



BUILDING BLOCKS FOR THE FUTURE

TAKEAWAYS FROM
BIN@MINAS2022

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Open Innovation in the making!

Business & Innovation Network (BIN@) is an informal international network of academic and industry partners engaged in supporting the creation of a sustainable forum for sharing good practices and opportunities in innovation. BIN@ promotes a set of activities ranging from brokerage events to soft landing opportunities for start-ups. BIN@ has currently around 5000 delegates worldwide and so far has held 16 international events in Portugal, UK, Brazil, Romania, Poland and in the Netherlands.



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Building new business models through innovation.

Created in 2013, in Belo Horizonte (MG), the venture builder is a multinational company that connects investors, startups, corporations and universities to develop innovative businesses that impact people's lives. Aiming to enhance the innovation ecosystem in Brazil, today it is the segment leader in Latin America and has venture builders spread around the world.

everythink

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Thinking about things that don't exist... yet.

Everythink is an award-winning studio for creativity, design and innovation. Through design, we put creative methodologies and strategic thinking at the service of companies' innovation to create new services, products and experiences with the drive is to impact people in a positive, easy and happy way. Everythink offers a cross-pollination approach in different sectors such as health, medtech, aeronautics, mobility, home, office, retail, smart living, smart cities, arts, and leisure.

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**“AN INFRASTRUCTURE THAT
ENCOURAGES AND SUSTAINS
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A NECESSARY AND IMPORTANT
ELEMENT OF ANY MODERN
ECONOMY THAT WANTS TO
REMAIN AT THE CUTTING
EDGE OF HIGH ECONOMIC
GROWTH AND TECHNOLOGICAL
LEADERSHIP ...”**

Rebecca Blank

former Acting Secretary of the U.S.
Department of Commerce

This quote makes us reflect that in a market in constant and rapid mutation, existing companies are being called to innovate, develop products, strategies, and disruptive technologies in order not to stagnate and disappear, just as many new ventures are being born every day.

We are living in a scenario of constant change in a fast and complex way. In this context, economies that are taking care of the development and acceleration of digital knowledge production through established companies and new ventures demonstrate that they can meet people's needs because they solve real existing problems and, therefore, generate wealth and prosperity.

Just as companies are being called to innovate, academia is another important part of this engine, generating research and knowledge. Connecting these two stakeholders of the entrepreneurship and innovation world is a structural part of the BIN network's mission, which at each meeting held, provokes discussions and reflections for a growing and solid cooperation between these two entities.

It is in this context that the central theme of the 16th edition of the BIN network was born - the BIN@Minas - The Growth of Innovation Economy - edition held in the city of Belo Horizonte, MG/Brazil, in October 2022, promoted by FCJ Venture Builder in collaboration with the Faculty of Engineering of the University of Porto (FEUP).

The key premise of this edition, in Minas Gerais, was to bring to light the innovation agenda that often starts from the knowledge generated within academia, which in cooperation with companies, can transform knowledge into products and services for a more prosperous society.

BIN@Minas brought together about 60 experts in innovation from various economic sectors. In this White Paper we selected 9 of them that leave us relevant content and success cases in their various areas: nanotechnology of the soil; design under context; design transition to low-carb energy and decarbonization; environmental, social, and governance (ESG); conscious capitalism; sustainable mobility and energy transition; organizational culture; open finance; metaverse.

We wish everyone an excellent immersion in the contents presented at BIN@Minas 2022!

Flávia Guerra

Europe Expansion Director at FCJ Venture Builder

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THE TALKS



Diego Siqueira - Agronomist Engineer class of 2003 and post-doctorate from UNESP Jaboticabal with focus on methodologies for sustainable tropical agriculture and natural soil nanoparticles, worked in different ecosystems of applied science and innovation in Brazil as Supera Park, Innovation Network of Unesp, Anprotec and Brazilian Society of Soil Science. He was co-founder of technology-based incubator and innovation Hubs focused on agro. He is currently a mentor in Innovation Hubs, a professor in the Post-graduation in Soil Science at Unesp in the area of soil sensors and Executive Director at Quanticum, a technology company with Unesp DNA. In 2021 the company was TOP6 in innovation in agro, TOP3 in software and ecosystem services and reference at COP26 in sustainable soil management solutions.

Diego Siqueira, Quanticum

WHERE IT ALL BEGINS

NANOTECHNOLOGY OF THE SOIL

It is undeniable that Agricultural Revolutions transform not only agricultural culture, but have influenced the history of humanity in the countryside or in the cities, whether in family activity or in large companies, governments, and funds. From the first stone tools in agriculture until we migrate to new productive systems using 5G, nanotechnology, and genetics, one factor is still the same: the SOIL. The sustainability and environmental service potential of this great asset called SOIL is at the center of attention in the 4th Agricultural Revolution that has already begun. In this text we are going to talk about how innovation and new technologies for SOIL can balance consequences caused by previous agricultural revolutions. Tropical SOIL and its natural nanoparticles are part of this solution in bioeconomy, biome regeneration, low carbon technologies and circular economy in mining.

SOIL NATURAL MARKERS: NATURAL QUALITY FOR AGRICULTURE AND ENVIRONMENTAL SERVICES

Agricultural and urban soils have great potential to positively impact social and environmental actions. About 4 out of 10 Brazil's green bonds come from the sustainable land use sector. Eco-efficiency, soil health diagnosis, sustainable production fiber, forest management and regenerative agriculture have been already in progress. The soils tropical soils are strong Brazilian allies in the international green bond market. According to the Food and Agriculture Organization (FAO), 2/3 of terrestrial carbon is stored in the soil. Therefore, any change in this natural reservoir significantly affects the CO₂ concentration in the atmosphere.

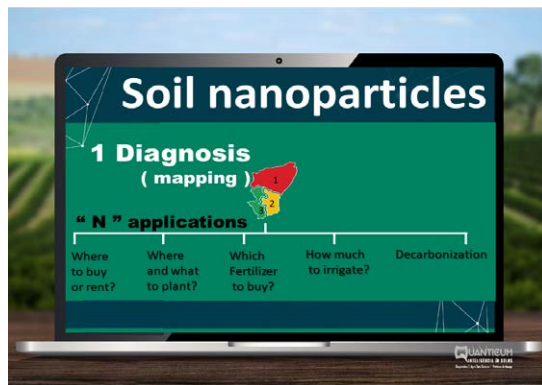
The case solution of Nanotechnology of the Soil, is related to the identification and mapping of minerals naturally present in the Earth's

soils. These minerals are nanometric structures in order of 2 millimeters divided in more than 1,000 parts. They are protein-sized structures or even of SARS-Cov-19 virus particle size. These nanoparticles manufactured by nature have a great capacity of reactivity with other compounds of the environment, such as carbon, gases, plants, animals and agricultural inputs, as nitrogen fertilizers. In some cases, about one gram of these minerals (nanoparticles that are formed in the soil) has a reactivity surface equivalent to 100 square meters; it means that 100 grams of minerals have the same reactivity area of the Maracanã field. This is the same principle of specific surface that results in CO₂ filtration by the lungs and absorption of nutrients by the intestine. As smaller the structure, more reactive it is.

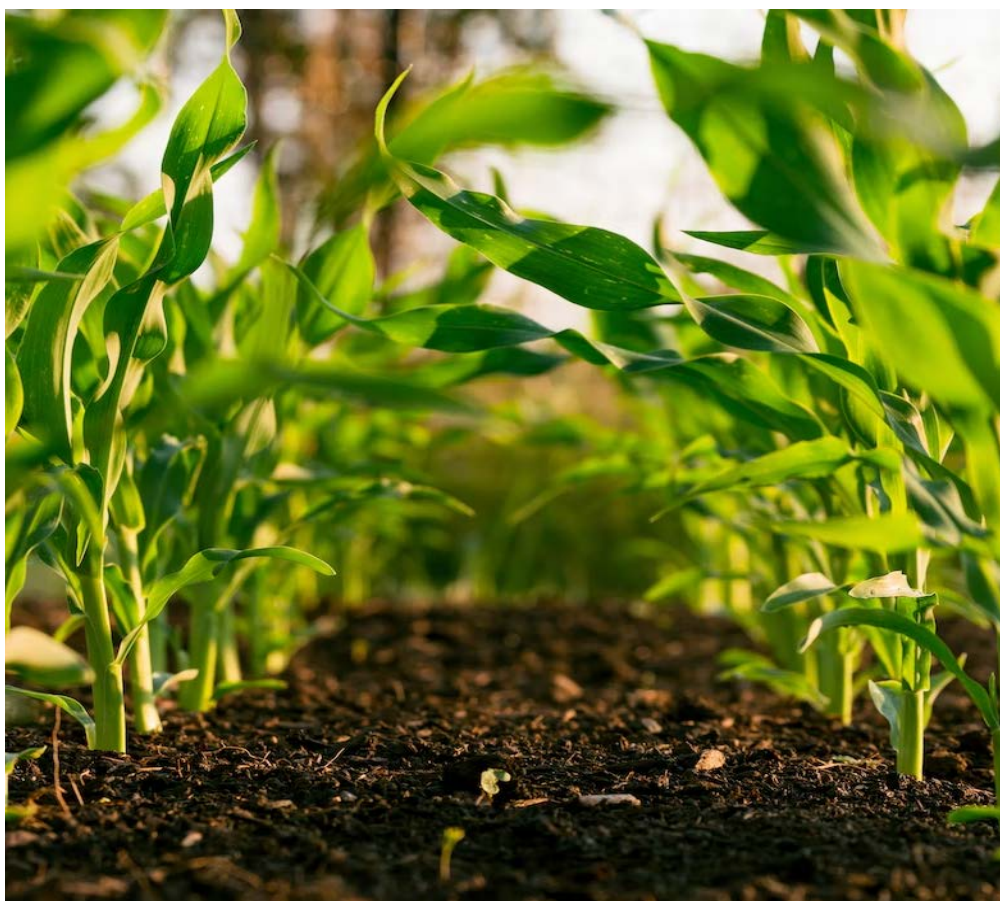
Fig. 1 - Natural nanoparticles from the soil (soil minerals). Minerals make up 50% of the world's soil.



Fig. 2 - Applications of Soil Nanotechnology in regenerative agriculture.



The pilot projects carried out in different contexts of Brazilian agriculture and supported both by research institutions and productive sector, show that when these nanoparticles of soil, also called clay typology, are diagnosed, mapped, and direct the deployment of good practices for agricultural management, different sustainable gains and benefits are obtained, among them: a) identification of areas with different phosphorus sorption potentials (more than 300% of variation in the sorption potential, 200 up to 800 mg/kg of adsorbed phosphorus in places with different clay types); b) variations in compaction potential of the soil in the order of 30% in the same soil type. The compaction is a form of soil degradation and requires an agricultural practice called decompaction. It is one of the practices with the highest consumption of fuel and gas emissions. The mapping of the clay typology helped to reduce more



than 20% in the fuel consumption and CO₂ emission in an area of bioenergy production; c) strategic use of wastewater, for example, the vinasse support capacity (m³/ha) varies more than three times depending on the clay typology; d) Variation of the erosion potential in the order of 0.2 to 1 ton/ha/year in soils with 80% of straw coverage, but with different clay typologies; e) identification of areas for application of pre-emergence herbicides and nitrogen fertilizers with variation of more than five times in the degradation potential of molecules depending on the clay types. These are some examples of indirect impacts in the reduction of gases from different agro-related sources and chains related with typology of clays.

The potential of soil carbon stock is a consequence of the factors and natural processes of soil intensified by management. Mapping the quality of clays involves identifying places with different potentials of gases emission in order to store carbon, besides to help in the development of an action plan for carbon credit. Suitment of management practices aiming to maximize the carbon sequestration into the soil considering the quality of clays is already an available alternative for the sustainable market.

CONSIDERATIONS

The better comprehension of the various dimensions, ecosystem actions, impacts and opportunities generated by the “land” is related to the governance of the soil and society evolution in a more balanced way. The next steps of this nanotechnology of the Soil are related to the expansion and implementation of good practices methodologies and to a regenerative agriculture based on the typology of clays in more agricultural areas in Brazil.

Currently, Brazil has about 18.6 million hectares cultivated with perennial crops (e.g. coffee, sugarcane, citrus and eucalyptus) and approximately 35 million hectares cultivated with annual crops such as cereals and grains. It is in the soil that agriculture begins!



Júlio Martins - Co-founder and managing partner of Everythink, Lda, since 2008. Several participations as a speaker in national and international events, on the themes of design, creativity, entrepreneurship and business. In the context of activity at Everythink, Júlio Martins is dedicated to the development of products, services, strategies, businesses and experiences in the health and medtech sectors, mobility and transport, including autonomous vehicles and aeronautics, smart homes/smart cities, including projects in the arts and leisure sectors. Everythink's design has won several iF Design Awards, among other design awards and recognitions. It maintains a regular and committed participation with the BIN@ Network since its inception.

Júlio Martins, Everythink

MAKE IT REAL

DESIGN UNDER CONTEXT

We believe there is always a better way of doing things. But despite having excellent ideas, it is not easy to make them come true because creative processes are increasingly demanding, involving different kinds of interactions and within contexts that are complex and, often, invisible. Therefore, the role of design is to think about the challenge globally, helping to better look at them better and start building from simple but foundational elements.

CONSCIOUS AND SUBCONSCIOUS INNOVATION

Humanity's evolution resulted from its natural propensity to adapt to the environment and to endow itself with extensions of its natural capabilities. Adaptation is clearly observable through the studies undertaken by Darwin and the extensions are so relevant that they serve as a reference to several eras of Humanity (Iron or Bronze Ages, for example) where tools offered an indelible impact on human evolution.

This sense and evolutionary dynamic, which has distinguished the human species from the others, results from different motivations. The survival instinct instigates adaptation. But this is an aspect that cuts across animals, plants, ecosystems, the planet... Then, nature programmed us to seek solutions to our needs, increasing our capacity to contribute to our own survival, through protection, facilitation of processes and continuous exploitation. But, additionally, from the person's point of view, the need has moved to yet another level, that of novelty and fruition itself. Something that embraces a need farther from the instinctive response to survival and closer to satisfying curiosity, emotional enjoyment, ownership enthusiasm or pleasure.

In parallel, from another point of view, of a company, novelty seems to close the cycle, as innovation becomes central to survival, as a survival instinct of the company and, even so, of the people themselves. And this cycle, we can even dare to also call it sustainability.

GREAT IDEAS ARE NOT GREAT DEEDS

But still, although people's natural instinct offers them many ideas, these do not come to life spontaneously. They require an increasingly complex set of actions, thoughts and constructions within a given context.

Thus, there is, from the outset, a large majority of ideas that do not even come to life and we can point out several reasons: either because of the complexity, often unexpected, that their implementation involves, or because of the lack of resources like, for example, funding, time, equipment, scientific knowledge or technical capacity, or even, due to a vicious cycle of iteration, focused on the mirage of the ideal solution, which does not arise and, perhaps, does not even exist, but constantly inhibits and blocks the consolidation and materialization of an idea that, although not perfect, could, in many cases, be viable and contribute to

many people needs satisfaction.

Then, there are ideas that even come to life, but which for various reasons do not turn out to be interesting to people, because the identified need is not as urgent or because they do not satisfy the need at a price that corresponds to the value that people attribute to him. And, afterwards, there are still ideas that already have a life of their own and attract people interest, but for some reason, fail in the market traction, in the production capacity, in the after-sales assistance or in the market positioning, making people to lose interest or do not identify with the product or brand.

Only when this valley of death is crossed, ideas come to life and impact people's lives. Hence, the responsibility of whoever works on the ideas has to do it in a careful way, properly nourishing these fragile 'creatures' until they are sufficiently robust.

CHALLENGES ARE INCREASINGLY DEMANDING

For proper growth, then, different nutrients are needed, and it is necessary to create the right conditions for ideas to flourish. The creation and development of a service, product or experience often presuppose fertilization by science, design, engineering, manufacturing, and, particularly, by people themselves, who relate to creations through style. or emotion, through an interface and communication mechanisms.

In addition to direct interventions for the germination of the idea and its implementation, it is not enough to look inside. It is necessary to look outwards, to the environment that surrounds it, its own ecosystem, because understanding the context of a new product or service anticipates challenges, prepare the market and investment, and mitigate risks.

In this ecosystem, we have, as a central element, the person - people - in different roles, whether users, influencers, decision makers, blockers, inhibitors, etc... that interfere in the process and its success. It is for people and with people that products and services are created, and it is, therefore, so important to understand their needs, how much they're valued and how storytelling and emotional triggers are associated. Then we have the market, which from a technical point of view can be analysed through positioning, price or competition, but, once again, boils down to people, and several other aspects, related to manufacturing, logistics, sustainability, or the regulatory context, which force us to understand the economic viability of our idea. Business models, manufacturing processes, service models, distribution, maintenance, social media management, social and environmental responsibility, intellectual property, certifications are also aspects to take into account to anticipate the implementation and deployment of the idea.

THE ROLE OF DESIGN

Design acts as a uniting point of this universe, in its vocations of foreseeing, seeing, and making others see. It can assume roles of moderation, diplomacy, negotiation, and analysis of the impact of decisions, matching the different stakeholders of the process.

In this context, it can be difficult to synthesize, analyse, define, align, and implement the different positions, which is why it is very important to decide, condense and summarize the requirements around the market and product (Market and Product Requirement Documents)

Design can also contribute in a very important way to help generate impact through Design Thinking, Systems Thinking, Open innovation, Cross-pollination, or Analogous markets approaches, for example.

It is important to understand that Mobility, the renewal of people, the transformation of businesses, the disruption of paradigms and knowledge, require continuous monitoring and a quick reaction. Mutation is constant and it is not enough to believe what we know about the business.



Photo by Clay Banks on Unsplash

THE IMPORTANCE OF THE CHOICES THROUGHOUT THE PROCESS

Creative processes are, eminently, processes of choice. And the impact of choices is huge. It is true that today's options can be changed by decisions to be taken in the future. But the more sustained and considered the decisions, the more robust, resistant, and adapted our proposal is and the more impact and benefit it will bring to people.

Also, the impact of a decision may assume a positive reinforcement for the future, but it can be assumed

under the effect of a snowball that will only accumulate problems in the future, so it is important to know what to do, but also why to do it.

Because there are no perfect solutions, there are balanced solutions: instead of the optimal solution for the user or for a given manufacturer, it is essential to find a balance of factors that privileges the optimal and most balanced solution for all the players, prioritizing them and assuming the commitments more suitable.



Antonio Harley Anselmo, AHRPI Consultoria
Graduated in Civil Engineering in 1987, holds an MBA from Fundação Dom Cabral, 1997. In 2011 attended the "Transformational Leadership Program" at MIT- Massachusetts Institute of Technology. Specialist in Renewable Energy from UFMG – Federal University of Minas Gerais and a master's student in hydric engineering at UNIFEI – the Federal University of Itajubá in MG. He acted as General Manager of engineering and development of the energy business of Vale S.A., acting globally for 15 years. He managed the recovery of the areas affected by the Samarco dam collapse in Minas Gerais. He worked for 11 years developing infrastructure projects in Africa, Asia, and South and Central America for Andrade Gutierrez.

Antônio Harley Anselmo, AHRPI Consultoria

TRANSITION TO **LOW-CARB ENERGY** AND DECARBONIZATION

This article summarizes research carried out in the last two years on the energy transition and decarbonization theme. It presents the author's motivation to delve into the subject, showing the current scenario and where we want to go. In addition, it brings the main challenge to reaching net zero by 2050, according to the leading international energy agencies.

Paul Hawken wrote in his book. Drawdown: "Sometimes, when a concept or institution reaches its logical conclusion, the world looks at the results and cries: "Never again." For naughty ideas - from totalitarianism to fossil fuel dependence - saying "never again" isn't enough. Humanity needs other, better ideas to take their place. That's where we are today. We know we can't avoid the cataclysmic impacts of global warming by only focusing on achieving zero net carbon emissions; we must also rapidly re-sequester carbon". (HAWKEN, 2017)

Bill Gates wrote the book “How to avoid a climate disaster: The solutions we have and the breakthroughs we need.” after a decade of studying the causes and effects of climate change and presents five questions for reflection: “1) How much emissions are we talking about? 2) What proportion of greenhouse gases are generated by the things we do? 3) How much energy is used? 4) What resources do we need? And 5) How much will it cost? (GATES, 2021)

This paper aims to alert society to the global warming scenario, to present some risks of using fossil fuels, and, above all, to bring the main insights for the energy transition to low carbon emission sources. Analyzing two of Bill Gates’ questions, how much energy we use and what resources it will take to reach Net-Zero seem especially

pertinent in this context.

This article results from a study carried out in the last two years, going through the COVID-19 crisis and, recently, the war in Eastern Europe.

The motivation for this work came from a question by the UN Climate Agency, “How can net zero be achieved? Transitioning to a net-zero world is one of humankind’s most significant challenges. It calls for nothing less than a complete transformation of how we produce, consume, and move about. The energy sector is the source of around three-quarters of greenhouse gas emissions today and holds the key to averting the worst effects of climate change. Replacing polluting coal, gas, and oil-fired power with renewable energy would dramatically reduce carbon emissions”. (UNITED NATIONS, 2020)

WHAT ARE NET-ZERO AND DECARBONIZATION?

The United Nations in Climate Action Agency defines Net-Zero as cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere by oceans and forests, for instance. (UNITED NATIONS, 2020).

Seeking the NZE is paramount to avoid the worst impacts of climate change and preserve a habitable planet. The Paris Agreement determined that global temperature rise needs to be limited to 1.5°C above pre-industrial levels. Today, the earth is about 1.1°C warmer than in the late 1800s, and emissions continue to rise. Thus, keeping global warming at a maximum of 1.5°C, emissions need to be reduced by 45% by 2030 and reach net zero by 2050.

In this scenario, the decarbonization of the global energy matrix is essential to achieve the goals defined in the international climate agreements. The decarbonization of the matrix is the mitigation, cessation, or reduction of carbon in the atmosphere. A shift to energy sources or materials that emit less carbon will be required instead of using fossil fuels high in carbon. It will also be necessary to neutralize

any carbon emitted. Decarbonization means efforts to keep global warming to 1.5°C above pre-industrial levels by limiting the accumulation of atmospheric greenhouse gases.

WHERE ARE WE, AND WHERE SHOULD WE GO?

The scenario for having Net Zero Emissions by 2050 (NZE) aims to show what different actors in key sectors need to do and when the world will achieve net zero carbon dioxide emissions from energy and industrial processes by 2050. The energy sector accounted for approximately three-quarters of global greenhouse gas emissions. Achieving zero emissions from energy and industrial processes by 2050 in the NZE does not depend on actions in sectors other than energy, but limiting climate change requires such effort. Taken together with all other measures to reduce greenhouse gases, achieving zero carbon dioxide emissions in the energy sector by 2050 corresponds to approximately a 50% chance of limiting the long-term average temperature rise to 1.5 degrees Celsius without exceeding it.

Growth in renewable energy production has been strong over the

past decade, and more and more governments and companies have committed to net-zero goals. At the same time, the energy demand continues to grow, and the production of fossil fuels has also increased to meet the demand. Fossil fuels account for over 80 percent of the world’s primary energy. (MCKINSEY & COMPANY, 2022)

The current share of primary energy from fossil fuels still dominates and has only slightly decreased from 85% to 82%. For example, coal production in India and China alone has increased by 600 million tons since 2011. Rising

energy demand in both countries has led to a 10% increase in coal production in India and nearly 30% in China. India. Indonesia produced 260 million tons more coal in the last decade.

The world’s evolution towards cleaner energy has accelerated. During the last decade, renewable energy production (e.g., wind, solar, and hydropower) has doubled worldwide. Its total primary energy consumption share increased from 9% in 2011 to 13% in 2021. The installed capacity of wind and solar energy quadrupled during the same period (Figure 2).

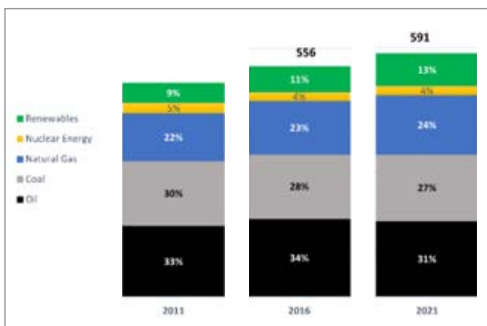


Figure 1: Primary Energy Consumption - exajoules

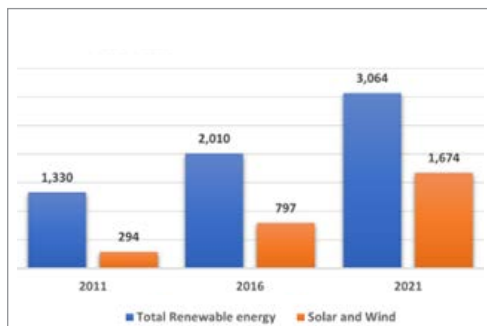
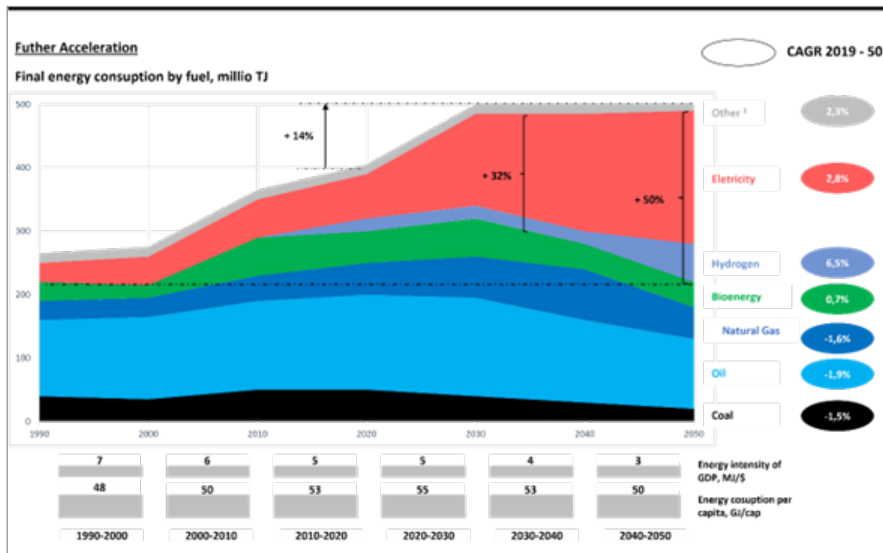


Figure 2: Renewable Energy Installed Capacity



A study by McKinsey & Company shows (Figure 3) that the global energy mix is projected to shift rapidly toward power and hydrogen. The share of electricity and hydrogen in final consumption could grow to 32% by 2035 and 50% by 2050. (MCKINSEY & COMPANY, 2022)

Global energy consumption is predicted to decrease in the coming decades on a per capita basis but still grow in absolute numbers. Despite the rapid growth of the global economy and population growth of two billion people, energy consumption is expected to grow by only 14%

The continued decrease in energy intensity is a key factor triggered

by better buildings, transport, and transportation end-uses, to the industry. Electrification plays an important role here, as the transition to electric solutions will lead to gradual efficiency changes in many segments, such as space heating and passenger cars.

The role of electricity in final consumption is foreseen to grow from ~20% to 40% by 2050. A doubling of electricity consumption with hydrogen consumption is projected to offset fossil fuel consumption (excluding primary demand for coal and gas for electricity generation), which could be ~40% lower in 2050 compared to 2020. (MCKINSEY & COMPANY, 2022).

GLOBAL ENERGY CRISIS CAUSES AND IMPLICATIONS

The world is experiencing a global energy crisis of unprecedented scale and complexity. Europe is at the center of this crisis, but it has enormous ramifications for global markets, policies, and economies. Often, the poorest and most vulnerable are likely to suffer. Tensions did not start with the Russian invasion of Ukraine but were heightened mainly by it. Extraordinarily high prices have led to a reassessment of energy policy and priorities. The chaotic energy relationship between Europe and Russia calls into question the viability of decades of fossil fuel infrastructure and investment decisions. The international energy trade is profoundly restructuring, creating new market risks while addressing long-standing weaknesses.

The contours of this new world are not yet fully defined, but there is no turning back (INTERNATIONAL ENERGY AGENCY, 2022). We know from past energy crises that the adjustment process will not be smooth. This

adaptation will also occur as part of the government's commitment to the transition to clean energy. The central theme is how the levers of technological change, innovation, trade, behavioral change, and investment can drive the safe transition to a zero-emissions energy system, minimizing potential risks and trade-offs between different policy objectives.

A global energy crisis caused by the Russian invasion of Ukraine has far-reaching consequences. The impact on households, businesses, and the broader economy led to an immediate government response and a more profound debate on reducing future continuity risk and improving energy security. The crisis is global, but Europe is the main stage of this crisis, and gas is in the spotlight, especially with the arrival of winter in the northern hemisphere.

Rising energy prices are triggering a massive shift in wealth from consumers to producers, with oil returning to 2014 levels but

unprecedented for gas. High fuel prices account for 90% of the increase in the average global cost of electricity production, with natural gas alone accounting for more than 50%. The costs of renewable energy and carbon dioxide played only a small role, suggesting that this is a crisis and that the energy transition is the solution, not the problem.

Financial and pricing pressures mean that the number of people without access to modern energy is increasing for the first time in decades. Some 75 million people with new access to electricity risk losing their ability to pay, while 100 million could return to traditional biomass for cooking.

In the World Energy Outlook 2022, there is still a lot of uncertainty about the evolution of this energy crisis, how long fossil fuel prices will remain high, and the risk of further interruptions in energy supply and geopolitical fragmentation is high. In all scenarios evaluated in the report,

price pressures and a weak near-term outlook for the global economy translated into lower energy demand compared to the same report last year. (INTERNATIONAL ENERGY AGENCY, 2022)

The crisis has increased short-term demand for oil and coal as consumers struggle to find alternatives to more expensive natural gas. But lasting gains from the crisis have come from lower-emitting energy sources, especially renewables and, in some cases, nuclear, and faster advances in efficiency and electrification, such as electricity and electric vehicles (EV).

The cost advantages of well-established clean energy technologies and the promise of other new technologies, such as low-emission hydrogen, are being constrained by important new policies such as the US deflationary law and growing pressure on clean energy in Europe. The result is an exit from the current global clean energy economy.

CHALLENGES IN ACHIEVING NET-ZERO EMISSION

Given the continuing pace and scale of the energy transition, any action that is not swift and immediate will likely eliminate the chances of staying below 1.5°C or even 2°C before approaching net-zero. The commitments assumed with the net-zero show that we understand the seriousness and complexity of the situation.

The past two years have exposed the weaknesses and vulnerabilities of a system heavily dependent on 20th-century fuel. In this sense, the current crisis in Ukraine has generated new fears and uncertainties, with tangible costs for an economy still very much linked to fossil fuels.

We don't have time to deal with each challenge separately, and we can't afford to invest in outdated ways of producing, distributing, and consuming energy that is neither cost-effective nor future-proof. We have repeatedly seen that unreliable power causes uncertainty; too expensive energy alienates and isolates; energy pollutes, disables, and kills. In all cases, bad energy choices mean slower economic growth, potentially

irreparable problems, and damage to ecosystems that sustain us all. On the other hand, efficient and decentralized renewable technologies can create a system less prone to market shocks and improve resilience and energy security through a diversity of supply options and actors. The exact strength can be built into the evolving global hydrogen market, which requires investments in the coming years to move away from fossil gas and build the necessary infrastructure for the long term.

IRENA envisions six technology pathways for an energy transition compatible with meeting the Paris climate target of 1.5°C and an annual reduction of 36.9 gigatonnes of carbon dioxide (CO₂) (IRENA - INTERNATIONAL RENEWABLE ENERGY AGENCY, 2022):

1) Renewables: Renewable electricity generation sources such as solar PV, wind, etc. The direct use of renewable energy, such as solar thermal and biomass.

2) Energy conservation and efficiency: Measures to reduce energy demand and increase the energy efficiency of end-use applications, including structural changes (e.g., relocation of steel production with direct reduced iron, a modal shift in transport) and circular economy practices (e.g., alternative cement materials).

3) Electrification of end-use sectors: Direct use of clean electricity in transport and heat applications.

4) Hydrogen and its derivatives:

Direct use of clean hydrogen (predominantly green hydrogen).
Synthetic fuels (green ammonia and methanol) and pure hydrogen-based feedstocks.

5) Carbon capture and storage (CCS):

The carbon captured and stored from point-source fossil fuel-based and other emitting processes, mainly in industry.

6) Bioenergy coupled with carbon capture and storage (BECCS) and other carbon removal measures:

Bioenergy associated with carbon is captured and stored: in electricity, heat generation, and industrial processes (e.g., cement kilns and chemical production). (Figure 4)

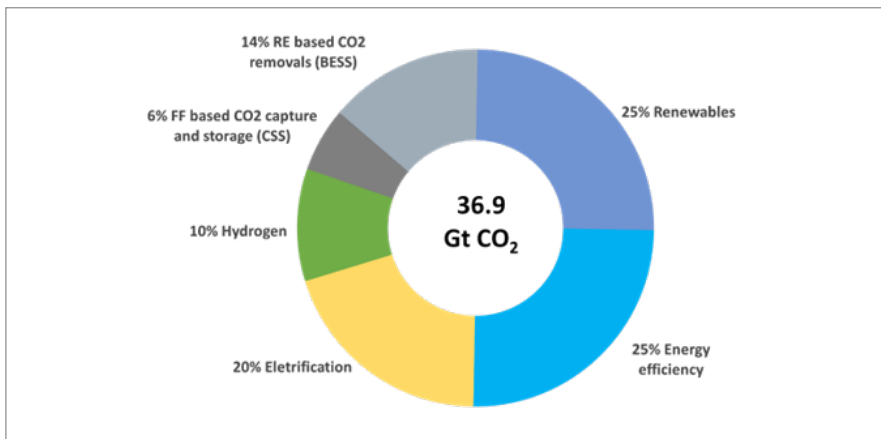


Figure 4: Reducing emissions by 2050 through six technological avenues

The rapid expansion of clean energy technologies in the NZE Scenario is accompanied by a commensurate growth of the energy sector workforce and some minerals that will be critical for the new technologies.

Energy transition plans must consider critical materials to avoid unexpected delays. Governments must understand the complex problems they present to develop effective strategies to address them.

Raw materials have unique properties and serve multiple purposes. The European Union and the United States recognize 30 and 35 main raw materials, respectively. Still, nickel, copper, lithium, and rare earth

(neodymium and dysprosium) are of concern due to their suitability and sourcing issues. The ability to scale and process quickly is critical to avoiding bottlenecks.

The energy transition will bring new mines and facilities for processing certain materials. All industrial activities and entire supply chains must adhere to sustainable exploitation, safe working conditions, local economic development, respect for cultural and natural heritage, and clean carbon dioxide emissions.

A commensurate expansion of the energy sector workforce will accompany growth in the use of clean energy technologies in the NZE

Scenario. A study conducted by the IEA shows that employment in the energy sector will increase from just over 65 million today to 90 million in 2030. Direct jobs in the energy sectors and indirect jobs in manufacturing essential components for energy technologies and infrastructure were considered. The prospect is for nearly 40 million new clean energy jobs to be generated by 2030, outpacing job losses in fossil fuel-related industries, and the share of employment in the energy sector related to clean energy an increase of about half from today to 80% by 2030. Strategic and proactive planning by industry, governments, and educational and training institutions will be critical to curb this job growth in the sector to prevent the shortage of skilled labor from becoming a problem—a bottleneck for energy transitions. (INTERNATIONAL ENERGY AGENCY, 2022) (Figure 5)

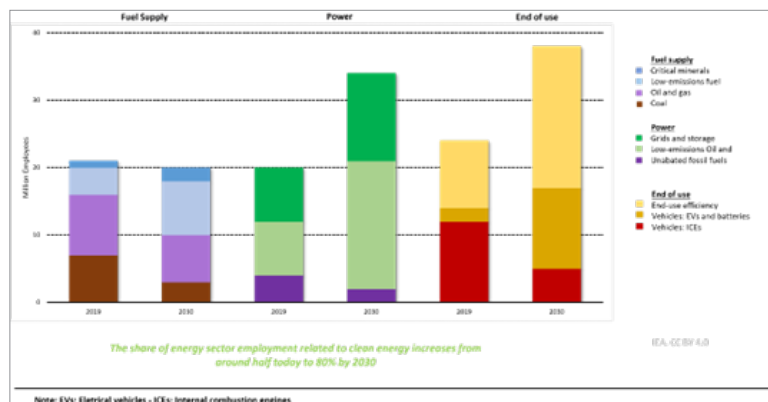


Figure 5: Energy employment by technology in the NZE Scenario, 2019 and 2030



Photo by Victor on Unsplash

FINAL CONSIDERATIONS

Becoming net zero is about humanity and the planet's survival. It is essential to realize that not all workers in the fossil fuel industry can efficiently operate on clean energy, so governments must promote education and allocate resources to create new opportunities. Citizens must be actively involved in all stages to feel part of the transition process, not just subject to it.

The path must be global, but each country must develop its strategy, considering its circumstances. There is no one-size-fits-all approach to the clean energy transition. Plans should reflect countries' different stages of development.

The world faces the enormous challenge of achieving net zero emissions by 2050 from a narrow possibility to a practical reality. Global carbon dioxide emissions have strongly rebounded as economies recover from last year's shock caused by the pandemic. Now is the time for governments to take decisive action to accelerate the transition to clean energy.

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Tatiana Araujo is a well-known specialist in sustainability and environmental management with near 20 years of experience, which lead her to be selected as a board member at GRI stakeholder council in The Netherlands. Her expertise involves consulting, lectures, and training regarding the ESG, GRI and SDG agendas, mostly dealing with business strategy. Tatiana is an ESG Manager at Alter Content, a Senior Sustainability Advisor at the Time and Place Consulting, a consultant for the Brazilian Global Compact Network, as well as other institutions. Tatiana has held a senior position at the Brazilian Business Council for Sustainable Development (BCSD-Brazil) after has gathered field experience working at the international consultancies Deloitte and Bureau Veritas. Tatiana is together with BIN since 2018.

Tatiana Araújo, Alter Content

ESG AND INNOVATION

Is ESG a new trend? The term ESG (Environmental, Social and Governance) was first coined around 2004 in a landmark study entitled “Who Cares Wins.” and it was only recently that the term rose in the corporate world. Google Search Trends data, for example, shows that the topic ESG is twice as popular today as it was at the beginning of 2021.

For years researchers pointed and discussed the importance of addressing and caring for environmental and social aspects of any corporation, connecting them to the business strategy. Even though, most organizations used to view sustainability as social actions towards society or managing environmental aspects only due to the need of conforming and respecting legislations and achieve legal compliance.

This raises an important question: What has happened to make the term getting so popular recently? At beginning, Investors were reluctant to embrace the concept, arguing that their fiduciary duty was limited to increase profit and maximize the shareholder values, disregarding environmental or social impacts, or broader governance issues such as corruption. But evidence has grown that ESG issues have financial implications! In many important markets, including the U.S. and the EU, ESG integration is increasingly seen as part of fiduciary duty.

ESG specialists, such as myself, have been experiencing this cascade effect through companies daily. ESG aspects are becoming more relevant for Investors, who demand it from companies that are listed in the stock market, as well as big companies requesting ESG to be embedded in their value chain. The big banks in Brazil, for example, are

also demanding ESG from medium companies as a prerequisite prior to approve any financial aid or loan. As consequence, medium companies request information from their suppliers, such as CO₂ emission inventory or human right politics. As a result, companies are seeking to understand how they can stablish their ESG Agenda, which is part of my job and also the reason for having less time for a coffee with friends this year (Sorry, guys! That was for a good reason).

Stakeholders are getting more demanding each passing day. Saying that the company is sustainable or that “ESG is in the Company’s DNA” is not enough. Nowadays it is almost mandatory to quantify and measure the results and, to that aim on that, we can look at the Global Reporting Initiative Standards (GRI), that are free for download in their website. Let’s talk about them.

GLOBAL REPORTING INITIATIVE (GRI)

The GRI Standards are a modular system of interconnected standards. They allow organizations to publicly qualify and report the impacts of their activities in a structured way that is transparent to both stakeholders and other interested parties. They are among the most used standard for sustainability disclosure worldwide.

GRI have multi-stakeholder representation throughout their governance bodies. I represent brazilian society in the Stakeholder Council, the formal stakeholder forum within the GRI governance structure, which advises the Board on strategic issues. The Council's key governance functions include making recommendations on future policy, business planning and activity.

The Standards array issued by GRI are split into three series of standards to support the reporting process: the

GRI Topic Standards, each dedicated to a particular topic and listing disclosures relevant to that topic; the GRI Sector Standards, applicable to specific sectors; and the GRI Universal Standards, which apply to all organizations.

The Standards contain disclosures, which provide a structured means for an organization to report information about itself and its impacts. They also suggest a series of indicators and indexes for each impact, considering material by the company, thus allowing comparison across years in the same company and against different companies. That is the kind of disclosure that investors are looking for: information with transparency, comparability, verifiability, and analyzing the Company's impacts in the wider context of sustainable development.

But please, don't get scared by the number of indicators that you will find in the Standards. First focus

on understanding which topics are material to your company! Material topics are topics that represent the organization's most significant impacts on the economy, environment, and people, including impacts on their human rights. Materiality is an analysis that I really enjoy doing, since I need to understand the potential impacts of the company within its sustainability context, that is, analyzing sectorial standards, benchmarks, as well as prioritizing the topics and including the stakeholders in the process. Materiality aims to help the company to determine the topics that should be in the strategy and that should be in the sustainability report.

The Sustainability Report, final deliverable of GRI Standards, is also being used to disclosure how the companies are connecting the Sustainable Development Goals in their business strategy. We are near 2030 and a global effort is being done by UN Global Compact to drive business awareness and action in support of achieving the Sustainable Development Goals by 2030.

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

ESG information is essential for investor decision-makers, and the ESG criteria are totally related to the Sustainable Development Goals (SDG), which is already a reality in discussions and analysis regarding stock and financial market. The 17 SDGs brings together the major challenges and vulnerabilities of society, thus they point out the main items to be closely monitored. In addition, they signal the great opportunities by directly relating to needs.

I have been working with the SDGs since 2016 and, in the last years, I observed that a close relationship between the SDGs and business is present in large companies in Brazil. According to a survey carried out with companies that are part of the B3's Corporate Sustainability Index, around 83% of them have processes for integrating the SDGs into strategies, targets and results. This is great, but we can do better.

Integrating ESG, SDG and business strategy indicates that the company recognizes its own impact and importance of acting on global risks, as identified by the World Economic Forum, as Climate Change, mental health deterioration, biodiversity

loss, cybersecurity, among others. It is necessary to prioritize the SDGs according to the Companies' materiality, measure, establish goals for 2013 and preferably, establish public commitments. Therefore, in order to strengthen this agenda, some companies are connecting ESG and SDG goals to the leadership variable salary.

In the Global Compact Brazilian Network, we are working with 8 "Movements", a call to Brazilian companies to recognize the urgency and need to promote concrete actions on climate change, gender equality, racial equality, water, decent salary, transparency, mental health and circular economy. This approach is also helping companies to implement the SDGs in their business strategies through training and the SDG Ambition Program.

We are almost reaching 2030 and to drive the transition we need in the world and deliver the necessary change on a large scale, we need to be disruptive. Every stakeholder should focus their energy and attention towards implementing actions that will drive an innovative, determined and inclusive transition in order to minimize the impacts of disorder, facilitate adaptation and maximize opportunities.

THE IMPORTANCE OF INNOVATION IN ESG

In the age of hyper-transparency and hyper-connectivity, it is not an option to ignore society's demands, therefore we will not achieve the SDGs or ambitious ESG goals doing business the same way we have been doing. We need to innovate, either technologically or in the way we design products and services.

Innovation is paramount to drive ESG progress and enables organizations to achieve their ESG goals. Without serious innovation, ESG will not be reached past its current level of prominence within both public and private domains.

Innovation is so important to the 2030 Agenda, that it has its own Goal. Industry, innovation and infrastructure is the theme of Goal 9, that aims to Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Sustainable and circular design, innovative and emerging technology, encouraging innovation and substantially increasing the number of research... these are some of the many ways how innovation and ESG can address global environmental and social issues, but it will only be successful if it is sustainable across generations. Business Innovation Network is helping for years in this connection of academy, business and governments to discuss sustainability and innovation.

FINAL CONSIDERATIONS

ESG is not a new topic, but it gained strength and momentum since investors have understood its profitability and business perennity depends on management of social environmental impacts, as well as assuring the effort to address stakeholders demands and global challenges, such as the 2030 Agenda. According to Albert Einstein, "Insanity is doing the same thing over and over and expecting different results." Innovation can be the way to make things better. Let's innovate!!! And lets to it towards sustainability!



Francine Póvoa, Advisor to Instituto Capitalismo Consciente Brasil. Graduated and Master in Administration with 27 years of experience, 12 of which as an executive in large companies in different sectors. Director of Legacy4Business, consulting and training focused on ESG, Leadership and Organizational Culture. Guest professor at Fundação Dom Cabral, elected 9th best business school in the world in the Financial Times ranking. Advisor to Instituto Capitalismo Consciente Brasil, BH Branch. Coordinator of the Minas Gerais Chapter of the Brazilian Institute of Corporate Governance - IBGC. Co-author of the book "ESG: the reference of corporate social responsibility".

Francine Póvoa, ICCB

CONSCIOUS CAPITALISM

THE FOUNDATION FOR ESG ISSUES

The complex and challenging times that society and business are going through have demanded new management models and a new leadership profile. Environmental, social, and governance issues, brought together under the acronym ESG, have become the great driver of business, so that it is guided by a greater purpose and generates value for all stakeholders, not just shareholders. The Conscious Capitalism approach represents an absolutely innovative and disruptive management model and its four pillars allow the integration of profit and purpose in business. This article invites the reader to reflect on the role of companies and businesses in generating value for society and presents the four pillars of Conscious Capitalism: purpose, conscious leadership, stakeholders orientation and conscious culture. These pillars can be the foundation for building a new corporate culture that generates the necessary financial results for all businesses while positively impacting society.

THE ROLE OF BUSINESS FOR SOCIETY

“Our world has changed. Our challenges are greater. Our fragilities exposed. Our systems need a reset. Everyone has a role to play.” (World Economic Forum, 2021)

What is the role of companies and businesses for society? This is one of today’s most important questions, especially in times as complex and challenging as those we have been living in recent years. This question necessarily takes us back to September 13, 1970, when The New York Times published the famous article by the American economist Milton Friedman, entitled “The Social Responsibility Of Business Is To Increase Its Profits. It took five decades and a pandemic for this logic to be rethought.

Friedman (1970) argued that the executive is an employee of the owners of a company, i.e., the partners or shareholders, and his responsibility is to conduct business according to the wishes of his employers, which usually means maximizing profits or market value while respecting the basic rules of society, both those embodied in law and those embodied in ethical custom. He claimed that business could not have social responsibility because it was not an individual in itself, and that

there should be a clear separation between the goal of business, which is to generate profit, and the goals of individuals and governments, generally focused on issues of ethics and custom.

Many claim that Friedman’s doctrine precipitated a new era of short-termism, hostile takeovers, high-risk securities financing, and the erosion of protections for employees and the environment to increase corporate profits and maximize shareholder value. This version of capitalism was ascendant in the 1980s and continued until the 2008 financial crisis, when the dangers of short-termism were vividly illustrated and the long-term economic and social harms of the focus on shareholder primacy became more visible.

Returning to the original question about the role of business and business for society and going back a few years in history, we come to Adam Smith, the British economist and philosopher considered to be the father of modern capitalism. His best known and most quoted work is “The Wealth of Nations”, however, seventeen years before publishing it, Smith published “The Theory of Moral Sentiments” in 1759. In this work he outlined an ethic based on the human being’s capacity for solidarity with others and concern for their opinions. He was far ahead of his time, both in

terms of economic theory and ethical system. Unfortunately, this approach of Adam Smith was ignored and capitalism developed in an incomplete way, devoid of the more human half of its identity, as Raj Sisodia and John Mackey (2013) state, as they lay the foundations of the Conscious Capitalism movement, a topic that will be addressed later. The authors state that the premise that the purpose of business is always to maximize profits for investors stems from a narrow view of human nature and an inadequate explanation of the causes of success in business.

This inadequate explanation of the causes of business success is related to the fact that classical economists correctly perceived that successful organizations were always profitable and that, in fact, the entrepreneurs responsible for operating such businesses always sought profitability. They identified that companies that were not profitable could not survive for long in a competitive market, since profits are essential for the long-term survival and prosperity of businesses. However, there is an important point to note here: the thought was created at this time that profit maximization is the only important objective of a company.

THE THEORY OF STAKEHOLDERS RESCUING THE ESSENCE OF FREE ENTERPRISE CAPITALISM

In the eighties, more precisely in 1984, the American philosopher and professor of ethics and business, Edward R. Freeman, published the book "Strategic Management: a stakeholder approach", launching the idea that companies exist to provide returns to all interested parties, called stakeholders, and not only to shareholders. Freeman (1984) stated that companies, and the executives who run them, must create value for customers, suppliers, employees, communities, and shareholders, and that it is critical to have careful attention to how these relationships are managed and how value is created for these stakeholders.

In 2007, in his article "The purpose of the corporation: managing for the

stakeholders,” Freeman addressed three reasons why the dominant business model, deeply rooted in our culture and centered on maximizing shareholder profit, would no longer be viable: it is resistant to change; it is not consistent with the law; and it ignores ethical issues. The author further pointed out that each of these flaws is fatal in the 21st century business world, which has become evident more recently with all the challenges humanity has been facing.

Freeman refuted at the time the idea held by most business theories, which advocated the separation between “business” decisions and “ethical” decisions, as if they were totally independent. For him this is a fallacy, since almost any business decision has some ethical content. To prove this he suggests that when a decision is about to be made the decision makers answer the following questions:

1. If this decision is made, for whom will value be created and for whom will it be destroyed?
2. Who is harmed and/or benefited by this decision?
3. Whose rights and values will be defended and harmed by this decision?
4. What kind of person will we become if we make this decision?

Stakeholder management, proposed by Edward Freeman, presents a new narrative about business that allows us to refine the way we generate value for society. Capitalism is, in this view, a system of cooperation and social collaboration rather than a system of competition. The author argues that the spirit of capitalism is the spirit of individual achievement along with the spirit of accomplishing great tasks in collaboration with others. Thus, managing for stakeholders makes it possible to create better businesses for better communities.

THE RELEVANCE OF ESG ISSUES IN THE CORPORATE WORLD

Environmental, social and governance issues, grouped under the acronym ESG, have gained great importance and widespread debate since 2020. But this is not a new theme. The acronym was conceived in 2004 by the then UN Secretary General Kofi Annan, who called on the world's largest financial institutions to participate in a joint initiative to develop guidelines and recommendations on how to better integrate environmental, social and corporate governance into asset management issues. This initiative gave rise to the report "Who cares wins: connecting financial markets to a changing world".

More recently, however, as the complexity and impact of the problems facing our society have increased, companies are realizing that they can no longer ignore what they used to call externalities - the social, economic, and environmental effects indirectly caused by the sale of their products and services.

New socio-environmental demands have also arisen, and growing pressure from society is demanding that companies adopt a clear position in relation to sustainability and current issues. It is worth highlighting some data released by Edelman,

a global agency that monitors consumer behavior, which in its report published in June 2020, Edelman Trust Barometer 2020, identified that in Brazil 97% of consumers expect brands to solve social problems. This relates to poverty (58%), labor issues (52%), climate change (51%), structural racism (51%), as well as well-being/optimism (53%) and safety (52%). Still regarding society's expectations from companies, the Edelman Trust Barometer 2021 report revealed the impacts of the pandemic and the infodemic on trust in institutions, presented what people expect from companies and also how the leaderships should act in this scenario of uncertainty. Of the surveyed institutions, the Companies are the most trustworthy globally and also in Brazil. In the country, Companies (61%) are ahead of NGOs (56%), Media (48%) and Government (39%) and are the only ones considered trustworthy, which generates an enormous responsibility and new possibilities for their leaderships to act in movements of change for the benefit of society as a whole.

Thus, the incorporation of socio-environmental issues to the business model has become strategic for companies, as they become a competitive differential and a risk mitigator. Studies conducted by the

global consulting firm McKinsey show that there is a positive correlation between high ESG scores and greater talent attraction and retention, higher brand value, greater stakeholder engagement and well-being, optimal product conformation, lower cost of capital, and lower operational, financial, image, and regulatory risks.

CONSCIOUS CAPITALISM AND ITS PILLARS

Conscious Capitalism is a business philosophy that simultaneously creates different types of value and well-being for all stakeholders: financial, intellectual, physical, ecological, social, cultural, emotional, ethical, and even spiritual. As Raj Sisodia and John Mackey (2013) state, its practice is not just about being virtuous or working to do good. It is a way of thinking about business with more awareness of its larger purpose, its impacts on the world, and its relationships with its various stakeholders. This approach reflects a deeper sense of why businesses exist and how they can create more value.

The authors state that being conscious means being fully awake and lucid to see reality clearly and to understand the short- and long-term consequences of our actions, and this applies to both individuals and organizations. An indication of

this rising consciousness is the fact that today some practices that were widespread in the past are considered unthinkable. For example, until about 150 years ago, the enslavement of human beings was just a fact of life for most people around the world. A hundred years ago, most people, including women, saw the ban on women's suffrage as normal. Half a century ago most of society accepted racial segregation as a way of life. Until very recently a small portion of the population and of business were concerned about environmental issues. However, as mentioned before, it is becoming increasingly evident that it is necessary to rethink production systems and consumption patterns, and the management of business organizations is part of this context.

Important recent events highlight the need for change. For example, in August 2019, the Business Roundtable, a North American organization that has brought together the leaders of the largest companies in the United States since 1978, revised its statement on the Principles of Corporate Governance, which were focused on the primacy of the shareholder, and declared that the purpose of companies is to generate value for all stakeholders.

Another prominent example is the most recent editions of the World Economic Forum, an event that takes

place annually in Switzerland and brings together the most important business, political, and diverse organization leaders relevant to the global economy. The 2020, 2021 and 2022 editions focused on the urgently needed shift from shareholder capitalism to stakeholder capitalism.

The Conscious Capitalism approach originated from research conducted between 2004 and 2011, conducted by marketing professor and researcher Raj Sisodia, that identified characteristics common to companies around the globe that made them organizations that enjoyed a high reputation in the marketplace, were beloved by employees, customers, and communities, and also delivered superior financial results to their industry peers. For example, the first edition of the survey, which gave rise in 2007 to the book “Humanized Companies,” reported that conscious companies outperformed the S&P 500 index by a ratio of nearly nine to one over a 10-year period. In the second edition of the survey, which resulted in 2015 in the book “Humanized Companies: people, purpose and performance,” the ratio was fourteen to one for more than fifteen years for an expanded set of companies.

The companies identified in the survey were in different industries, some were privately held and some were publicly traded, such as Whole Foods Market, 3M, Amazon, FedEx, Google, IBM, Southwest Airlines, Costco, Starbucks, Walt Disney, just to name a few.

The common characteristics identified by Sisodia in the research later became the pillars of Conscious Capitalism:

1) PURPOSE

The ethical foundation of business is based on voluntary exchange, which ultimately justifies the full legal existence of businesses within a society. But what is the purpose of a business? In light of the concepts of Conscious Capitalism purpose refers to a statement about the difference a company seeks to make in the world and provides energy and relevance to the company and its brand. The more stakeholders there are, the greater the importance of having a simple, clearly defined purpose that everyone understands, and a set of core values that animates how people interact with each other in the company.

The purpose usually exists from the birth of the company, although the founders don't always make it explicit. In order to identify the purpose of

a company or to make it emerge, there are questions that need to be answered, initially by the leadership and then by the employees:

- What difference do we want to make in the world with this company?
- Is the world better off with our presence?
- Will we be missed if we cease to exist?

Purpose, mission, and vision are often used as synonyms; however, it is important to emphasize the difference between these three concepts.

Purpose refers to the difference that the company seeks to make in the world. Mission is the core strategy to be carried out to fulfill the purpose.

Vision means how the world will look at the business when the purpose is largely achieved.

2) CONSCIOUS LEADERSHIP

Conscious leadership can be considered the most important element of Conscious Capitalism and its relevance goes beyond issues related to organizational performance, as the quality of leadership affects the quality of life of employees and all other stakeholders.

Conscientious leaders firmly believe in their work as an opportunity to contribute to the construction of a better future for all, and they give daily samples of several of the most admired qualities of human beings. They possess refined systemic, analytical, emotional, and spiritual intelligences. They stand out for their inclination to generous leadership, solid integrity, and great capacity to love and care.

3) STAKEHOLDER INTEGRATION

The main difference between a traditional business and a conscious business is that in the former case, managers routinely make trade-offs (lose-win relationship) among stakeholders. A good manager is considered to be the one who promotes more advantageous trade-offs for the company to the detriment of other stakeholders. On the contrary, a conscientious company seeks synergies among stakeholders.

Considering Edward Freeman's (1984) Stakeholder Theory, managing for stakeholders refers to using innovation and entrepreneurship to lead stakeholders to the best possible situation and make their interests converge in the same direction.

To accomplish stakeholder integration, it is necessary to map out who the business stakeholders are and seek to identify their interests and needs so that they can be harmonized and considered in the decision-making process.

4) CONSCIOUS CULTURE

John Mackey, CEO of Whole Foods Market, one of the global references in company that adopts the pillars of Conscious Capitalism, states that

the culture of a company represents the space where the richness and complexity of people reside and where their human aspect shines. Therefore, it is the most powerful part. When it is built, nurtured, and developed over time, it becomes a true differentiation factor and a valuable competitive weapon.

And it is worth noting that shaping the culture of an organization is one of the most important tasks of leadership. Conscientious companies have peculiar cultures, which help to strengthen the higher purpose and to maintain the harmony of interests among the stakeholders. The key attributes of conscious organizational culture are trust, accountability, caring, transparency, integrity, loyalty, and equality.

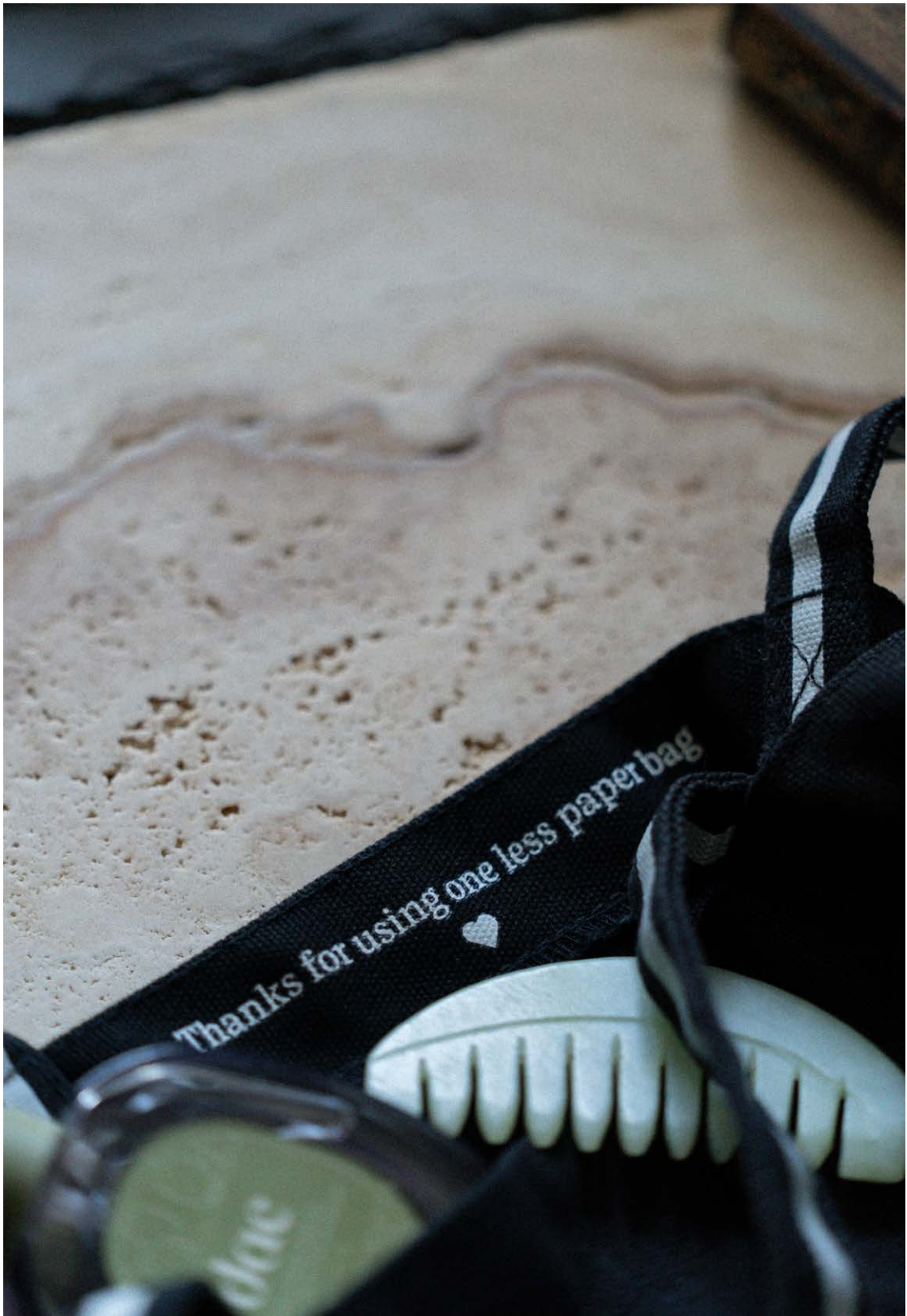


Photo by Shishoka Senk on Unsplash

CONCLUSION: CONSCIOUS CAPITALISM AND THE ADVANCEMENT OF ESG ISSUES

The challenges and complexities that today's society is facing from a social, economic, political, and environmental point of view have highlighted the urgency for companies to align their strategic objectives with society's long-term goals, and for this to be possible, a thorough review of the concepts and values of our society is required, which consequently are also the values on which the culture of business organizations is based.

It is also essential to adopt a more humanized management approach, which promotes the association of environmental, social and governance issues with the Sustainable Development Goals, as well as enabling greater clarity about the higher purpose of business and also generating m results for business

organizations.

Advancing the ESG agenda requires an acculturation process that must occur from the inside out, starting with deep reflection on the higher purpose of the business. It will be up to the leadership to take the lead and sponsor the necessary change, so that a review of the values that make up the company culture is carried out in order to build a business model that truly generates value for all stakeholders.

The Conscious Capitalism approach with its four pillars can be the foundation for building a new corporate culture that generates the necessary financial results for all businesses while positively impacting society: caring, transparency, integrity, loyalty, and equality.



Janayna Bhering is an engineer with a master's degree in science and technology, specialist in process-applied statistics (Six Sigma Black Belt) and Innovation management. It has been active for 20 years in public and private efforts to generate a positive impact on people's lives through innovation, seeking to contribute to the construction of public policies and economic development. This work allowed her to structure a network of connections and strategic partners, such as the government, funding agents, companies and science and technology institutions. In its performance, it is worth highlighting the funding of approximately USD 500 millions for innovative projects, mentoring for more than 1000 startups and aid for more than 100 large companies that aim to be more innovative. Some examples of mobility-related programs in which it operates are Rota 2030, the National Electric Mobility Platform, both by the UFMG Support Foundation (Fundep), and the pilot project for the decarbonization of the metropolitan region of Belo Horizonte.

Janayna Bhering Cardoso, Fundep-UFMG SF

E-MOBILITY

SUSTAINABLE MOBILITY

AND ENERGY TRANSITION

Since the Paris Agreement (2015), whose main objective was to reduce greenhouse gas emissions to limit the average global temperature increase to 2°C, the topic of decarbonization has been widely discussed in various contexts. Due to the great contribution of vehicles to the emission of polluting gases and other problems caused by traditional transport, different alternatives are being analyzed and proposed for the development of a more effective and less polluting model of locomotion.

In each country, the strategies for choosing the ideal model take into account different factors and regional peculiarities and there is no single, universal solution that works for everyone. Characteristics of the energy matrix, presence of mineral reserves, local automotive industry and public policies are some of the drivers that define the best technological path for each country.



WORLD CONTEXT

The 17 Sustainable Development Goals (SDGs) were established in 2015 by the United Nations (UN) and make up a global agenda for the construction and implementation of public policies that aim to guide humanity until 2030. In this context, it is important to highlight the need to actions related to global climate change and decarbonization. Subsequently, in the Paris Agreement, commitments were signed between the signatory countries in order to contain global warming by reducing polluting gas emissions.

As they contribute to the intensification of carbon dioxide (CO₂) and other greenhouse gas (GHG) emissions, especially due to the burning of fossil fuels inside vehicles, the transport sector has a responsibility to propose alternatives

that reduce or eliminate such emissions. In this sense, electrification is an international trend of transition to sustainable mobility and a means for countries to advance in their commitment to decarbonize their energy matrices.

This panorama is confirmed by the Global EV Outlook 2020, prepared by the International Energy Agency (IEA). This study indicates a 40% increase in the global stock of electric cars between 2018 and 2019. In the period from 2017 to 2018, this increase was even greater, reaching 63%. Also according to the Global EV Outlook 2020, the stock of electric cars in the world reached the mark of 7.2 million units in 2019.

The movement towards electrification is gaining strength mainly from the positions that are becoming public, on the part of countries, in announcing commitments and targets for the decarbonization of means of transport. In fact, the electrification of the world vehicle fleet is already a reality and is in advanced stages around the world, as in the case of China, the United States and the European continent. Since the European Parliament, quite boldly, established the year 2035 as the limit for the commercialization of vehicles powered by fossil fuel. (Electric Mobility Yearbook, 2022).

ELECTRIC MOBILITY IN LATIN AMERICA

According to information presented in the 2nd Yearbook of Electric Mobility, the size of the population in Latin America and the Caribbean is 649 million people, of which 81% live in cities, which is why it is considered one of the most urbanized areas in the world, after the North America, with 83% (The World Bank, 2020).

The rapid population growth in urban areas places great demands on the transport sector, which is still heavily dependent on fossil fuels (diesel and gasoline), generating serious urban traffic problems and an increase in CO₂ emissions and local pollutants that compromise the air quality. The transport sector accounted for 38.72% of CO₂ emissions in 2020, being the segment with the greatest impact on climate change in the region (Sistema de Información Energética de Latinoamérica y el Caribe Sielacolade, 2022).

In this way, the impact of air quality on the population's health and the need to think about reducing emissions in transport are the main motivating factors for the development of public policies aimed at sustainable mobility. Taking into account the Latin American energy matrix and the presence of mineral resources such as copper and lithium, fundamental inputs for the production of different components for electric vehicles, mainly batteries, there is a tendency to decide to electrify the fleet. In the region, six countries stand out – Chile, Costa Rica, Colombia, Ecuador, Panama and the Dominican Republic – have national electric mobility strategies and/or have formulated specific laws to encourage electromobility.





- Stimulating electric mobility requires a set of public policies and instruments of an economic and regulatory nature, encouraging charging infrastructure, use of public space, training human resources and disseminating the benefits of electromobility, among others.
- Among the lessons learned regarding the strategy adopted by Brazil's neighboring countries, it is worth highlighting:
- the need to establish a national strategy to encourage electric and/or sustainable mobility with short, medium and long-term targets and indicators;
- the collective construction of the strategy involving different actors from public and private initiatives: academia, automotive industry, supply chains, government and civil society;
- the articulation of public policies involving the different government agents and related ministries, in addition to the harmonization of the strategy at the national, state and municipal levels;

In the case of Brazil, because it has a strong automotive industry and a reference in the production of buses and trucks, it is also necessary to structure a national industrial policy focused on energy transition and all the implications involved in this process, ranging from the necessary changes in factories to training the workforce.

BRAZIL TOWARDS THE MIX OF TECHNOLOGIES FOR THE DECARBONIZATION AND DIGITIZATION OF TRANSPORT

In Brazil, the National Urban Mobility Policy is a law passed in 2012 (Law No. 12,587/12) that requires cities with more than 20,000 inhabitants to prepare an Urban Mobility Plan to promote more sustainable mobility. According to a survey carried out in July 2019, by the then National Secretariat for Mobility and Urban Services (Semob), about 3,342 cities should have mobility plans. However, only 5.58% of all Brazilian municipalities follow the rules and we still have a long way to go.

Analyzing the particularities of the Brazilian context and the main public policies related to the energy transition, it is clear that there is not a single proposed technological solution. Considering that in Brazil, for example,

the energy matrix is already cleaner, compared to most European countries. In addition, the historic investment already made in the development and application of biofuels such as ethanol cannot be disregarded, including the results obtained in reducing GHG emissions generated by the use of this type of fuel.

Thinking about the electrification of the different modes (light, heavy and micromobility) of the Brazilian fleet, there is a tendency to consider a mix of low-emission technologies. This mix ranges from hybridization or partial electrification to full electrification. In the latter case, it involves, in a transversal way, other segments of the economy and the overcoming of challenges related to the generation and distribution of energy, recharge infrastructure and use of batteries, definition of goals to be achieved and comparison with other Latin American countries, development of



new business models, demystifying the theme and developing the culture of vehicle users, regulation and definition of inspection processes and regulations, among other aspects.

In short, it is clear that, in view of the diversity and peculiarities of the Brazilian energy matrix, for the different types of modes, perhaps there could be a set of technological solutions and that these technologies could coexist during the transition process in order to promote the sustainable mobility and the achievement of the expected emission reduction targets.

It is observed that some Brazilian cities and states already have sustainable mobility policies that include electromobility, for example, in public transport. However, greater convergence of these actions with a structuring policy at the national level

and the construction of an action plan with medium and long-term goals and performance indicators are necessary.

Among the Brazilian initiatives related to the energy transition, it is worth mentioning the PNME – National Electric Mobility Platform –, a joint effort by the Brazilian government, industry, academia and civil society, which was born as a space for building long-term goals for electric mobility in Brazil, considering the environmental, technological, government policy and market points of view. Therefore, more than a space for the convergence of objectives and alignment of expectations, the PNME is, above all, a vector for the delivery of concrete solutions that meet such expectations. At PNME, several workshops, panels and lectures are held to discuss the topic and prepare studies, such as the Electric Mobility Yearbook, mapping of initiatives related to electric mobility in

Brazil, the National Roadmap for Electric Mobility infrastructure, among others. (<https://www.pnme.org.br/biblioteca/>)

The PNME Science & Technology Commission (CC&T), which is coordinated by Fundep – UFMG Support Foundation – brings together relevant names in research into electric mobility in Brazil and technically advises the Strategic Panel, aiming to ensure the alignment of research efforts and development of the Platform. The initiative also has three operational working groups: Bus Electrification (GT EBus), Electric Bicycles (GT EBike) and the Infrastructure and Connectivity WG, the latter being also coordinated by Fundep in partnership with the AEA (Brazilian Association of Automotive engineering).

In addition to this initiative, it is worth mentioning the Rota 2030 Program created by the Federal Government with the aim of drawing up a long-term industrial policy for the automotive and auto parts sector, stimulating investment

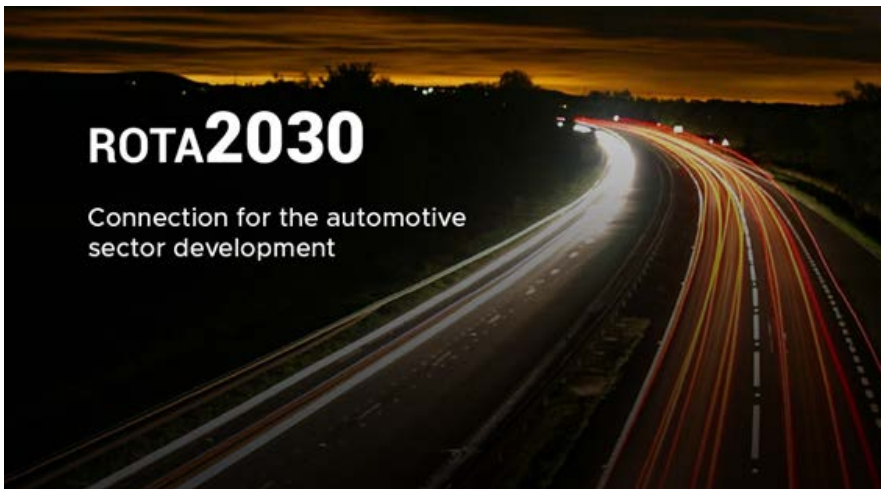
and strengthening Brazilian companies in the sector.

The Rota 2030 Program is an initiative of the Federal Government, described in Federal Law nº 13.755/2018, to stimulate investment and strengthen Brazilian companies in the automotive sector through the development and application of new technologies.

With measurable goals, each cycle of the Program, lasting five years, will lead companies on a path of adaptation to the new instruments, stimulus for investment programming and reorientation for the next steps.

Thus, the initiative opens up a scenario of opportunities for companies in the sector to invest in the development and application of new technologies, consolidating a competitive manufacturing model inserted in the global production of motor vehicles.

In this context, six priority lines were defined for the development of solutions, and Fundep coordinates three lines, namely: Line IV – More Competitive Brazilian Tooling; Line V - Biofuels, Vehicle Safety and Alternative Propulsions to Combustion; Line VI – Vehicle Connectivity. (<https://rotaz030.fundep.ufmg.br/>)



For almost 50 years, Fundep has been the UFMG Support Foundation, responsible for managing research, teaching, extension and institutional development projects. Also authorized to support other science and technology institutions in the country, Fundep is a link that connects different actors in the S&T and innovation scenario.

To enable these institutions to fulfill their role in society, the Foundation offers solutions and services for the management of projects, programs and competitions, working from end to end, from the preparation of proposals to the rendering of accounts.

Each year, Fundep manages more than 3,000 projects, in addition to providing new businesses, support for innovation and entrepreneurship, and new ways of conducting and disseminating research. It operates in a network, mediating complex systems to support science and technology.

Aligned with trends in the creative economy, the Foundation connects the knowledge generated at universities and research centers with the market, generating new products, processes and services for society. Pioneering in Brazil, it implemented its innovation agencies: Fundepar, which identifies, invests and develops businesses with growth potential; startup accelerator Lemonade; in addition to BiotechTown, a biobusiness innovation hub; and Outlab, a business acceleration program for laboratories. (www.fundep.ufmg.br).



Combining C´ Level experience in innovative organizations with experience in university-industry interaction for Tech Transfer & Know-How. Professor Yogui has collaborated in the integration of the Brazilian Innovation Ecosystem to promote sustainable impacts on business, industry, and society. Author of the INNOVATION FRAMEWORK ´, an open model adopted by companies, business schools and innovation hubs Yogui also acts as a C´ Level mentor in Innovation, Strategy and Leadership. Member of BIN@ Community since 2015.

Professor Ricardo Yogui, YOGUI Ventures & PUC-Rio

ORGANIZATIONAL CULTURE THE ENGINE OF INNOVATION IN MODERN ORGANIZATIONS

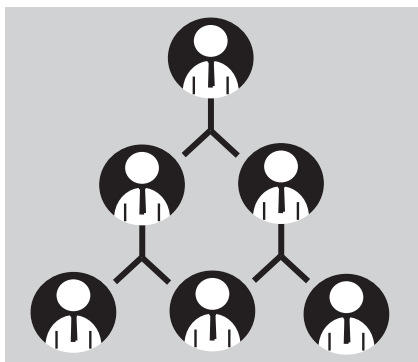
Organizational Culture has never been talked about as much as it is today, as it has become the engine that makes organizations more successful or not in a more complex business environment where disruption is necessary at the beginning of the 21st century. We live in a world of great transformation, which is comparable to the moment of the Enlightenment of the 18th century, with the appreciation of reason, science, humanism and great focus on the progress of humanity. This comparison is made by researchers such as Professor Steve Pinker in his book, *Enlightenment Now - The Case for Reason, Science, Humanism, and Progress*. The changes experienced in the world we are witnessing are immensely greater than those experienced by previous generations, at a much faster and growing pace, impacting modern organizations. It is in this context that we need to bring the strategic role of Organizational Culture and present the challenges in building a purpose, values and new beliefs aligned with this new business scenario and the dynamics of a new economy.

HISTORICAL CONTEXT: THE TRANSITION FROM COMMAND/CONTROL TO AGILITY/EXECUTION

With the emergence of the first industrial organizations through the transformation of a society and economy based on more artisanal production to one of larger scale production, based on standardization and technologies such as the steam engine, internal combustion engines and electricity, the first movements of the industrial revolution emerged.

In that scenario, it was necessary to design those first industrial structures, and the inspiration came from an ancient form of organization: the military system, highlighting a vertical and strongly hierarchical structure.

It is attributed to the railway engineer, Daniel Craig McCallum (1815-1878),



the organizational chart model of companies that we traditionally know, highlighting the dimensions of command and control.

Organizational Culture is an invisible force in corporations that is built over the long term in a daily, consistent and consensus way among people and their interactions, impacting their collective attitudes to embrace or reject initiatives placed on the organization's agenda.

Thus, the Organizational Culture was molded for more than one hundred years, in this traditional structure of command and control, creating companies of linear and mechanistic models.

It is important to highlight that in this linear and mechanistic approach, employees are delimited in isolation from their tasks within the departmental scope, being evaluated in this way by their manager.

However, the transformation of corporations at the beginning of this century, driven by Technology, New Business Models, and the complexity

of a more disruptive scenario, provoked a great discussion about the value of the traditional organizational model, a new role of leadership and how a new corporate culture can be developed in order to favor new dimensions such as agility and execution in an ambience that must adapt to the external environment that changes more quickly, creating new markets or re-signifying traditional markets.

With that motivation in mind, in May 2008, a group of renowned scholars and business leaders gathered in Half Moon Bay, California, with a simple goal: to lay out an agenda for reinventing management in the 21st century. As a result of that initiative, Gary Hammel wrote the article 25 Stretch Goals for Management, published by Harvard Business Review. From this article, we highlight the following:

\Clearly, these points favor what we define as the Terroir of Innovation, promoting an Organizational Culture that favors innovation in companies. We call it the Terroir of Innovation,

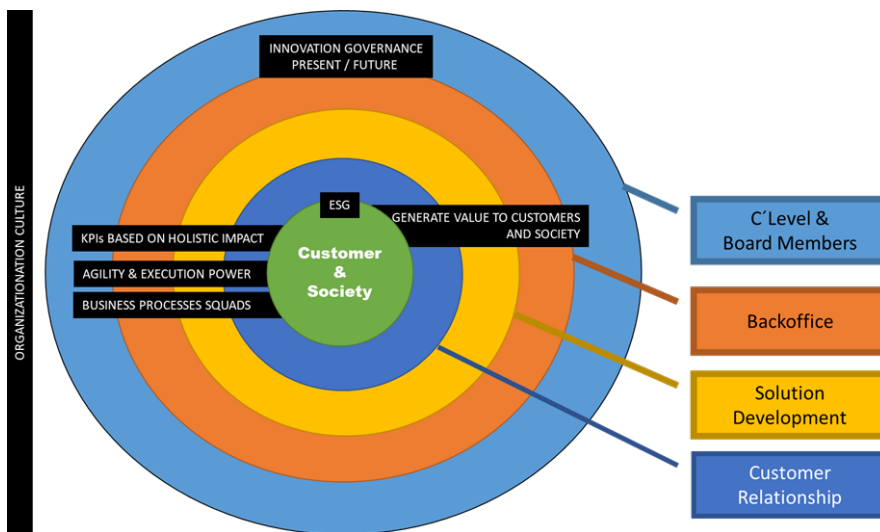
making a metaphor with the world of wines, because in order to produce good wines, a good soil, a good seed, or a good climate, are not enough. It is a combination of several factors together that lead to the result, as it is in Innovative Organizations.

But it all starts with people and the collective psychological contract of values and behaviors that guide the Organizational Culture.

Thus, the Terroir of Innovation emerges from an organizational culture based on agility and execution power to respond to the challenges that corporations are currently experiencing.

Another important driver for this adaptive process of organizations is their learning capacity, with a focus on the systemic view and comprehensive approach of the companies, as highlighted by Peter Senge in his book *The Fifth Discipline - The art and practice of the learning organization*.

CIRCULAR ORGANIZATION CHART FOR A NEW ORGANIZATIONAL CULTURE



Organizations constantly highlight the focus on the Customer, a more collaborative environment among their workers, operations based on processes and not on tasks, but they still use the traditional hierarchical organization chart model that does not reflect this approach.

In the traditional hierarchical organizational chart, we do not have the figure of the Customer, who is the main reason for the organization's existence and the reason for its concentration of effort in the sector in which the organization operates.

In addition, the structure in boxes, representing the departments, evokes silos of tasks that do not generate motivation for integration and holistic and collective results.

We have defended the adoption of the Circular Organizational Chart, which can support an Organizational Culture more adherent to today.

The CEO is no longer the main character in a Circular Organogram.

At its epicenter one can find the Customer and the Society - the fundamental meaning for the organization's existence.

At the epicenter of the Circular Organogram is not the CEO but the Customers and Society, showing everyone the reason for the organization's existence.

In the ring closest to Customers and Society, are the areas that are closest to them and develop long-term relationships and the generation of added value, promoting the User Experience.

In the next ring, we have the areas of product development, services and business models that will use state-of-the-art technology, detect latest trends to improve existing solutions and develop future solutions.

The BackOffice ring is where the entire operational infrastructure of the organization works, supporting technological resources, business management and governance

The C´Level & Board Members ring has as its main mission the orchestration so that the organization acts in a more collaborative and transparent way in its mission through governance, in addition to guaranteeing a vision of operational excellence for the present and a vision of the future of the organization.

In the Circular Organization Chart model, the processes are an important driver for the development of KPIs - Key Performance Indicators - of the multidisciplinary squads involved in each process.

The Circular Organization Chart visually reinforces the Organizational Culture desired by modern organizations.

**THE TERROIR
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ON AGILITY AND
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TO RESPOND TO THE
CHALLENGES THAT
CORPORATIONS
ARE CURRENTLY
EXPERIENCING.**

FINAL CONSIDERATIONS

Organizational Culture must be understood as a living phenomenon, that is, it changes over the years, influenced by new values in society, technological advances, new values that guide organizations, as well as new generations entering the job market with new expectations. and motivations.

Sticking to traditional models can create obstacles for the organization to become more agile to the demands of a new, more complex business scenario.

The proposal for a circular organizational chart is a provocation to promote a new organizational culture, which favors the Terroir of Innovation, but must be implemented incrementally to avoid clashes with more traditional positions that are resistant to change

Without working on Organizational Culture to make the organization more innovative, the organization will be more sensitive to the threats posed by a more accelerated and disruptive world

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Tiago Aguiar, Open Finance

OPEN FINANCE REVOLUTION

Your bank, your best friend.

Imagine if you were to change cities, could your bank help you to choose the best neighborhood for you to live based on your consumption profile, your habits, where you shop, which stores you go to, where your kids go to school? And what if your bank was already connected to several real estate agencies and, in addition to helping to choose the neighborhood, also already left a pre-approved mortgage for you to buy your new home.

This, and much more, will all be possible with the Open Economy promoted by Open Banking.

But, before we move on, let me tell you what Open Banking is.

Open Banking it's an automated way of data sharing (eg., account and card registration data, payment initiation transactions and forwarding of credit proposals) involving banks, payment institutions, other authorized institutions and their users. It occurs under the regulation and supervision of the Central Bank through a technological and secure platform provided by the Initial Governance Framework. It has as a fundamental premise that user data will only be shared with their explicit authorization (consent).

Open Banking has 3 important pillars: (i) regulation, (ii) coordination and (iii) collaboration.

The initial regulation was sponsored by the Central Bank, which formulated the objectives, principles and foundation for the work to begin. That is, he established the What. What was

to be done and what he expected.

The 2nd pillar is coordination. The Central Bank in Brazil delegated to a group of representatives to establish the How. How it would be done, how it would be implemented and what the technical requirements would be so that the participating institutions could allow the sharing of their customers' bank data.

But, it is in the WHO that Open Banking will revolutionize the financial system. For the first time, for an innovation to succeed, the financial system will need to work collaboratively. Collaboration between competitors so that information is exchanged correctly and, above all, securely. At this time of construction and implementation, the technical teams of the financial institutions are talking to each other because even though the technical requirements are published, most of the time it is necessary to make fine adjustments and this can only be done by exchanging information, contacts, messages. Today, there are countless groups of technical whatsapps, slacks among FIs.

However, the collaboration must go

even further, cause to achieve one of the main purposes of Open Banking, that is financial inclusion, it is necessary to collaborate beyond the financial market. To get where people are, specially those underbanked or unbanked, we must connect all sectors: fintechs, SMEs, retail, insurance and telecommunications because people may not have a bank account, but have a cell phone.

BEYOND BANKING.

At first, Open Banking was meant to promote competition between banks, financial inclusion and innovation. However, the concept has grew to include more than banking and now comprehends also financial products such as investments, exchange and pension. Because of this initiative, other sectors have joined the cause of open data and now we see open data initiatives in the insurance, health and public utility sectors.

Thus, what I want to share here is a vision of where we can go if we expand the scope of this infrastructure that is being created to allow connection between all economic sectors. Imagine all data being share in an integrated and interoperable manner?

Open Banking must be seen as the infrastructure that will provide connection to all sectors, banks, retail, fintechs, small or large companies, insurance companies, construction companies etc.

Because the challenge to achieve financial inclusion, specifically in Brazil is enormous: according to the Locomotiva Institute, in January 2021 there were 34 million Brazilians who did not have a bank account, but these people certainly shop at a supermarket and have a prepaid cell phone. And, according to CAIXA, 38 million people who received emergency aid did not have a bank account.

However, these same Brazilians spent R\$ 347 billion last year.

Imagine what the economic growth would be like if this entire contingent could consume some kind of credit? What if, when he went to make a purchase, he could have at his disposal not only 1 credit offer, but the entire credit market in the country? Or, if, when enrolling your child in a school or university, he could have adequate funding for his consumption pattern and disposable income. And that all this could be done quickly, transparently and online?

With open banking, financial institutions will be able to make bilateral agreements with the general market and take financial products to the end customer. And interest rates levied on credit would be much lower due to data sharing once the bank would be able to do a better credit analysis and assess borrowers' disposable income and affordability.

So, open banking through collaboration between market agents can make all of this possible. Why not make data sharing agreements between a supermarket and a bank. Between a payment institution and a mobile phone company? Impossible? No way. We already have the technology for that.

And with all the infrastructure that was developed over the last 2 decades, together with Open Banking, adding to that the expansion of fast internet, the arrival of 5G, Artificial Intelligence with machine learning, we do already have all necessary technology to make the world integrated and interoperable.

To get an idea of the potential of Open Banking, according to data from the Consultancy BIP, R\$ 2 trillions in savings and bonds will be exposed with open banking data sharing, of which 59% of this total is concentrated in 2 banks only.

DATA OWNERSHIP A LONG JOURNEY

Technological achievements and evolution are one aspect of Open Economy, including Open Banking. The other, and as important as the latter, is data ownership, a battle that has been going on for the last 120 years, since the discussion of data privacy started.

In 1890 two American lawyers, Samuel D. Warren and Louis Brandeis, wrote an article called "Right to Privacy" using the expression "right to be left alone" as a definition of privacy. The discussion in courts kept going and finally the right to privacy was included in the Universal Declaration of Human Rights.

But the subject took other turns with the rise of the internet and search engines. In 2014 a decision by the Court of Justice of the European Union concluded that European law gave people the right to ask search engines, like Google, to remove query results that included their name. The concept became known as the "right to be forgotten".

This shift in the understanding that data belongs to individuals is so fundamental that the US Supreme Court is currently reviewing its position on the Third Party doctrine, which is a current American

jurisprudence that holds that individuals who voluntarily provide information to third parties - such as banks, telephone companies, Internet service providers and email servers - "have no reasonable expectation of privacy" in this information.

So, in this regard, Open Banking could only become a reality due to the GDPR (General Data Protection Right), which is the legislation that protects data rights and finally establishes the concept that information about oneself belongs to the person himself and it is from him that the authorization for use and sharing must come.

Truly, at the end, indeed people are willing to share their data. They just don't want them to be used without their authorization and especially for purposes that don't bring them any benefit.

As a survey done last year outside of Brazil showed that 86% of people were willing to share data to receive better personalized services. Also, 59% said that they are comfortable sharing personal information with companies or brands that offer some form of financial compensation such as discounts or rewards.



Photo by nathan dumlaio on unsplash

BENEFITS AND SOLUTIONS

So, what are the benefits that Open Banking brings the population:

- Access to credit with better prices, rates and limits, including the ability to upload credit history;
- Financial management in a single place, with personalized products and services;
- Access to innovative products and services (eg. payment initiation);

Also, there are countless solutions that may arise from Open Banking, such as:

- Personal Finance Management;
- Comparison of rates and services;
- Financial advice and planning apps;
- Initiator of payments via social network, ERPs etc.;
- Credit marketplace.

With services like these, financial institutions will be able to predict the financial behavior of its customers, see where their money goes, understand their consumption pattern, analyze their behavior trends and project their income and expenses for the coming months.

All this with the aim of delivering a personalized product to the customer and no longer seeing the customer as part of a large segment along with thousands of others users who are in fact different from each other.

With all this in place, I imagine that in 10 years an adolescent, in a country with very little financial education like Brazil, will be able to save money automatically using a round-up service where in every purchase the difference is invested. And so, when he gets to the age of retiring he will get a pleasant surprise.

Now, there is a lot of work to be done, but the future tends to benefit and arrive sooner for those who bet on it.



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Isaac Ivanoff, Metanext Ventures

METAVVERSE

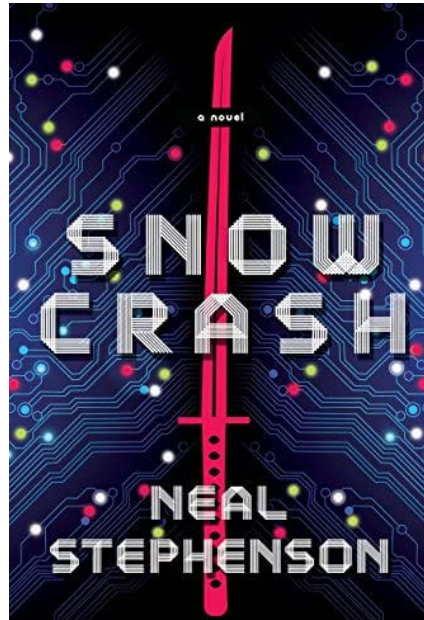
IS ALREADY A REALITY

There are a lot of misconceptions about the Metaverse and Web3. Some see it as synonymous with Facebook/Meta. Others think that Metaverse is VR, crypto, or NFTs. In reality, the term Metaverse creates confusion as it's a bit amorphous and is still being defined. Generally speaking, when people talk about the Metaverse they're talking about the building blocks to the Metaverse. Immersive tech, 3D content, virtual worlds/games that offer social interaction with other players, web3 (in some cases). I will try to explain, in a simple and didactic way, the concepts and why we should pay more attention to the Metaverse and invest in it.

The term Metaverse went from relative anonymity to almost 100% last year. While Metaverse rose to fame initially due to Facebook's name change into 'Meta' to express their ambition to become a Metaverse company within 5 years there are now many companies, startups and brands working on their metaverse strategy.

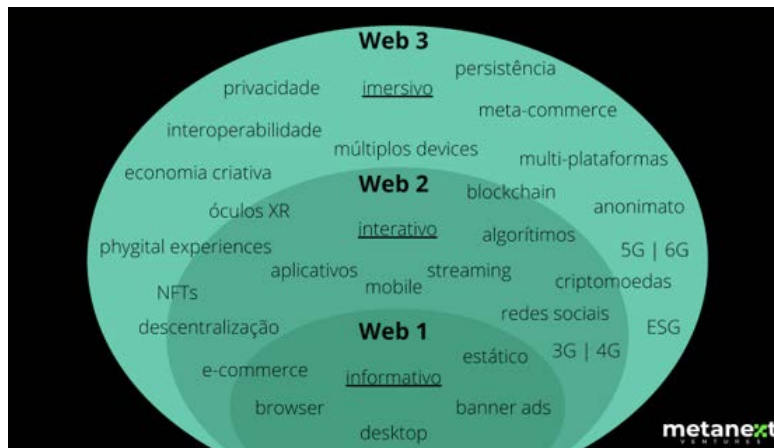
There are a lot of misconceptions about the Metaverse and Web3. Some see it as synonymous with Facebook/Meta. Others think that Metaverse is VR, crypto, or NFTs. In reality, the term Metaverse creates confusion as it's a bit amorphous and is still being defined.

The term Metaverse was first coined by author Neil Stephenson in the novel 'Snow Crash' published in 1992. The book depicted the Metaverse as a 3D virtual world where people walk around as avatars and socialize / interact with one another as well as with AI-generated characters. The movie 'Ready Player One' also showed a representation of the Metaverse as one large virtual world where people socialise, play and compete with one another.



30 years on, the Metaverse is still being defined – in its essence it's still a virtual environment where people can play, shop, socialise, and work. It's a combination of virtual reality, augmented reality and virtual worlds (which today mostly consist of games like Roblox, Fortnite, Upland, Decentraland, etc).

A Goldman Sachs report on the future of Web3 described Metaverse as “a successor to mobile Internet that



will elevate physical world experiences and be co-created and built responsibly”.

And, like any new and emerging technology, the Metaverse has faced its share of challenges and criticisms. The Metaverse has been the source of much attention, but not necessarily for the right reasons.

On one end, Meta, which is struggling to deliver its vision for the Metaverse and balancing the massive expense it requires, with its declining core business. Layoffs, technology difficulties and expensive hardware didn’t massively help build a positive story.

On the other hand, there’s been instances where existing virtual worlds, have been empty of users. And there’s there’s of course the

tarnishing of everything crypto and web3 related thanks to scams and public collapses like the FTX saga. In fact, it's hard to keep up with the news, there's so much going on.

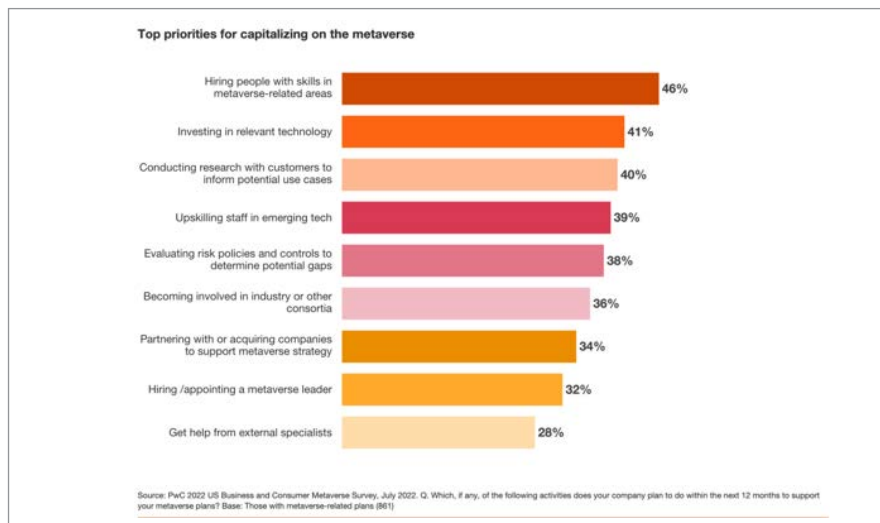
However, Metaverse is still in its early stages of development, and yet, we already can see positive examples of its impact.

New technologies, like Generative AI create exciting opportunities to scale creativity and content creation. It will not only reduce the barriers and increase the speed of creation, but also reduce the cost and democratise the tools required to be a game developer, virtual goods designer or virtual world builder.

According to a recent PwC survey of over 5,000 US consumers and 1,000 US business leaders, 50% of consumers call the metaverse exciting, and 66% of executives report that their companies are actively engaged. That means that two-thirds of top executives in the US report that their companies are actively engaged in the metaverse in some way. See the chart below.

McKinsey's Report has caught the attention of corporates thinking about how the metaverse will affect their industries and sizes the opportunity at \$5 trillion by 2030.

McKinsey also published the results of a 1,000 person survey, consisting of people aged 13-70. You can see some of the findings below.



Value creation in the metaverse

The real business of the virtual world

What's the opportunity?



In **2021**, venture capital and private-equity funding into the metaverse reached

\$13 billion

By **2030**, the value of the metaverse could reach...

~\$5 trillion

In **2022** already, investment into the metaverse space is more than double what it was in all of **2021**

>\$120 billion +

Consumers and brands are already engaging

59%

of consumers are excited about transitioning their everyday activities to the metaverse

57%

of metaverse-aware companies say they are adopters

Top 5 activities consumers are excited about

- Social
- Entertainment
- Gaming
- Travel
- Shopping

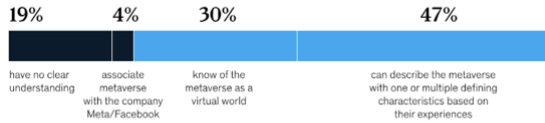


Top 5 enterprise use cases companies are implementing

- Marketing campaign or initiatives
- Learning and development for employees
- Meetings in the metaverse
- Events or conferences
- Product design or digital twinning

Three-quarters of metaverse early adopters can define the metaverse in fairly accurate terms.

US consumer understanding of the metaverse,¹ share of respondents²



¹Question: How would you define metaverse in your own words?
²Digital focus group of early adopters who had recent experiences using one or more metaverse platforms.
 Source: McKinsey Virtual World Adopters and Consumers Survey (Feb. 2022)

US consumers expect to spend almost four hours per day in the metaverse in five years.

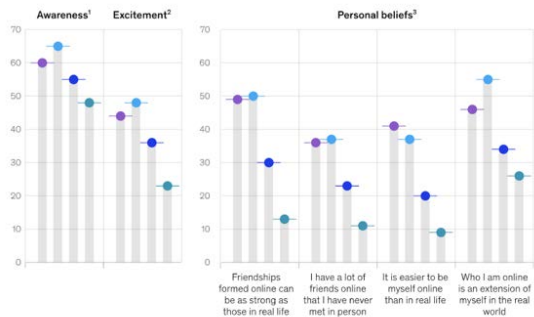
Expectations of time spent in metaverse in 5 years, by generation,¹ hours per day



¹Question: In 5 years, approximately how many hours per day do you think you'll spend in the metaverse on an average day?
 Source: McKinsey Metaverse Consumer Survey (Feb. 2022)

Interest and excitement about the metaverse is highest among Gen Z and millennials, who have the strongest digital identities and personal beliefs.

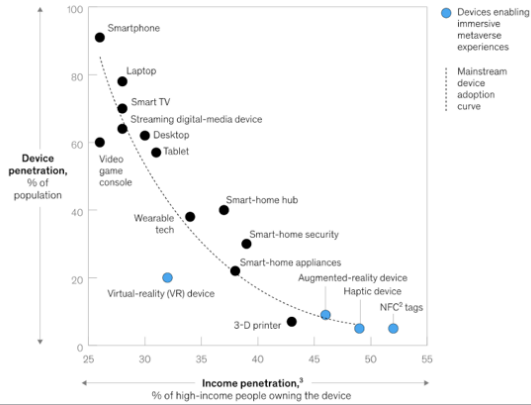
Metaverse awareness, excitement, and personal beliefs, by generation, % of respondents



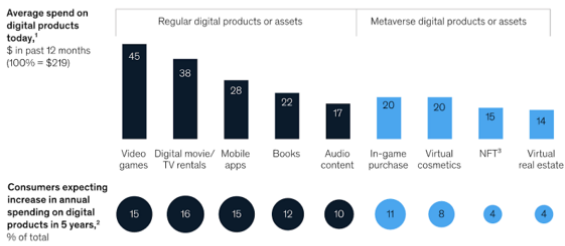
¹Question: The metaverse is a digital world that allows people to interact with each other in digital spaces. Before taking this survey, had you heard of the metaverse?
²Question: Based on what you currently know, how excited are you for what the future of the metaverse looks like?
³Question: Please indicate how strongly you agree or disagree with each of the following statements. Percent of respondents who "agree" or "strongly agree" are shown.
 Source: McKinsey Metaverse Consumer Survey (Feb. 2022)

Devices enabling immersive experiences in the metaverse have low penetration today, but they are following mainstream device adoption curves.

Device penetration by income¹



US consumer spending on digital products and assets is expected to grow in the coming years.



¹Question: Approximately how much money have you personally spent on the following digital products/services in the past 12 months?
²Question: How do you expect the amount of money you spend on the following digital products/services to change in the next 5 years?
³Nonfungible tokens.
 Source: McKinsey Metaverse Consumer Survey (Feb 2022, n = 1,011)

Future US consumer interest in the metaverse spans a range of other digital activities.

Interest in immersive digital activity or experience in the next 5 years,¹ % of respondents



¹Question: How interested are you in participating in the following immersive digital activities or experiences in the next 5 years? Percent of respondents who are "very interested" or "somewhat interested" are shown.
 Source: McKinsey Metaverse Consumer Survey (Feb 2022)

Such growing consumer demand is motivating further investment by technology companies. Apple bought VR company NextVR in 2020 and plans to launch its first VR/AR headset in 2022. Consumers are asking for better usability and are inspiring tech companies to innovate and create a race between device and platform companies to level up the metaverse.

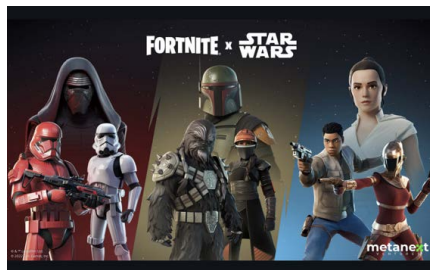
Our analysis of existing platforms indicates that there is a high correlation between users expecting a realistic experience and frequency of use. That pushes companies to build more immersive experiences.

Finally, consumer expectations regarding data will challenge companies to develop creative solutions. Sixty-two percent of consumers expect full control over their data, but nearly half will give that up for a personalized internet experience and device interconnectivity (for example, PC, mobile, console).

Gaming has become the most common entry to the Metaverse and virtual worlds. Gaming platforms like Roblox or Fortnite are at the core of building closed Metaverses. Users come to hang-out, listen to concerts or movie premiers and known brands like Gucci, Ferrari, Nike, Marvel

are all trying to build a commercial presence. When we are talking about virtual goods & services, lots of these transactions are driven by gaming platforms that have evolved into virtual, social, and entertainment worlds.

- Metaverse commerce seen as a \$8 trillion opportunity according to Goldman Sachs
- There are 1.1 billion people using mobile AR in 2022
- 27 million people tuned to watch Travis Scott’s virtual concerts on Fortnite
- Lil Nas X virtual concert on Roblox was watched 33 million times



I believe that education is one of the biggest opportunities within the metaverse/web3 universe.

Covid has ruthlessly exposed the weakness of the education sector in our society and web2.0 companies that provide digital education today fall short in terms of being immersive and interactive. Students cannot easily network with other students and we have all experienced how much fun these zoom sessions can be.

The Metaverse provides a fantastic opportunity to solve many of the web2 problems. Imagine for a moment a virtual university with a campus and all on Minecraft, Roblox, Sandbox or Decentraland.

Students attend with their avatars and enter a very immersive, interactive experience with the professor but also with their fellow students. Students can easily attend and meet like minded friends from all over the world. The metaverse allows for the creation of virtual classrooms in which a teacher engages as an avatar with students from all parts of the country or world. This can allow schools to provide a more robust selection of classes for students. It can also help colleges better serve students who want to take classes virtually.

For example, a high school might have a handful of students who want to take mandarin chinese, but their school doesn't offer it. Other schools – maybe in neighboring communities, or even in other states – might be in the same boat. The metaverse can offer a solution by allowing all of the students to learn together in a virtual classroom. They could virtually travel to the bustling city of Shanghai, or tour the temples of the Forbidden City, immersing themselves in the culture while they learn. The schools can bring a Mandarin teacher from three towns over, or on the other side of the world into this virtual space to provide the lessons.

Many schools are already taking advantage of VR technology to take students on virtual field trips such as visits to famous landmarks or experiences like going to space or swimming with sharks. These are great ways to use VR technology to enhance instruction, especially when the VR experience is accompanied by a robust curriculum.

The metaverse can take the idea of virtual field trips a step further. Our company,

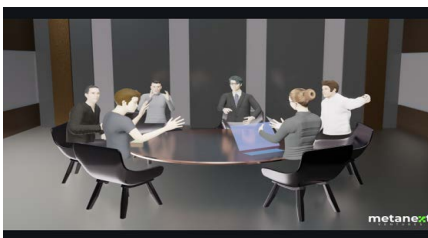
for example, provides the Eduverse, a secure education-focused platform in which teachers and students can interact as avatars. So instead of just getting an immersive look at the pyramids, perhaps the teacher leads students on a tour of a tomb, pointing out artifacts for the students to examine. The metaverse provides opportunities to take VR field trips to the next level by adding that social component which creates deeper levels of engagement.

VR technology allows for the creation of virtual spaces that can be used to support students with special needs. For instance, creating virtual sensory rooms or other experiences that can help support students. A great example of this is Spaulding Academy & Family Services in New Hampshire. The school specializes in educating students with autism. It uses VR experiences to help support students' unique needs for sensory regulation, emotional regulation, skill-building, social interaction and transitions to new places and experiences. For instance, one of their student's preferred ways of self-soothing is to swing on a particular swing set. The school created a 360-degree video of that specific experience. Another student likes to be in a room with fans blowing so the school created a 360-degree video of that experience.

Now whenever these students need to self-regulate, they can put on a VR headset and within about 30 seconds, they are ready to get back to learning.

In the future, we'll likely see an expansion of the types of classes schools will offer because the metaverse will solve many of the logistical challenges to teaching in a global environment. Schools will no longer be limited by time or location or space. The possibilities are endless.

The opportunity for retail seems very secure. We as humans are spending much more time online, inside virtual worlds like Fortnite, Animal Crossing or RecRoom. Our identity in these virtual worlds and our urge to be seen as



unique, is directly transferable from our physical worlds. So how we look, what we wear, becomes more and more important. That's why games like Fortnite or PubG make billions selling "skins" (virtual clothes) or why users inside Animal Crossing hire real-world interior designers to help them create beautiful virtual homes.

We are seeing these first steps with fashion companies like Gucci (opened a store on Roblox), Louis Vuitton or Bershka's cooperation with League of Legends, Nike entering Roblox, Adidas entering Sandbox and many many more. The digital /virtual goods market is already a \$190 billion market opportunity today, according to CB Insights.

With regard to virtual experiences, CPG brands are increasingly active. For example, P&G Beauty entered the metaverse with a virtual storytelling world called BeautySphere112 and, in February this year, L'Oréal filed 17 patents related to NFTs and the metaverse—a testament to its ambitions. More CPG brands are likely to follow if consumers shift more experiences to the metaverse, especially considering companies' known engagement with events and sport sponsorships. As virtual worlds evolve and customer attention

increases, parts of capital devoted to sponsorships are likely to flow into virtual worlds, fueling virtual experiences.

But web3.0 presents more than just another sales channel for retailers. One of the biggest challenges that most CPG brands face is the lack of direct interaction with their customers. Most consumer giants today own very little data about their consumers and are trying to catchup with amazon, facebook and google. On top of that GDPR has made it difficult for retailers lacking sophisticated software to collect primary data and further strengthened tech incumbents.

Metaverse offerings may present high-margin revenue streams for CPG companies, which typically operate under significant margin pressure. While it would likely remain far smaller than core revenue streams and be more focused on marketing and consumer engagement in the near-term, we see opportunities for CPG brands across two of the metaverse's layers: content and experiences, and platforms.



Virtual Worlds and NFTs provide a very big opportunity here to meet new customers. After all, these are the places where a lot of them hang-out and spend a lot of time. NFTs coupled with smart contracts can allow a brand to establish a new relationship with consumers, especially the sought-after GenZs. Think loyalty programs 3.0. Where an NFT would regulate what data the consumer shares in return for discounts, exclusive events or virtual & physical merchandise drops.

There is already a clear distinction between how financial institutions have been engaging with the more traditional Web 2.0 metaverse and experimentation in Web3 enabled metaverse venues. In the context of Web 2.0, we see financial services companies utilizing



the technology for employee training (for example, Bank of America VR training); creating virtual “financial towns,” telecommuting centers, and interaction spaces (such as South Korea’s KB Kookmin Bank); and offering virtual investment advisory services (for instance, NH Investment & Securities).

While these applications are quite mature, their impact on the fundamental business model in financial services has been only modest. In the Web3-enabled metaverse, we are starting to see more creative models of engagement. For example, HSBC has purchased virtual land in The Sandbox dedicated to engaging with e-sports enthusiasts. As London-based fintech Sokin is building infrastructure for processing metaverse payments, transactions, and investments, neobank Zelf is launching embedded banking for metaverse gamers via its MetaPass in Discord. Several companies including North American technology company TerraZero are providing back-end support for virtual real estate financing in the metaverse.

There is no shortage of financial services companies exploring the utility of the latest evolution of the metaverse. As its function transitions from primarily consumer entertainment to more commercial applications—and from niche social interactions to become a social network—the opportunities for the sector will only expand.

It’s going to take time for the technology to reach a stage that is widely distributed and ready for prime time. Before celebrating the Metaverse as the next big thing or discard it as a fad, we need to give it time to develop.

As experimentation broadens, there will be an explosion of creative, commercially viable ideas that will transform the way we work, play, connect, and engage. Brands will need to define their metaverse strategy—and the decision on which path to take will depend on what they believe about adoption, opportunity, and investment required.

One thing is certain: whatever shape the metaverse will take, consumers will be the driving force behind the evolution.

