contain harmful chemicals derived from fossil fuels. But a new detergent has been developed that uses a blend of enzymes called Phytolase® to target different types of stains. And once it's down the drain, it rapidly biodegrades.

The bio-based detergent uses the same enzymes that are currently used as boosters in many conventional detergents, and performs as well or better to break down stains and prevent them from being redeposited back onto fabrics during the rest of the cycle.

It comes in an ultra-concentrated liquid, requiring only two teaspoons (at a cost of about 25 cents) per load. It's designed to work in cold water, which will also save money since 90 percent of the energy used by washing machines is dedicated to heating the water. Using cold water for four out of five loads would also reduce household carbon emissions by 864 pounds per year.

The company is aiming to get ahead of the curve on new legislation expected to hit as early as 2022. For example, in New York, products containing more than 2 parts per million of 1,4 dioxane (a common ingredient in today's detergents and a likely carcinogen) will be banned by the end of next year; and by the end of 2023, that level is to be further reduced to 1 part per million.

Some of today's detergents contain up to 14 parts per million.

For information: Dirty Labs, 7464 E. Tierra Buena Lane, Unit 205, Scottsdale, AZ 85260; phone: 888-783-4789; website: [Dirty Labs | Natural High Efficiency Bio Enzyme Laundry Detergents](#)



Eco-Friendly Cleaning Products

The quantity of chemicals going into our wastewater — and ultimately the



Green Hydrogen on a Huge Scale

The dream of a hydrogen economy has been slow to emerge, mainly because production costs can only come down if demand is high, but demand won't increase until there's widespread availability.

Now, a new initiative in Saudi Arabia aims to deliver on both counts by investing billions in the largest green hydrogen production facility in the world, and billions more into a distribution infrastructure throughout the world.

The hydrogen production facility is being designed to produce 650 tons of green hydrogen per day. The consumer market distribution network will primarily focus on industrial vehicles and public buses. The ultimate goal is to build a futuristic megacity powered solely by renewable energy and groundbreaking technologies. The plant could be operational as early as 2025.

For information: NEOM; website: [NEOM – IT'S TIME TO DRAW THE LINE](#)



Disinfecting Robot

Among the wide array of robots featured at the recent virtual Consumer Electronics Show (CES) was the ADIBOT – an autonomous system that can disinfect hospitals, schools, fitness centers, hotels, offices and other spaces using ultraviolet germicidal radiation.

A proprietary software platform enables users to personalize navigation for their location.

The robots are also equipped with Lidar and other sensors to reliably avoid obstacles and maneuver in spaces as small as one square meter.

UV-C bulbs are arranged in a 360-degree configuration to disinfect up to 99.9 percent of areas where they are deployed.

Systems such as this will make it easier for schools, businesses and other organizations to reopen safely while eliminating the need for harmful chemicals and costly downtime.

For information: UBTECH, 767 S. Alameda Street, Suite 250, Los Angeles, CA 90021; phone: 800-276-6137; email: info.us@ubtrobot.com; website: [UBTECH Robotics \(ubtrobot.com\)](#)

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12 Competencies for Future Success and Advantage

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in my Anticipatory Leader Learning System®, let me give you these competencies now, along with a brief analysis of each:

1. **Anticipatory Leadership** – Hard Trends provide high levels of certainty and the confidence to make bold moves. Future success and advantage will come from learning to differentiate between the Hard Trends based on Future Facts™ that will happen and the Soft Trends, which are based on assumptions of what might happen. This competency has transformed how individuals and companies plan and innovate.
2. **Relationship Building** – Good relationships are based on trust, and trust is earned through shared human values such as honesty, integrity and delivering on promises. Future success and advantage will come from elevating your ability to increase trust, helping you to build stronger relationships. Without positive relationships, even the most amazing technology can become irrelevant or – worse yet – damaging.
3. **Technology Savvy** – Humans don't all need to be technologists; you don't have to know the physics of smartphones or AI in order to use them. Future success and advantage will come from being willing to learn new things and becoming aware of what the new tools are in a variety of fields in order to creatively apply them to build a better tomorrow.
4. **Strategic Listening** – Passive listening is when someone follows along with what is being said. Active listening involves paying focused attention to words and phrases that uncover strategic and innovative insights. Future success and advantage will come from increasing your ability to be an active,

strategic listener and learning to ask better questions – the type that draw out better answers.

5. **Emotional Intelligence and Empathy** – The ability to recognize our own emotions and to understand and share the feelings of another in real time (empathy), as well as the ability to discern the different feelings people have and label them appropriately, is a competency that can be learned. Future success and advantage will come from elevating our ability to both identify and use emotional insights to guide constructive behavior to help people better adapt to changing environments. Empathy is also a critical component for drawing audiences into a personal or business story.
6. **Cultural Intelligence & Diversity** – Different cultures have different ways of thinking and acting, and different ways of communicating that go beyond language, including very different meanings for the same physical and verbal expression. Future success and advantage will come from elevating our awareness and understanding of the differences and embracing them so that we can maximize the innovative and competitive advantage that comes from different ways of viewing a process, product, service, problem, or situation.
7. **Effective Communication** – When you consider the varied ways we communicate—be it verbally, in written form and even in facial expression and body language—it's easy to see how humans can be far better than AI at accurately and holistically capturing and interpreting the subtlety and varied meanings that communication can carry. Future success and advantage will come from getting better at applying the context and expression of both visual and verbal communication by applying a wide array of multisensory subjective elements that make up good communication. These are the components of communication that humans do best.
8. **Effective Collaboration** – Cooperation

is based on scarcity: You cooperate with : a person, a team or a company because you have to, and you only share what you need to in order to protect your part of the economic pie. Collaboration is based on abundance: You collaborate because you want to, and you openly share because the goal is to increase the economic pie for all. Future success and advantage will come from elevating your ability to form collaborative relationships that operate at high levels of trust and the idea that working together builds something better for us all.

9. Adaptability & Agility – You cannot accurately anticipate everything; there will be changes that no one could have seen coming. Future success and advantage will come from improving your ability to adapt to change as well as your agility by learning to react to disruptions and problems as quickly as possible. Adaptability requires someone to be open-minded and nonjudgmental – attitudes that all humans can improve and leverage.

10. Creative Problem-Solving and Tenacity – The creative application of technology unlocks innovation and growth, and innovation at its core is applied creativity. Once a creative solution is identified, tenacity is often needed to see a solution through to a successful application. Future success and advantage will come from improving your ability to identify the real problem, and to creatively apply technology by using creative principles such as The Law of Opposites and Problem Skipping and by learning to identify Hard Trends that will happen and their related opportunities.

11. Service Delivery – A major component of the overall customer experience is the level of service delivery they receive. Future success and advantage will come from elevating your ability to not only fully interpret the subtle nuances in voice and facial expression, but also what the person is thinking and feeling but not saying. In addition, working with a customer over time creates a trusting relationship, and over time

a good customer service representative develops an anticipatory sense of what a customer may want or need at a deep emotional level – often before the customer is aware of it.

12. Selling, Persuasion & Influence – Selling, persuading and influencing represent one core competency because they are all focused on one thing: changing a behavior to create a desired result. We are all selling, or persuading, or influencing someone to do something multiple times a day, often without even knowing it. Future success and advantage will come from elevating your ability to sell, persuade and influence at ever higher levels. When combined with some of the other competencies in this article, humans can outperform machines every time.

After reading through the list, you may have thought to yourself: Some people are naturally better than others at some of these competencies; for example, some are naturally better at sales or naturally more creative. This is true of all 12 competencies. However, I have found that when people start getting better at one, they also get better at the others because they are all connected.

The only way humans can beat the exponential growth of advanced AI-enabled automation in the future and have meaningful good-paying employment or self-employment is to become increasingly more valuable than machines. Time is growing short – now is the time to be an opportunity manager and start getting better at all of them. If you don't, you will soon be a crisis manager falling behind exponentially faster.

To discover how to apply these 12 competencies and, better yet, learn how to use future certainties to transform disruption and change into opportunity and advantage, consider signing up for my Anticipatory Leader Learning System today!

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