DRIVE: The Five Megatrends that Underpin the Future Business, Social, and Economic Landscapes

By

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There is no doubt that the world is constantly changing at a faster-than-ever pace. This makes it seemingly impossible to predict what our future holds, and we should be naturally wary of anyone, promising a clear look into the future. DRIVE is a framework that helps us determine the changes needed today, to correct the trajectories of tomorrow. © 2017 Wiley Periodicals, Inc.

B ecause the world is constantly changing at a faster-than-ever pace, it is seemingly impossible to predict what our future holds and we should be naturally wary of anyone, promising a clear look into the future. So we distance ourselves from any attempts of crystal-balling, as we consider it as futile as the idea behind the concept of control of the future. This being said, the future is at times, an evolution of the present

and its main traits and this is where we think our story has something to say.

The speed of change, as well as the sudden shifts, are only made more probable and impactful by the fact that we as a world are now connected to each other both socially and economically in ways that we have historically never experienced. We are now, more than ever in the past, a beta society: evolving and experimenting as we

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write this piece. Our world's operating system is being constantly rewritten, through disruption, adaptation, sudden accelerations, and unexpected decelerations. Those believing in coexisting paradoxes, find their prophecies fulfilled. And none of the above described, comes out with gradual release or any early signs. At times we are lucky if we get trailers of major events prior to their occurrence, but at most, we are even luckier if we survive events. It is indeed a fine mess for many theorists (e.g., Dobbs, Manyika, & Woetzel, 2015). The speed and unpredictability are posing a great deal of challenges to business executives, which rise from decades of sugar-coated statistics, capable of providing some sense of sciencebased mojo, to the forecasts of patterns. This is possibly best summed up by a CEO, when he said "As the business surrounding changes quickly, CEOs have to make correct business decisions within a much shorter time frame. At the same time, the visibility is not great as everything seems so uncertain." So how can companies read early signals of change and adapt? The easiest and most honest answer is that they don't, but we'll argue for some hope, in the course of this article.

While it may appear that the world's economies change almost at random and react to unforeseeable events, the truth is that certain large-scale processes can be understood and predicted as interrelated and evolving mechanisms that drive how businesses, governments, and societies behave and what decisions are made. Regardless of its complexity and our inability to navigate through it with the proxies of predictability, inherited from an era of numerical rationale, there is sense making even in today's world. We have observed, pivoted, and researched several points of junction, where the current trends of the present set the trajectory for events to occur in the future, and we believe that these elements carry significance. In the vast ocean of knowledge, information, and data, we find that there are five undercurrents that can give us some directions as to how the future would unfold. These five paths aren't exclusive or exhaustive. Most are likely just a minimal representation of all undercurrents that interplay with the shaping forces of our societies, but with this in mind, we have narrowed the research down to five megatrends, which we call the DRIVE framework, consisting of the following:

- Demographic and Social Changes
- Resource Scarcity
- Inequalities
- Volatility, Scale, and Complexity
- Enterprising Dynamics

We believe that each of these megatrends is unique in its own right, but, in combination, they can present a fairly comprehensive picture of what the future holds and help us picture a future in the making. Let's look at them under each individual lens, before aggregating them again in what we think the DRIVE analytical framework is capable of doing.

Demographic and Social Changes

At the center of any future state are people. It is now a known fact that the populations in the developed world are both shrinking and aging, partially a result of the combination of very high life expectancy and very low fertility rates. This is particularly visible if we tap on the visuals of any population pyramid today, which is an easy, albeit serious, effort to envision how populations are distributed by gender and segments of age, from zero to 85+. Interestingly, it was called a pyramid because it implied that children, the base of the population pyramid, are more numerous than elderly, hence the renowned shape. But from a glance of global population pyramid today, versus a comparison of population pyramid in 1970, the differences are astounding. Children are yet the most populous group in our societies, but only by marginal units. The pyramid is changing in shape and converging more into a dome, so to say-fatter at the bottom up to 50 years of age and thinner from 50 and above, but definitely far from resembling a pyramid at best.

Projections show that the majority of populations of developed countries will be over 40 years old by 2030, with Japan reaching an average of 52 by then, followed by Italy and Germany. Less obvious though, the same is happening in the developing economies. Take China, for instance. Even though the Middle Kingdom has a younger population (35.4) today than the United States (37.4), by 2030 this will be 42.1 compared to 39.5—China's aging population is going to "catch up" with the developed world (Roland Berger Strategy Consultants, 2015). Most emerging economies remain young, however. The most youthful are those of the sub-Saharan region. For example, the average age of Nigerians is 15 years old in 2013. Yet, by 2030, the average age of the country would only be 15.2 years old!

The implications of such demographic shifts can be huge and destabilizing at best. While the developed world will be facing challenges such as maintaining and sustaining the social security systems and financing pensions, because of an influx of its elderly population, the developing ones will have to be able to provide education and access to basic health care to youngsters as well as create jobs for them. On a global basis, as people are getting older, the world's population will plateau for the first time in human history. A worrying implication is that there will be insufficient labor power to support the old-age pensioners (Dobbs, Ramaswamy, Stephenson, & Viguerie, 2014). With the labor pool shrinking, the only way to maintain economic growth is to continuously invest in raising productivity and competitiveness, away from natural resources and more toward models of economic efficiency that do not resort to intense factors of production, to extract value. This not only requires companies to increase their efforts-and capital-in making investments, at least in the medium term, but this could also put governments in a dilemma. What is needed are more liberal economic and business policies, as past experience has shown that productivity significantly increases in industries that are unprotected and can freely compete, coupled with a modern fiscal system that reinvests taxes into logistics, mobility, and public services. Yet in times of uncertainties, governments are more inclined to erect trade barriers and pursue protectionism, or to alienate the electorate with short-term austerity measures, which distance countries even further from this template of increased productivity-the exact opposite to what should be done to make the future better (Godin & Mariathasan, 2014).

As people are getting older, they are also converging: more and more people are living in cities. In 1950, the urbanization ratio in China was 13%. Today, roughly half of the country's population lives in cities and the government plans to push that to 70% by 2025 (Johnson, 2013). And if we take the example of India, a study suggests that, at the current rate of urbanization, by 2030, accessing the clusters around 14 cities of India would be equal to accessing 40% of the Indian consumers (Johnson, 2013). There is a good reason for having more city dwellers: greater urbanization is shown to have a positive effect on gross domestic product (GDP) development. In fact, countries with the highest urbanization ratios are showing the greatest GDP per head of the population (Johnson, 2013). Moreover, countries with high populations and levels of urbanization tend to have the strongest GDP growth (Dobbs et al., 2011).

The urbanization phenomenon may dictate that "megacities"—a metropolitan area with a total population in excess of ten million people—would dominate future world's economic developments. Yet contrary to conventional belief, it is likely that midsized cities, and not necessarily their much bigger counterparts, will play a much more important role in terms of creating future prosperity. One study suggests that globally some 600 middle-weight cities would outperform most megacities in terms of household growth and long-term income potential, making them attractive prospects for businesses (Dobbs et al., 2011).

Regardless of the size of the cities and whether the trend of middleweight cities will effectively complement, if not replace, some of the megacities, urbanization brings at least three benefits. First, urbanization allows the labor force to be concentrated and infrastructure more connected. Higher connectivity and the rise of logistical platforms are testimony to this trend. In this respect, China's push for urbanization is a calculated act: if the country is to maintain high growth, it would have to get more people to work in the same location, which in turn makes it more attractive to investments. Furthermore, China's intention to increase internal demand and decrease imports will shift the country's focus to tier 2 and tier 3 cities, expanding from east to west, like it has been conventional also in other parts of the world. Second, with more people employed comes more income, which in turn fuels further consumption, which we know as being the constituent of how GDP functions. Third, urbanization often leads to the creation of clusters around cities and the rise of entire production hubs, which are often bigger than cities themselves. If we want to stay with the example of China, take, for instance, the Pearl River Delta, which concentrates within a few hundred kilometers a population of close to 80 million people and a GDP close to \$2 trillion-comparable to the GDP of India as a whole.

We see these three bilateral factors as good news for companies because they can reach more customers at lower incremental costs, but we also find much of this information as less of a priority for executives, sometimes for lack of overview in how urbanization is shaping migration, labor force, territories, and ultimately consumption.

Resource Scarcity

Urbanization and the continuous growth of world's population size would put a lot of pressure on the use of resources because cities and resources to run them are always co-related. But after years of resource exploitation, dating back from colonialism to our days, resources are now rapidly depleting and dropping in quality, or at least the availability cycle is undermined (Tse, Esposito, & Soufani, 2014). Resource scarcity, inevitably, represents another megatrend. Many people relate resource scarcity to energy, thinking that the world would run out of fossil fuels soon. It is true that fossil fuels are nonrenewable. But there are reasons why the worry is unwarranted. First, there is a huge amount of reserves that is yet to be inventoried. Second, there are always wind and solar energy, which, in addition to the associated sensitivity to shift to clean energies, have become largely available also because of the climatic changes. Granted, the generation of wind and solar energy is expensive. As Michael Buckle, a managing director at Willis Towers Watson, who once led its Renewable Energy Practice, pointed out, offshore windfarms are costly to operate-just a helicopter trip to reach the wind turbine located 200 miles off the coast costs £30,000 alone, weather permitting, that is. Having said that, he also pointed out that renewable energy costs are gradually coming down over time. So, expensive as they may be, we argue that the world is far from running into an energy crisis, at least from a megatrend perspective.

Water and food, on the other hand, are different stories. At the current consumption rate, according to the World Wildlife Fund (n.d.), it is possible that by 2025 two-thirds of the world's population may face water shortages. It is not just a matter of not quenching thirst. As cities becoming ever more urbanized, the increased requirements on sanitation would put further pressure on the use of water and beyond, in what we see as strings of co-related shortages. At the same time, most companies' value chains would also be deeply affected by water scarcity, across regions, but more so, where manufacturing is still the key driver of production. It takes, for instance, with an average car containing about 2,150 pounds of steel, this would mean over 300,000 liters of water is needed to produce the finished steel for just one car (Grace Communications Foundation, n.d.). The waterprint for a pair of jeans is 11,000 liters of water (Water Footprint Network, n.d.). Our technological progress might also be hampered: a single computer chip requires 132 liters of clean water to produce (Hoekstra & Chapagain, 2007). While the above are only examples, our research exposed us to some absurd requirements for water in our current productive practices, which poses a real problem to how water may become a variable cost for companies, capable of undermining profitability.

Water shortage might also impact food growing. As more people in emerging markets can afford greater amounts of meat, this creates a larger demand for water in agriculture. By 2050, it is expected that the consumption of meat and dairy would rise by 76% and 65% respectively against a 2005–2007 baseline, compared with 40% for cereals (Alexandratos & Bruinsma, 2012). More arable lands would be needed—land the size of Great Britain would be needed to just to feed Chinese meat demand—as an increasing number of them are going fallow (Terazono, 2015). Producing a kilogram of beef would require 3,500 liters of water; 460 liters of water is needed for one kilogram of tofu (Water Footprint Network, n.d.). One aftermath of the increased demand for food is that their prices would go up. According to one study, increasing food prices will account for greater portions of personal income, especially in developing countries (Roland Berger Strategy Consultants, 2015).

In spite of such pressure on water and food, our societies and economies have been surprisingly wasteful. In Europe, 31% of the food goes to waste along the food chain, mostly thrown away by consumers. Among fruits and vegetables, 46% was lost from the edible mass. We are also wasteful with other resources: only 40% of used materials are recycled, with the rest landfilled or incinerated (Esposito & Tse, 2015). The fact that the world can no longer counting on turning resources into products based on the so-called linear or "take-make-dispose" to grow means that there is vital and urgent need for a new approach. Lately, circular economy, also known as the "cradle-to-cradle" model, is gradually gaining more and more traction as the model of the future, and, hopefully, its inherent regenerative modus operandi will gain more and more ground, carving space for a needed shift to circularity. The alternative, unfortunately, will see resource scarcity remain acute-if not more-as long as individuals, companies, societies, and governments rely on waste as being part of the paradigm of production.

Inequalities

The world seems to have woken up to the issue of inequality when the French economist Thomas Piketty (2013) argued in his bestseller that the unequal distribution of wealth in the developed countries has become more so in recent years. But that is probably just the tip of the iceberg. In 2012, Nobel laureate Stiglitz published The *Price of Inequality*, in which the plague of inequality was equally described as detrimental to our future. In the past 30 years, the incomes of the wealthiest have surged into the stratosphere (and the higher up in the income hierarchy one is, the greater the increase has been), while the incomes of the large majority have stagnated. This has led to a level of inequality in wealth in the developed world not seen since the eve of the Great Depression (Piketty, 2013). Recent data show that the gap between rich and poor in the United States, the country with the highest GDP in the world, is rapidly widening, where the top 1% earns 19% of the national income. In fact, the 0.1% at the top hold almost as much wealth as the

bottom 90% (Congressional Budget Office, 2011). China, the world's second-largest economy, ranks very low on a GDP-per-person basis. Yet it has the second highest number of billionaires in the world. In fact, its richest 10% controls a greater share of its wealth than in the United States (Sicular, 2013). But income inequality—while a serious dysfunction of how wealth should be distributed—is, unfortunately, not necessarily the most acute of the socioeconomic gaps we have analyzed.

In fact, just as worrying is that the phenomenon that the middle-income class is gradually disappearing. In the United States, while productivity and GDP have continued to grow, middle-income earners have been making less over time: the percentage of households earning 50% of the average income has decreased from 56.5% in 1979 to 45.1% in 2012 (Bernstein & Raman, 2015). Worst yet, this "hollowing out" is not only confined to the United States; the same phenomenon is also observed in 16 European countries around the same period (Goos, Manning, & Salomons, 2014). This, as it turns out, is the consequence of automation and computerization (more below). While the middle class disappearing may suggest a rebalance of wealth toward either poor or rich people, the story behind may present bleaker aspects and nuances. Middle class in modern civilizations is the bearing engine of our economic outputs. In dry terms, it is where GDP is ultimately produced. If the middle class slims itself to the level of becoming marginally relevant, repercussions in the standards of living must be anticipated as likely to happen.

While income and its vaporization from the hands of middle-class workers share some intuitive nature, much less clear an inequality is "age" inequality. A clear indicator of such is youth unemployment, which remains stubbornly high-and indeed continues to go up-in many parts of the world. Recent statistics show that some 30% of those between 15 and 24 years old in North Africa and the Middle East are neither educated, employed, nor trained (International Labour Organization, 2015). One in five youth is jobless in France as well as in the United Kingdom; the EU average is 22.6%. Half of Greek youth have no jobs. In the United States, youth unemployment hovers around 16%. Often, this is because there are not enough jobs around. Other times, government policies tend to favor the older population than the young ones, or other times yet, it is just emblematic of an economic infrastructure that has reached capacity. Spain, for instance, has one of the most extreme cases of what is called "insider-outsider market"-in which temporary workers have few rights and are easy to fire, while incumbent workers are hired on a permanent basis that

comes with a prohibitively high cost of dismissal. The cost is so high that can be exemplified as being double the salary for each average employee. This is all against the background that more than 30% of Spaniards aged 25 to 34 are university educated—one of the highest rates in Europe and slightly above the Organization for Economic Cooperation and Development (OECD) average. Why do governments show favoritism to older people? We cannot necessarily answer such a question easily, but one plausible reason may dwell in the fact that young people do not vote, or at least not systematically as do the older generations. If on one side, this may lead to a less politicized youth, compared to the past generations, at the same time "this predicament for the youth is eloquently summarized by a new graduate when she says, "The state is effectively investing in the older generation instead of the new" (Tse, Esposito, & Chatzimarkakis, 2013).

Income, social, and age inequalities are all grave conditions of life. Sadly, however, it does not end here. There is a strong case to be made for a less obvious type of inequality: capital inequality. Let us be clear: capital inequality does not resonate back with income inequality, although there could be some degree of proximity. What we refer to is how the preference for debt over share equity in Europe has made things worse. But as long as a broader set of European investors do not lose their aversion to risky shares and create more funds available for early-stage companies, it is unlikely that Europe will be able to sufficiently grow existing dynamic start-up hubs like London, Berlin, and Stockholm, or meaningfully support entrepreneurship in many other cities across the continent, according to Philippe Cerf, a managing director of the technology, media, and telecommunications practice of Credit Suisse.

The repercussions of widening inequalities in various dimensions of our societies, especially when very little effort has been made to stop it, could greatly impact our future, inferring a trajectory we hope to be able correct, prior to its full deployment in our societies.

Volatility, Scale, and Complexity

The world has not been a tremendously exciting place in terms of economic growth for most of the past two millennia. Such growth really started to accelerate only after the Industrial Revolution. The invention of steam power in mid-eighteenth century, followed by the emergence of internal combustion engine, electricity, and household plumbing about a century later, brought significant economic growth to the world's economy (Gordon, 2012). More recently, the revolution that caused our economy and productivity to take off once again was the advent of Internet technologies (Brynjolfsson & McAfee, 2014). One of the most observed writers in this field, Jeremy Rifkin (2011), speaks about a third industrial revolution, when the fledging of existing platforms or enginesnamely, the energy, communication, and mobility drivers-converge. Indeed, what makes the online technology different from-and far more powerful than-other revolutionary technologies within this integrated view of converging models in the past is the fact that it acts a glue to different types of devices and technologies, often leading something that is novel. For instance, the World Wide Web, undoubtedly one of the most important inventions in human history, is nothing more than a "kit-bash" of a simple transmission network Transmission Control Protocol/Internet Protocol (TCP/IP) data, a simple computer language called HyperText Markup Language (HTML) plus a cheap, unsophisticated computer application called a browser. What is truly important here is that combination of technologies open up a whole new set of possibilities. If not for the appearance of wheels, none of the circularity-based inventions such as horse-drawn wagons or railways would be possible. Acting as a conductor among previously unconnected items, Internet technologies have made many activities scalable at great speed. In all likelihood, these fast-developing practices are going to make our world more volatile and unpredictable as well as more complex. Another example is the spread of communication over protocol, voice over IP (VoIP), which has basically allowed software companies like the Estonian-born Skype, to bypass physical infrastructure for communication, by providing free access to voice communication, without going through electricity posts or centrals.

All of these, while incremental by nature (and perception), are counterbalanced by an inverted sense of acceleration, complicated by the fact that the Moore's Law is *slowing* down ("The Future of Computing," 2016). This does not mean computing power is coming to a dead end. What it means is that we are not going to see the price of computing power halve every two years as the "law" dictates. The slowdown is due to the fact that we have reached the physical limit of cramming more components onto a single chip. The implication of this can be huge and beyond our current state of play. Unlike technological products that have been made until now, with each new iteration relying on the increase of raw computing power (imagine your mobile phone), those in the future would be about making choices among power, performance, and cost, rather than just power alone. We expect more and more companies would invest

in exploring more the connections and applications among products, asking how and what we can do with digital cameras, memories, processors, and sensors joining together. In turn, this more rapidly opens up more previously unexplored possibilities. It is what many call the Internet of Everything (IoE), so named by a former CEO from Cisco, or what is also colloquially known as the Internet of Things (IoT). IoT is an expansion of the old Internet, blending components of intelligence and sensorial demeanor within the study of the patterns.

One outcome emerging from the combined use of these technologies is robotics, which have recently reached a point of intelligence at which they will be able to help humans in every kind of industry, in ways previously unimaginable. The penetration of robotics into regular activities is increasing as we speak, with examples of robotics applied also to biology, in what futurists call the "fourth industrial revolution," where the combination of biology, robotics, and digital may become a new integrated reality of products and services.

Take Amazon, for example. The giant online retailer is now considering using drones for delivery; Uber is looking at driverless cars as well as transportation over automated choppers (Hern, 2015). The technological tipping point has been the development of advanced sensors. This has given robots the ability to sense and interpret the world around them (Williams, 2016). Just as important is the arrival of cloud computing. Previously, robots would have to learn all by themselves as individual entities. With the possibility of linking them all up to a single source, learning by one can be easily shared with the others. This puts robotics on a very steep learning curve and hence faster developments (Ross, 2016). The rise of robotics could, like the earlier Internet revolution, lead to the development of new ecology around robotics, providing plenty of new opportunities. The fast-paced technology development would require businesses to be adaptive, but above all, capable of synthesizing and integrating elements that may learn quicker than the programmer would have ever imagined.

Enterprising Dynamics

Technologies are not just fundamentally changing the way we live; they are also reshaping how businesses work. While our research on volatility demonstrates clear orientation toward combinatorial modus operandi, other parts of the world—namely the emerging economies—are living this reality by contextualizing many of these technologies to serve local markets. To many people in the West, China is often viewed as a country unable to innovate and prone to acquiring existing technology from others. This reflects perhaps a natural response that China's stellar economic rise is partly due to the country's inclination to assimilate existing Western products and, worse yet, sell fake goods. Yet such view underscores the fact that many people confuse innovation with invention. The Middle Kingdom may not be very good at coming up with products based on its own ideas, but this does not mask the truth that in certain areas it has been doing business with such a level of novelty that Western companies should take as reference.

Whereas businesses in the West and Japan remain strong in engineering- and science-based innovation, Chinese firms excel themselves in the customer-focused and efficiency-driven sorts (Woetzel et al., 2015). As an example, Xiomi, a Chinese mobile phone maker, launched its first product in 2011 and became the sixth-largest mobile phone company by 2014, selling some 61 million handsets ("The Xiaomi Shock," 2015). It is easy to discount such success as a result of the company's being able to sell its phones as cheap alternatives to Apple's iPhones. After all, Apple sells its iPhone 5 for around \$860 in China, whereas Xiaomi offers its handsets at or near cost: the Mi-3, its flagship, costs \$330. But anyone holding onto this viewpoint misses a far more important one: the company's success lies in its ability to serve customers well. Listening to feedback and suggestions from users, the mobile maker updates the phone's operating system every two weeks. In addition, Xiaomi understands what its customers want and offers services and apps to cater their needs ("Taking a Bite out of Apple," 2013). From this vantage point, the Chinese firm is actually much closer to Amazon than Apple (Tse, 2015).

On the other hand, Alibaba, in a move to help small and medium-sized enterprises (SMEs) trade on its online platform, established a financial services arm to provide these firms with financing. This might sound trivial at first glance, but we imagine that it would be rather difficult in the United States or United Kingdom for online platforms to extend into financial services without running into regulatory concerns or competition from incumbents such as banks (Tse, 2015).

Naturally, Western companies do not stand still. Companies of all sizes are taking on new and different entrepreneurial dynamics. For instance, a London-based translation company is now much more of an information technology (IT) integrator with a small set of translation activities. This is not only because computers and software can now do most of the translation; this is also due to large multinational clients demanding full IT integration to their systems. In this instance, these corporations require the translation company to translate all of their invoices into different languages automatically, and all of these must be conducted seamlessly on their platforms.

In some cases, while the business model is new, the customers can often tweak it to add a new dimension to the business model, customizing it in some way at every interaction. Take crowdfunding as an example. It represents a new way for start-ups and entrepreneurs to raise financing. Instead of going to the bank or institutional funders, these company starters can tap individual investors via the online crowdfunding platform. Companies can borrow money, sell ownership in exchange for money, or presell products. Or take Compte Nickel, a French company that facilitates access to an international bank account number (IBAN) and an ATM card, by opening a flat fee account, for just 20 euros, without the support of a bank. The company, inspired by the success of the mobile banking providers in Kenya (MPesa, to name the most known venture), was able to bring the concept to a rich economy like France and grow its banking reforming from it. Whereas crowdfunding as an industry is growing, as Paul Lee, CEO of Aumeo Audio, shared his insight with us, some entrepreneurs have started to use it not only for the purpose of fund-raising; they are also using it as a proof-of-concept tool. How? Anyone can fairly cheaply and quickly list a newly invented product online and see if there are takers. If there are no takers, this probably means that there is no market for the product. Compared to the past, one would know if there is actually a demand only when it gets to the stage of getting ready to sell the product to customers. But the entrepreneurs would have to come up with concept, build a prototype, raise the funding, conduct market research, manufacture and hold inventory, and find sales channels and negotiate with them, all of which consumes an enormous amount of time and money. The crowdfunding alternative effectively compresses the whole process, enabling the entrepreneur to jump directly to contacting the potential customers and determining if they would be interested in the concept. As more and more businesses are now conducted online, it can be expected that there will only be more dramatic and speedier changes in business models and value chains in the years to come.

Why Megatrends Matter

Imagine you are running a company. The speed of change quickens its pace through the declining end of the company life cycle. Like the Red Queen in the novel *Through the Looking Glass*, you have to invest a great deal of resources just to stay in the same place. To stay ahead of the curve, your business will have little choice but to think ahead to identify new opportunities. By anticipating what

could be coming, you and your business can start thinking about what to do next. Being slicker today would get you to things more quickly.

The five megatrends of the DRIVE Framework clearly demonstrate that our economic future is, to a large extent, predictable but, moreover, correctable, in the case of trends that pose a threat to our sustainability as planet, society, and citizens, and that economies globally, despite their apparent differences, are at the mercy of the same large-scale trends. By paying closer attention to this framework, individuals, companies, and governments will have a better understanding of what is in store for them and will be able to take advantage of change and see a greater impact from their decisions.



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References

Alexandratos, N., & Bruinsma, J. (2012, June). World agriculture towards 2030/2050: The 2012 revision (ESA Working Paper No. 12–03). Rome, Italy: Food and Agriculture Organization of the United Nations.

Bernstein, A., & Raman, A. (2015, June). The great decoupling: An interview with Erik Brynjolfsson and Andrew McAfee. Harvard Business Review, 2015, 66–74. Retrieved from https://hbr.org/2015/06/the-great-decoupling

Brynjolfsson, E., & McAfee, A. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. New York, NY: W. W. Norton.

Congressional Budget Office. (2011, October). Trends in the distribution of household income between 1979 and 2007 (Pub. No. 4031). Retrieved from https://www.cbo.gov/sites/default/files/112th-con gress-2011-2012/reports/10-25-householdincome0.pdf

Dobbs, R., Manyika, J., & Woetzel, J. (2015). No ordinary disruption: The four global forces breaking all the trends. New York, NY: PublicAffairs.

Dobbs, R., Ramaswamy, S., Stephenson, E., & Viguerie, S. P. (2014, September). Management intuition for the next 50 years. McKinsey Quarterly. Retrieved from http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/management-intuition-for-the-next-50-years

Dobbs, R., Smit, S., Remes, J., Manyika, J., Roxburgh, C., & Restrepo, A. (2011, March). Urban world: Mapping the economic power of cities (Report). McKinsey Global Institute. Retrieved from http://www .mckinsey.com/global-themes/urbanization/urban-world-mapping-theeconomic-power-of-cities

Esposito, M., & Tse, T. (2015). The world needs to stop relying on linear business models that produce waste [Web log post]. London School of Economics Business Review. Retrieved from http://blogs.lse.ac.uk/businessreview/2015/10/09/the-world-needs-to-stop-relying-on-linear-business-models-that-produce-waste/

The future of computing. (2016, March 12). The Economist. Retrieved from http://www.economist.com/news/leaders/21694528-erapredictable-improvement-computer-hardware-ending-what-comesnext-future

Godin, I., & Mariathasan, M. (2014). The butterfly defect: How globalization creates systemic risks, and what to do about it. Princeton, NJ: Princeton University Press.

Goos, M., Manning, A., & Salomons, A. (2014). Explaining job polarization: Routine-biased technological change and offshoring. American Economic Review, 104, 2509–2526.

Gordon, R. (2012, September). Is US economic growth over? Faltering innovation confronts the six headwinds. Centre for Economic Policy Research Policy Insight, 63, 1–13. Retrieved from http://www.cepr.org/sites/default/files/policy_insights/PolicyInsight63.pdf

Grace Communications Foundation. (n.d.). The hidden water in everyday products. Retrieved from http://www.gracelinks.org/285/the-hidden-water-in-everyday-products

Hern, A. (2015, February 3). Are driverless cars the future of Uber? The Guardian. Retrieved from https://www.theguardian.com/technology/2015/feb/03/are-driverless-cars-the-future-of-uber

Hoekstra, A. Y., & Chapagain, A. K. (2007). Water footprints of nations: Water use by people as a function of their consumption pattern. Water Resource Management, 21(5), 35–48. International Labour Organization. (2015, April). Trends econometric models. Geneva, Switzerland: United Nations.

Johnson, I. (2013, June 15). China's great uprooting: Moving 250 million into cities. New York Times. Retrieved from http://www.nytimes .com/2013/06/16/world/asia/chinas-great-uprooting-moving-250million-into-cities.html?pagewanted=all&_r=0

Piketty, T. (2013). Le capital au XXIème siècle [Capital in the twentyfirst century]. Paris, France: Seuil.

Rifkin, J. (2011). The third industrial revolution: How lateral power is transforming energy, the economy, and the world. New York, NY: St. Martin's Press.

Roland Berger Strategy Consultants. (2015). Roland Berger trend compendium 2030. Retrieved from https://www.rolandberger.com/gallery/ trend-compendium/tc2030/content/assets/trendcompendium2030 .pdf

Ross, A. (2016). The industries of the future. New York, NY: Simon & Schuster.

Sicular, T. (2013). The challenge of high inequality in China. Inequality in Focus, 2(2), 1–5. Retrieved from http://www.worldbank.org/content/dam/Worldbank/document/Poverty%20documents/Inequality-In-Focus-0813.pdf

Stiglitz, J. E. (2012). The price of inequality: How today's divided society endangers our future. New York, NY: W. W. Norton.

Taking a bite out of Apple: Xiaomi, often described as China's answer to Apple, is actually quite different. (2013, September 14). The Economist. Retrieved from http://www.economist.com/news/business/21586344-xiaomi-often-described-chinas-answer-apple-actually-quite-different-taking-bite-out

Terazono, E. (2015, October 4). Land the size of Great Britain needed to feed Chinese meat demand. Financial Times. Retrieved from https://www.ft.com/content/478ac130-6847-11e5-a57f-21b88f7d973f

Tse, E. (2015). China's disruptors: How Alibaba, Xiaomi, Tencent, and other companies are changing the rules of business. New York, NY: Penguin.

Tse, T., Esposito, M., & Chatzimarkakis, J. (2013). Demystifying youth unemployment. World Financial Review, 14(3), 34–37. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.692.8672& rep=rep1&type=pdf

Tse, T., Esposito, M., & Soufani, K. (2014, November 4). How companies can benefit from the circular economy [Web log post]. California Management Review. Retrieved from http://cmr.berkeley.edu/blog/2015/11/circular_economy/

Water Footprint Network. (2010). Water footprint data. Retrieved from http://waterprint.net/list_all.html

Williams, A. (2016, February 18). The robotics revolution: Why investment in robots is booming. City A.M. Retrieved from http://www .cityam.com/234883/the-robotics-revolution-why-investment-in-robotsis-booming

Woetzel, J., Chen, Y., Manyika, J., Roth, E., Seong, J., & Lee, J. (2015, October). The China effect on global innovation. London, UK: McKinsey Global Institute.

World Wildlife Fund (n.d.). Water scarcity. Retrieved from http://www .worldwildlife.org/threats/water-scarcity

The Xiaomi shock: China's booming smartphone market has spawned a genuine innovator. (2015, February 28). The Economist. Retrieved from http://www.economist.com/news/business/21645217-chinas-booming-smartphone-market-has-spawned-genuine-innovator-xiaomi-shock