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Introduction

In his bestseller *Sapiens: A brief history of humanity*, Yuval Noah Harari¹ draws on three historical periods, among them, the Cognitive Revolution.

The Cognitive Revolution, according to the author, boils down to the capacity for abstraction and memory that the human brain has. Only sapiens can talk about things they have never seen, touched or smelled. Thus, objective reality (rivers, trees and lions) comes in parallel with the imagined reality (gods, nations and myths), generating what he defines as a dual reality. Noah Harari's thesis states that the Cognitive Revolution was responsible for the sapiens extrapolating Dunbar's number², and maintaining social relations with empires and cities of tens of thousands of people.

Our cognitive capacity has evolved a lot since the Stone Age and, today, it is what allows us to be creative, innovative and highly efficient in the search for a common good. Thus, the proposal of our second letter of 2020 is to discuss topics that we have already dedicated a lot of time studying and researching, and that, due to the pandemic, have gained even more prominence.

Alea jacta Est³ or commonly translated as The Die is Cast. The determining factors of this new world have already been launched, and all that remains is to discover them.

"Without great solitude, no serious work is possible."

Pablo Picasso

50 years in 5: Plan of Goals.... in the technology sector

Even before its beginning, the Juscelino Kubitschek government had faced a series of difficulties. With the support of part of the public opinion, and with a fierce opposition, it was necessary to dare. Thus, through a developmental agenda, 31 objectives were created to be achieved in different sectors of the economy. The Goals Plan was born, which envisioned 50 years of progress in 5 years of government.

As history proves, there is nothing like a crisis to make the impossible possible. That's exactly what happens today.

Since March, our lives have changed completely. Schools, shops, restaurants, theaters, offices etc. have been closed around the world. As if by magic, cities were deserted and millions of people had to isolate themselves in their homes. All of this without prior notice or any type of preparation. Which undoubtedly made the experience even more complicated.

1. Israeli History professor and author of bestsellers *Sapiens: A Brief History of Humankind*, *Homo Deus: A Brief History of Tomorrow* and *21 lessons for the 21st century*. He teaches in the history department of the Hebrew University of Jerusalem

2. Dunbar's number defines the theoretical cognitive limit of people with whom an individual can maintain stable social relationships, that is, a relationship in which the person knows each member of the group and knows how close they are to each other. Proposed by Robin Dunbar, this number varies between 100 and 230 people, and has been cited in anthropology research across the planet. It should be noted that small communities - tribes, villages, groups of common interest - tend to stay within this range.

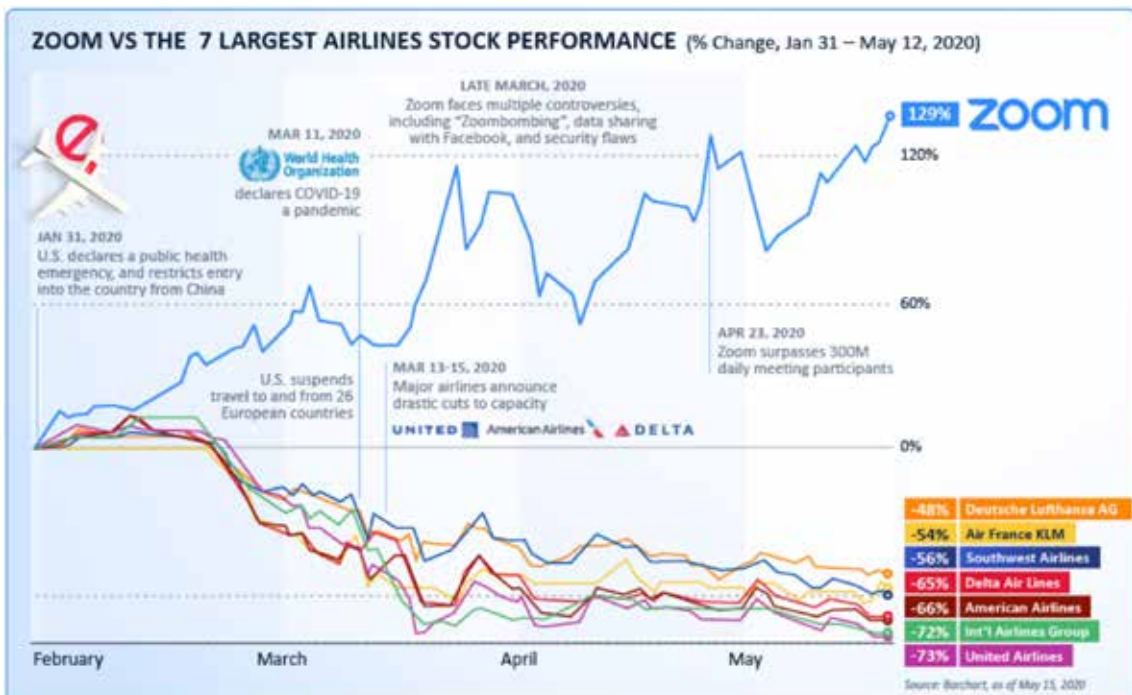
3. Latin phrase given by Júlio César when making the decision to cross, with his legions, the Rubicon River. In English, "the dice are rolled" or "the die is cast". Expression used to state that the determining factors for a result have already been realized, and that it remains now to discover them.

From this reality, we learn a new way of working, studying, cooking, playing, having fun and socializing, always confined within a bubble called social distance. Without many rules and without pre-established limits. After all, who has ever cooked while playing with children at the same time? Or has exercised from home while taking a video call? As in the case of the JK's Plan of Goals, people faced a steep learning curve. Only this time, 100% focused on the technology sector.

The word "zoom" has become part of our daily vocabulary, becoming the bridge that unites, horizontally, consumers and producers, and in a vertical way, the youngest with the elderly. This new world has made the technology company Zoom more valuable than the sum of the seven largest airlines on the planet, and has also made mega investor Warren Buffet review his thesis on the sector. In his annual meeting with shareholders held on May 2, 2020, he said that the perspective of these organizations was so uncertain that there was no justification for betting on their increases.

"The world has changed for airlines. The future is much less clear to me about what will happen to this sector."

Warren Buffet



Entertainment Industry

Video calling platforms were also responsible for bringing leisure and entertainment into our homes. Virtual concerts have multiplied around the world, with entire orchestras playing online. On March 15, 2020, a nine-hour virtual party was broadcast from an empty warehouse in New York to 5,000 guests from around the world.

Here in Brazil, data from ABRAFESTA (Brazilian Association of Events) show that the sector's activity has fallen by 90%. The showbiz⁴ industry had to reinvent itself with weddings, parties and virtual get-togethers, which, by the way, was presented as a great option in times of social distancing. The pinnacle of online entertainment started on April 18, when Global Citizen hosted an eight-hour webcast

“The performance of ‘Trolls 2’ convinced Universal executives that the digital debut is a winner, and could diminish the role of theaters, even after the pandemic.”

Jeff Shell (CEO of NBCUniversal)

with renowned artists such as Lady Gaga, Stevie Wonder, Paul McCartney, Billie Eilish, Rolling Stones, Elton John and many others. They performed from their own homes, and the show was seen by 23 million people around the planet.

Another particularly important change was the launch of the animated film “Trolls 2: World Tour”, which grossed about 100 million dollars, with almost 5 million domestic customers, in just three weeks, with theaters closed due to the pandemic. Awesome, right? Such success made Universal Pictures report that the premiere through VOD platforms would continue even after the pandemic.

Education and the edtechs

Education was another sector that had to be agile. An analysis by the *World Economic Forum* on the possible impacts of the pandemic in the area reveals an immediate change: millions of people are being educated thanks to the digital divide that has brought new pedagogical approaches through the use of technologies. This digital path was implemented as an alternative to closed classrooms, and has disrupted a sector that has always invested in a face-to-face model.

Given the positive results, we believe that, in the post-pandemic world, a greater number of institutions will adopt the hybrid teaching model, a model that integrates the best of offline and online educational practices. Expressions such as “blen-

ded learning” and “Lifelong learning”, which were already quite recurrent in Fuse Capital's internal studies, were readily included in the pedagogical discussions.

As the term suggests, and as it was summarized above, blended learning mixes the learning experience. In this methodology, there are times when the student studies alone, with the help of virtual tools, and times when learning happens in person, with interaction between the student and the teachers. We believe that this hybrid model ensures the pillars of education, and adjusts to the reality of the next generation, which will bring total immersion in the digital world.

In the book *Blended: Using disruptive innovation to improve education*, Michael Horn and Heather Staker present this concept of hybrid teaching and suggest a reference guide for implementing it, keeping the student at the center of the education system. According to the authors, this is the most

4. Informal expression for the show business industry.

important educational trend in the 21st century. It is not by chance that this educational program has been disseminated in several teaching networks around the world and has been providing a more efficient and personalized learning.

Again, it is not just the use of technology that is incorporated by the educational model, but the formulation of a student-centered method. According to Horn and Staker, only with the student at the heart of the educational system will it be possible to move between the online and offline universe, or between gathering knowledge inside and outside the classroom.

Another term that we are enthusiastic about here at Fuse Capital is *lifelong learning*. As much as it is not yet in evidence in Brazil, it is a natural progression from the hybrid model. After all, it also transfers responsibilities from teachers to students, from inside classrooms to outside.

Lifelong learning, brings the philosophy that it is never sooner or later to learn. The idea comes as a counterpoint to the educational model of the 20th century, which does not prepare students for life in the coming years. Which seems to make a lot of sense, given that 40% of jobs may disappear with the advent of artificial intelligence, as described by Kai-Fu Lee in his book *AI Superpowers*. So, why prepare ourselves with specific skills for an industry that may cease to exist in the years to come?

The book *Learning: The Treasure Within*, by Jacques Delors, extracted from a study done for UNESCO, says that education is based on four main pillars. The first is that it is necessary *to learn to learn*. In other words, combining a broad general culture with the possibility of studying, in depth, a small number of subjects. In a world where information is highly available, the temptation to get lost in an ocean of content is enormous. The second states that it is necessary to learn to execute. In today's world, skills to work as a team and face adverse situations are extremely valuable. In the third pillar, the person needs to understand the interdependencies within a project. This persons needs to be able

to understand the other and manage possible conflicts. In the latter, the person must learn to be, and be able to act with an increasing capacity for autonomy, discernment and personal responsibility.

*“Once you stop learning,
you start to die.”*

Albert Einstein

The health paradox and healthtechs

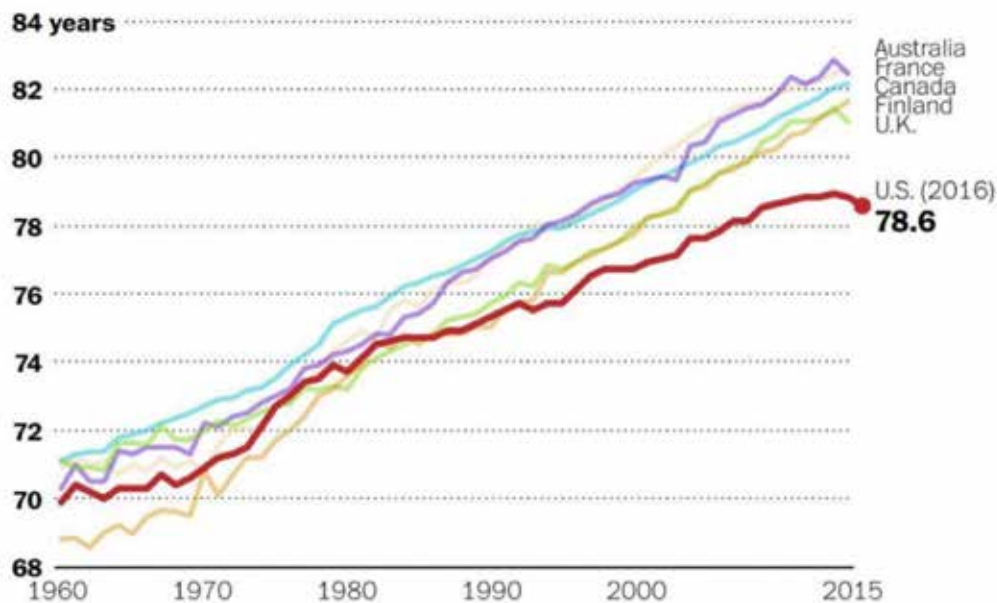
According to a study by Stanford University with 419 thousand individuals using wearables, two thousand persons received an alert that their heartbeat was irregular. Of these, 450 sought out a specialist, with atrial fibrillation being detected in 153 persons. The tendency is that the sensitivity and precision of the devices are improved in the next models, becoming important allies in the prevention of heart diseases.

The example above illustrates how the health sector can benefit from this technological revolution that we are going through. However, before addressing this topic, we need to go back in time and talk about a structural problem in the sector: the health paradox.

As we can see in Graph 1, a study by the Organization for Economic Cooperation and Development (OECD) and the United States Census Bureau, in 2016, shows that, for the first time in history, life expectancy in the richest country in the world has dropped for the third consecutive year, the result without exogenous variables in the equation, such as wars and epidemics. This data raised a red flag in the sector, and everyone began to wonder if the economic principle of diminishing returns had reached health.

American exceptionalism

Life expectancy at birth, selected OECD countries

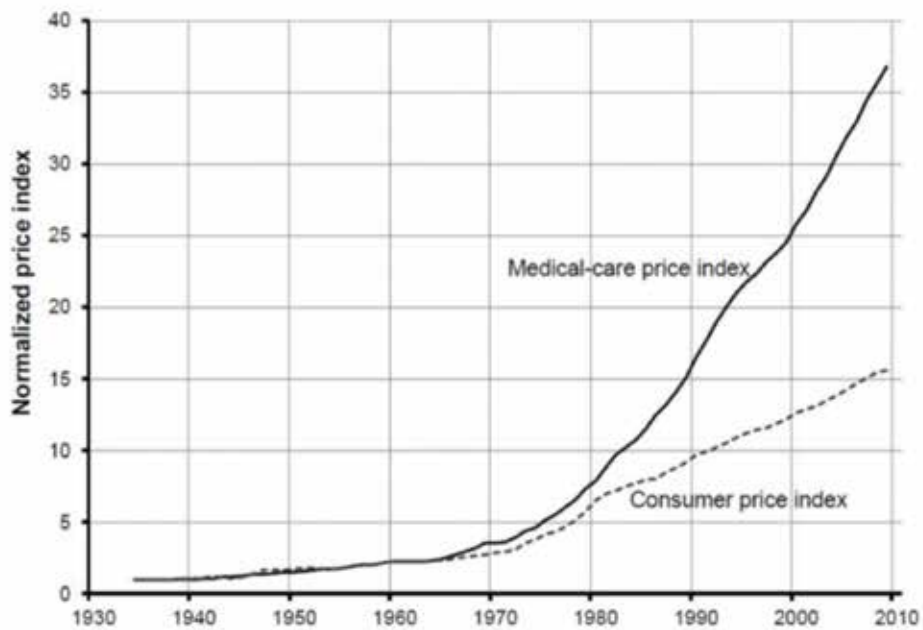


THE WASHINGTON POST

Source: OECD, U.S. Census Bureau

Graph 1: Life expectancy: 1960 to 2015. (OECD/ U.S. Census Bureau, 2016)

The most frightening aspect of this paradox is that life expectancy has been falling, even with the increase in spending in the sector. This effect is beautifully illustrated in Graph 2, when in 2013 the Census Bureau, compared the United States' medical inflation (*medical care price index*) with the CPI (*Consumer price index*). In other words, while you spend more, you spend poorly, and the balance is negative for most players in this industry. We draw a clear conclusion: the current model, where symptoms are treated, needs to be revised. It is precisely at this moment that prophylactic models, that aim to avoid the causes, begin to gain space. As the jargon says, it is necessary to treat prophylaxis to avoid claims.



Graph 2: Comparison between medical inflation in the USA and CPI: 1935 to 2009. (U.S. Census Bureau, 2013)

The use of telemedicine is a very controversial topic in conventional medicine, allowed in some countries, but not regulated in Brazil. However, as every crisis creates an opportunity, on March 23, 2020, the Ministry of Health issued an exceptional and temporary legislation that allows its use.

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Telemedicine makes it possible for healthcare professionals to consult with patients from a distance, through teleconsultation, telediagnosis, telecare and teleradiology. Those opposed to the novelty, with some reason, argue that the practice does not yet have specific legislation and, therefore, violates the Medical Code of Ethics. For this reason, the ordinance drafted, even if on a temporary basis, represented a milestone for this industry.

When we look at some side effects of such a practice, it is clear why we are enthusiastic on the thesis. We believe that telemedicine democratizes access to health care, standardizes diagnoses, allows real-time care and facilitates continuity in the supervision of treatment. Not to mention the cost reduction in the entire chain, thus attacking the health paradox, which, as mentioned above, is a structural problem in the sector.

Wearables, also known as smart wearable devices, are proving to be quite effective. They are able to monitor patients' vital signs, such as heart rate and sleep quality, and send the information directly to a healthcare professional or medical institution. Let's go to a practical case that was in evidence at the end of 2019. A Brazilian, resident of the United States, was alerted by his smart watch that his beats exceeded 140 bpm (beats per minute) for 10 consecutive minutes, and that this atypical pattern could cause an acute myocardial infarction. The patient was medicated in an emergency room, and his heart rate returned to normal. When posting on his social networks that he had been saved by his *Apple Watch Serie 5*, Tim Cook, Apple's CEO, wished him a speedy recovery and thanked him for sharing his story. According to the executive, he inspired the company to continue with this purpose. In addition to saving the life of this Brazilian, it became clear that *wearables* help to treat prophylaxis and not the claim.

Another relevant theme arises at this moment: the advent of Big Data and AI (artificial intelligence).

To exemplify, we will use as a basis an article of March 20, 2020 from the journal *Nature*⁵, a reference in the medical field. When a patient returned to Langone Health⁶ for a follow-up visit, the tests seemed to indicate that the medulloblastoma⁷ she had treated a few years ago had returned. With the diagnosis, the girl would start a new chemotherapy and radiation treatment. However, neuropathologist Matija Snurdel hesitated. She then turned to the computer.

The doctor inserted the results into an artificial intelligence system developed by a consortium that included researchers from the German Cancer Research Center in Heidelberg, so that he could classify the tumor. The result was surprising.

The cancer had returned as a glioblastoma⁸, a different type, which appeared to be the result of radiation from the first treatment. It is worth mentioning that a wrong cancer procedure can have several adverse effects, without destroying the real problem. This case of misdiagnosis is far from being a rarity. About 70% of the procedures are wrong, after all, oncology is not a precision medicine, and

is based on the trial and error method. Given this adverse probability, it is easy to imagine why these approaches are so costly, after all, more than half of the costs is not enough to solve the problem.

In the wake of the example above, in October 2019, Langone Medical Center's Perlmutter Cancer Center received approval from the State of New York to use its AI classifier as a diagnostic test. At the same time, researchers around the world are developing similar systems to help pathologists diagnose cancer more accurately.

"Technology should not replace experience and good conversation."

Jerry Sayre⁹

Social commerce and the new retail

Another current phenomenon is a company that goes by the name of ByteDance. At first glance, that title won't say much to some of our readers. However, ByteDance owns the TikTok video platform, which has nearly 1.5 billion active users and is expected to hire 40,000 people in 2020 alone. Founded in 2012 by Zhang Yiming, TikTok is the largest video sharing platform in the world. The user creates 15-second pieces and is able to add music and special effects. Before the pandemic, the company had benefited from English teenagers who were the first to experience the phenomenon outside China. When Boris Johnson announced the *lockdown* in British soil, 278,000 people downloaded it in the same week, which represented a 6% increase over the previous week. However, when the confinement was reinforced, this figure jumped an incredible 34%. Today, when we look at the location of users, "only" 500 million are in China. Which shows the strength of this global phenomenon. In the same way that the number of registrants exploded, its revenues, practically originating only from advertisements, also presented a similar performance. The most curious thing, and what

5. Nature is a British interdisciplinary scientific journal, first published on November 4, 1869.

6. NYU Langone Medical Center is an academic medical center located in New York City, affiliated with New York University.

7. Medulloblastoma is a cancer in the cerebellum, with fast growth, little invasive and more common in children. It originates in the most primitive neurological cells in the cerebellar medulla.

8. Glioblastoma multiforme (GBM), also known as grade IV astrocytoma, is the most common and aggressive type of malignant brain tumor that affects humans. The initial signs and symptoms are varied and include headache, personality changes, nausea and stroke-like symptoms.

9 Jerry Sayre is a physician in the family medicine department at the Mayo Clinic in Jacksonville, United States.

has been attracting more and more advertisers, is that the social network uses artificial intelligence to show only what most interests the user. Thus, the ads are more assertive and generate more conversions. In other words, the app only shows you what you want to see. During the pandemic, TikTok is participating in a secondary fundraising¹⁰, and saw its market value rise by 30%, now worth 140 billion dollars.

The immense popularity and influence of social media has created a potential audience for purchases through these platforms. According to a report by *GlobalWebIndex*, internet users spent an average of 142 minutes per day on networks in 2018, well above the 90 minutes recorded in 2012.

Social commerce was introduced by Yahoo in 2005, and describes a set of collaborative online shopping tools. An example of this concept was found in the sports shoes market. Brands left traditional media, where communication was more distant and less assertive, to a field of greater conversion. With this new channel created by social commerce, companies realized that on the internet there were real users (advocates) - the heavy users - and a better seller of their products. In other words, it was as if they could fish in an aquarium. And nobody did it better than Nike.

in the next five years, more than 50% of its growth should come from new technologies, that its digital revenue would go from 15 to 30% and that 75% of this increase should come from countries other than the United States. With this guidance defined, it was natural for the company to start focusing on the second structural project: 2x Direct.

2x Direct is nothing more than breaking the barriers between physical and digital commerce. In the CEO's own words, expanding associations in other channels. Adding new users, increasing engagement and improving conversion have become targets for executive compensation. Let's take the running shoe market as an example, which, although Philip Knight and Bill Bowerman created the company with this backbone, it was behind its competitors for many years. But Nike has never been stopped.

While the organization continued to engage professional and amateur athletes, a series of information was transmitted just in time to the company. The 2x Direct project was fundamental as a bridge between the data passed by influencers and users and the research and development sector. It was then that Nike launched the Vaporfly 4% sneaker, which evaporated worldwide in minutes. It is important to note that not even the price positioning

“The way to communicate today is not by speaking, but by listening.”

Nizan Guanaes

To understand this change in more depth, we need to remember the letter that Nike wrote to its shareholders on July 24, 2018. Mark Parker, then CEO and chairman of the company, addressed some structural changes in concept and purpose the company had been going through. First, he spoke of the triple-double strategy¹¹, which focused on the three main areas of the company's new profitability and growth phase: innovation, assertiveness and speed. These transformations represented more than a simple change, they would catalyze an intense process that the company would go through. To fulfill these ambitions, Nike stipulated that,

well above competitors reduced momentum. The feedback strategy of both amateurs and today's greatest professional runner, Kenyan Eliud Kipchoge, helped in the creation of a highly technological footwear.

By combining the sole with Zoom X foam (more responsive, promising to generate 4% more running efficiency), VaporWeave material (lighter and water resistant), and, as the company itself stated at launch, “a secret weapon in the midsole”, Nike broke paradigms in the sports shoe sector. A carbon plate was strategically inserted in the midsole,

10. A secondary offer is when they do not involve the issue of new securities, characterizing only the sale of existing shares. In general of the partners who want to divest or reduce their participation in the business. The resources, therefore, go to the salespeople and not to the company's cashier.

11. Double triple is an individual statistic in basketball, when the player scores two digits in at least three aspects of the sport: assists, points, rebounds, steals and stumps.

thus generating a feeling of propulsion that helped to increase speed. If all this technology kit was not enough, the company created a fantastic marketing campaign for the launch of the sneakers: *Breaking 2*¹². With technical advances and critical success, the International Association of Athletics Federations (IAAF) decided to investigate whether the new shoe could represent technological doping. It is worth mentioning that the request for investigation came from athletes sponsored by competing brands. However, the conclusion was negative, and some companies are already incorporating this technology in their shoes.

“We don’t respond as individuals, we respond as Nike. But that doesn’t mean we don’t treat every conversation as if we’re talking human to human.”

Wes Warfield¹³

12. Breaking2 was a Nike project to break the two-hour barrier in a marathon. Nike announced the action in November 2016, and created a team of three elite runners who trained for a private race. The event was held at the Monza race track, in Italy, on May 6, 2017. Eliud Kipchoge did not hit the mark for an incredible 25 seconds. The time of less than two hours, however, was reached on October, 12th 2019 by Kipchoge himself at an event promoted by the British chemical company Ineos.

13. Nike social media manager.

Conclusion.

By reading Leonard Mlodinow's great book *The Drunkard's Walk: How Randomness Rules Our Lives*, I came across an intriguing quote in chapter 9: "In fact, in recent years, psychologists have found that the ability to persist in face of adversity is at least as important a factor as talent in the search for success." I found it intriguing because, in the previous letter, we talked a lot about the resilience of the entrepreneur we seek and how it proves even more important in times of crisis. Remember that in the same letter, we use a phrase by Winston Churchill to define success, which goes against the aforementioned thesis: "Success is the ability to go from failure to failure without losing your enthusiasm." Leonard Mlodinow, in the above excerpt, makes reference to a 2005 work, written by Peter Dinklage and entitled *The Winning Edge*. The paper contains a series of studies that aim to quantify the role of effort, intelligence and other skills in achieving success. In the wake of the "10-year rule", studies show that 25% of the differences between individuals in job performance can be attributed to their IQ. Personality, creativity and luck factors contribute to the other 75%. This theory, by the way, was described by Malcolm Gladwell in his bestseller *Outliers: The Story of Success*.

Lewis Terman, a famous psychologist who accompanied a group of talented boys from infancy to middle age, reported that "persistence in achieving ends" was one of the factors that distinguished successful men from less fortunate ones. In a praised article in the literature that addresses giftedness, the educational psychologist of University of Connecticut, Joseph Renzulli, director of the national gifted and talented research center, argued that perseverance, endurance and hard work are the three essential components of those who have the mental capacity significantly above average.

There are many studies that also correlate perseverance with passion for the purpose. Since on many occasions, passion does not necessarily come before hard work. Often, the most fascinating aspects of a topic only become visible after deep immersion. In other words, persevering people end up becoming passionate about their purposes.

For others, persistence can arise from the desire to test the limits. For an endurance athlete, the challenge of a marathon or an Ironman means much more than just a race or a triathlon. It is a representation of how life should be viewed, with focus, determination, overcoming and a lot of resilience. Lance Armstrong perfectly defines this feeling in his biography, where he explains that his best quality was not riding a bicycle, but finding comfort in discomfort.

Always be persevering and never give up on your dreams. And don't forget: times of crisis are recognized drivers of smart business opportunities.

"I want you to think of me knowing that I am comfortable being totally uncomfortable."

David Goggins¹⁵

¹⁴Lance Armstrong is a former American cyclist. He was famous for winning the Tour de France seven consecutive times - an absolute record - between 1999 and 2005. He was subsequently caught up in a big doping scheme and was banned from the sport.

¹⁵David Goggins is an ultramarathon runner from the United States, long distance cyclist, triathlete, motivational speaker and author. A retired SEAL of the United States Navy and a former member of the Air Force's Tactical Air Control Party, he served in the Iraq War. Only man to complete SEAL, Rangers and Air Force Tactical Control training. He completed Hell Week three times, the last with a broken ankle.

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"By entrepreneurs, to entrepreneurs"