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TOWARDS 2030

THE SUSTAINABILITY DELIVERY DECADE

Using digital & financial innovations to accelerate business transformations and contributions to a more resilient and inclusive society

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This report provides insights based on hands-on experience and practical examples, with a view to contribute the advancement of companies' and investors' sustainability performance. To that end, we select cutting-edge approaches on how best to apply sustainability principles to your business and operations. While we hope this proves helpful, we welcome further insights: reach out to the Ksapa team for more information, at: contact@ksapa.org

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Our mission at Ksapa is to provide scalable innovative solutions to help finance and business to accelerate impact on their Sustainable Development Goals (SDG) priorities. We help to build more resilient, more inclusive yet more competitive operating models through strategic advice, impact investing solutions design and management, as well as advocacy.

Ksapa & Advocacy

We are a purpose-based corporation. We mean to encourage investors and businesses toward generating value and competitiveness by making strong impact on the SDG most relevant to their portfolios and operations. We regularly provide expert insights, to accelerate the transition of businesses and finance toward SDG completion by 2030, based on the following editorial guidelines:

- **Provide briefs addressing industry-wide hotspots, where the lack of resilient and inclusive business models harbors high risks for investors and companies;**
- **Influence investing, corporate and regulatory practices to harness resilience and inclusive growth.**

Important Notice

Executive Summary

PROBLEM STATEMENT

In essence, years of stagnant wages, the effect of technology on jobs, uncertainty about the future where climate change is a major concern, and continuous deterioration of the natural environment have fueled public frustration, anger and, in some cases, renewed nationalism and xenophobia. In an increasingly interconnected and global world, we have an alarming tendency to shut out the surrounding world – even as the stakes demand closer ties between players. Confidence and trust in multilateralism and official institutions have deteriorated, leading to social unrest and unstable political environments around the world.

Governments are increasingly perceived as incapable of providing quick and lasting solutions and as a result, societies are increasingly turning to companies for help in overcoming pressing social, environmental and economic issues. Regulatory pressures are closing in and new, legally-binding treaties are being discussed at UN level, along with a growing number of market-level regulatory initiatives encouraging companies to define clear pathways to understanding and mitigating Human Rights risks across their operations and global supply chains. More and more are companies scrutinized for their impacts on society and the environment, but also set back by investors' new-found premium on extra-financial performance. Public opinion would hold companies to shouldering their fair share of responsibility based on their size and power. **It is fair to assume that pressure on businesses to take action on these socio-environmental issues and demonstrate progress has never been greater. It is likely to keep growing, to the point of becoming key to their very survival.**

It can also be a key for success.

The 2020's are a "Delivery Decade". The countdown has started. Businesses' resilience and capacity to remain acceptable and generate long-term value is at stake. Jeremy Rifkin, for instance, stated carbon exposure will radically impact businesses and economies by 2028 at the very latest (Rifkin, 2019). Covid-19 has only amplified these trends, signaling what is only the beginning a series of turbulences, which exert a domino effect, from deep recession to extreme poverty and a resulting lack of investment capacity to manage the next environmental crisis, to cite just one example.

What is so new about the Delivery Decade that new solutions might spark concerted responses to growing pressure and challenges? Digital technologies disrupt the way the world works. Innovative finance solutions are emerging, accelerating access to much-needed resources to change the scale and impact of the transformations needed to deliver on Agenda 2030. Businesses need to embrace digital and innovative finance solutions to stay relevant and thrive.

In this report, **we address key ways to activate technologies and innovative financing generating return and impact on these sustainability areas**. This report screened the maturity of 80 companies and investors on these issues, through primary and secondary research and explored inspiring initiatives which pave the way. We identify interesting initiatives which illustrate **how corporations and finance can work together, harnessing new technology and innovative finance solutions to scale their positive impact**.

The report also highlights the importance of considering the cross-cutting nature of sustainability priorities and the linkages between different Sustainability Development Goals. It is for instance obvious that tackling the root causes of poverty, insufficient access to quality education or gender has a significant impact on many environmental challenges, from food to soil, air and water quality, biodiversity, climate action and sustainable cities.

Lastly, this report aims to foster dialog between stakeholders, inspire decision-makers, ultimately encouraging everyone to do more and better. This is a journey and we're only just entering the Delivery Decade. Much more is underway. Much more will positively surprise us all. While we are realists, we want to approach the Delivery Decade with a positive mindset. **Optimism is the ultimate ingredient we all need to effectively deliver more resilient and inclusive societies**.

KEY FINDINGS

1. LARGE (AND SMALLER) COMPANIES ARE EXPOSED TO MAJOR RESILIENCE CHALLENGES FOR THE DECADE TO COME.

Climate change alone calls for the rapid transformation and adaptation of business models in the decade to come. For example, 53% among the 6900+ companies reporting to CDP anticipate both physical risks, such as extreme weather patterns and rising global temperatures as well as transitional risks the likes of potential legal and policy changes. The current recession only renders this equation more complex for many sectors, whose buffers have been weakened at a time they most need to boost their sustainable transformation.

2. LARGE COMPANIES POORLY PROJECT SUSTAINABILITY AMBITIONS FOR THE NEXT DECADE (E.G.: 2025).

The November 2019 BSR/GlobeScan State of Sustainable Business Survey surveyed 125 multinational companies, concluding approximately 50% of companies set 2020 as a key milestone for their sustainability strategy and just over a third are focusing on 2025 as their next major milestone.

3. SUSTAINABILITY TARGETS TO DATE ARE GENERALLY NOT ALIGNED WITH IMPERATIVES ALIGNED WITH THE 2030 AGENDA.

For instance, too few companies are committed to aligning with a 1.5°C global warming trajectory. As of December 2019, support for the Task Force on Climate-related Financial Disclosures grossed a market capitalization of USD 11 trillion – less than 3% of the global financial market.

4. TECH IS A BUZZWORD AND EVERY COMPANY HAS A CLAIM TO DIGITIZING BUSINESS.

Inspiring examples as to how companies are leveraging the potential of new technologies to provide transformative solutions and address their material sustainability challenges are at best anecdotal and mostly sparse.

5. CORPORATE MATURITY IN USING INNOVATIVE FINANCE TO SCALE AND ACCELERATE SUSTAINABILITY SOLUTIONS REMAINS LIMITED.

This at a time when liquidities are available and when green bonds or blended finance solutions are rapidly diversifying.

WHAT IS AT STAKE

1. THE SDG CLEARLY FRAMED GLOBAL PRIORITIES FOR BUSINESS AND STAKEHOLDERS

The United Nations' 2030 Agenda (as well as the Paris Agreement) clearly frames global priorities for every stakeholder, including businesses. **Corporations unable to demonstrate leadership and purpose aligned with the SDG may not harness the relevant transformative dynamics to secure their own resilience and inclusiveness. They cannot therefore hope to generate long-term value and address growing stakeholders' pressure**. Supported by a growing number of multinationals, the OECD Business for Inclusive Growth pledge provides a prime example of the imperative for businesses to work significantly harder at tackling inequalities – and fast.

2. TECHNOLOGIES COULD SIGNIFICANTLY BOOST SDG PROGRAMS

Technology being a key enabler is old news. Every industrial revolution has been powered by technology, given it boosts productivity as well as our capacity to manage greater business complexity. The combined scale and interconnected effects of technology as well as its rapid growth are what makes the current digital revolution truly unique.

- Every business from every perspective anywhere in the world is impacted. This is scale.
- The variety of technologies – machine learning, the Internet of Things, blockchains, smartphone applications, 5G, AR/VR, drones… advantageously feed off one another. This is the interconnected effect.
- Most solutions are being rolled out fast, with exponential applications in the decade to come. For instance, 5G is only getting started, as are its business applications. This is acceleration.

Scale, interconnection and accelerations are 3 key ingredients for us to approach the Delivery Decade with the right ambition in terms of meeting the 2030 Sustainable Development Goals.

3. MASSIVE CAPITAL SEEKING OPPORTUNITIES ALIGNED WITH THE 2030 AGENDA

Financial assets valuation made possible, among others, by the monetary policies of the past decade, have reached an all-time high in many sectors. The **recent acquisition of non-financial rating agencies, climate risk estimation or Big Data processing** by mainstream rating agencies demonstrate how conventional investors are increasingly vying to include non-financial analyses at a broader scale. Likewise, dedicated funds have emerged, and an increasingly significant proportion of existing institutional investment vehicles has shifted to Green, Socially Responsible Investment or ESG labels.

Such evolutions testify to the redesign of the risk/return trade-off in the assessment and definition of corporate financial analyses. This may be directly linked to the redefinition of the role of corporations in society, particularly in terms of curbing the socio-environmental impact of their activities.

In other words, we're entering a new decade, where the abundance of liquidities matches the ever-growing number of investors and asset managers seeking to secure **the current risk/return trade-off model**. Seeing as they increasingly factor ESG criteria and/or value impact as part of their risk and portfolio management, they could become key partners for sustainability leaders to access the necessary liquidities to support a just economic transition **aligned with the 2030 Agenda.**

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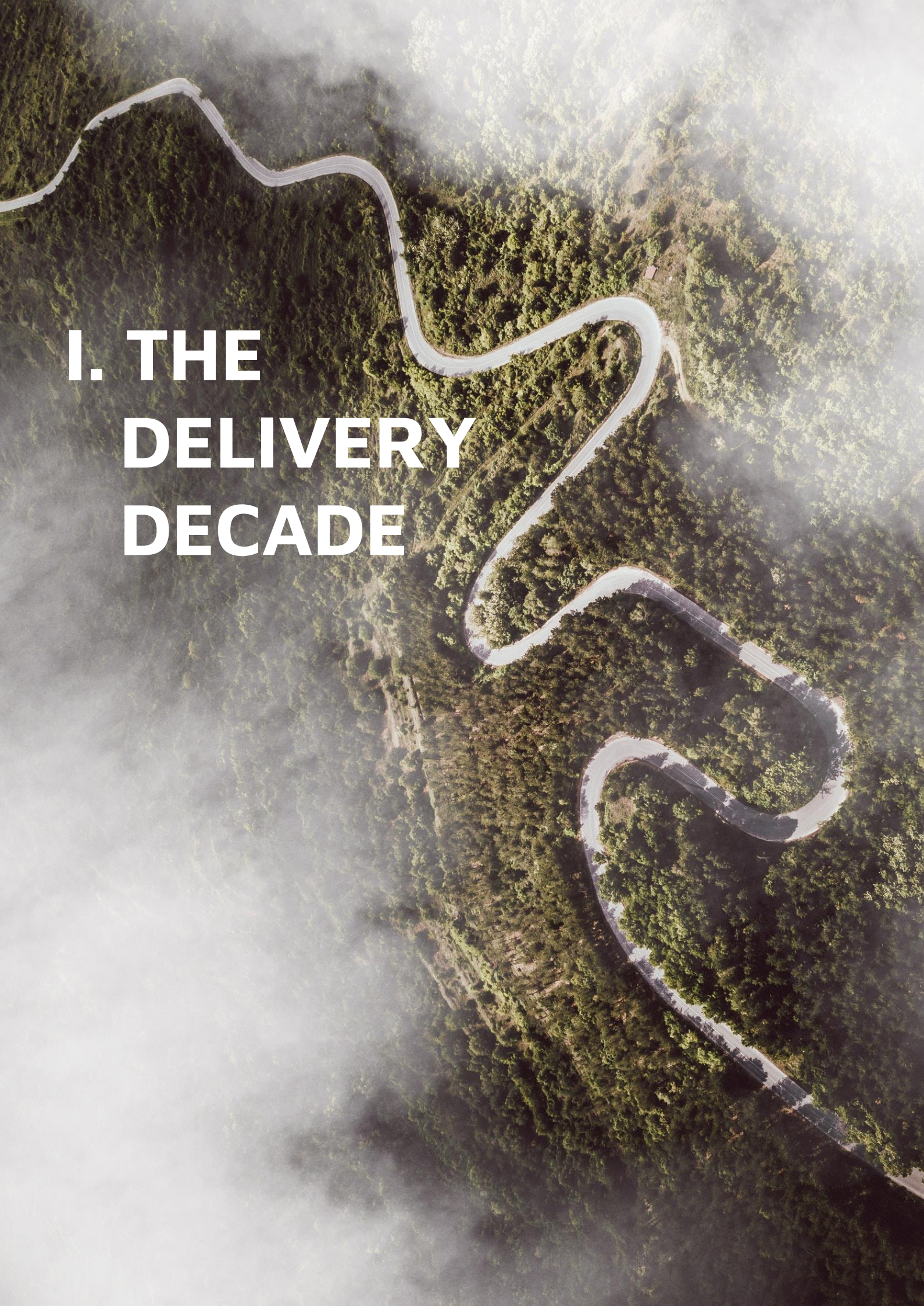

I. THE DELIVERY DECADE

The Delivery Decade

I.1 THE 2030 AGENDA

The Delivery Decade

I.1 THE 2030 AGENDA

We are not currently on track to meet the 2030 Global Agenda for sustainable development. Reports from 2020 show that, despite success stories in a number of areas since 2015 when the goals were formalized, progress has generally been slow – if not altogether reversed. The vulnerable have continued to suffer the most and the global community has failed to step up to the plate. While extreme poverty had reached its lowest point since tracking began, we are far from eradicating poverty by 2030 – and even more so now because of the Covid-19 recession. **Despite the fact so many players are taking action to protect our environment, our planetary health is deteriorating at an alarming rate** (Sachs, Schmidt-Traub, Kroll, & Lafortune, 2019). Sea levels are rising, ocean acidification is accelerating, the past 4 years have been the warmest on record, 1 million plant and animal species are at risk of extinction and land degradation remains unchecked (UN, 2019).

Now, with only 10 years to go, only through a stronger convergence between the private and public sector will we be able to meet the **meet the Sustainable Development Goals** as stated during the first UN High-level Dialogue on Financing for Development in September 2019. As of today, gaps remain, hampering our collective potential to answer these common, existential challenges (DEVEX, 2019).

Despite the fact they collectively wield an estimated 75% of the global GDP, companies still are falling short on the SDG. Perhaps even more worrying, only 21% of 1000 recently surveyed CEOs agree business plays a critical role in contributing to the 2O3O Global Agenda and 48% are currently integrating sustainability across their operations (UN Global Compact & Accenture, 2019). While all players – including the private sector – need to do more, we collectively would do well to recognize the competitive advantage of leading on environmental, social and governance issues as well as the related opportunities in top talent attraction, positive engagement through reporting on progress, as well as impressive innovation and impact. Efficiencies can be identified in the short-term.

Profound transformations are already underway. When a business is grounded in a clear sense of purpose to do good, it is in fact shoring up its competitiveness and relevance for $ the long run. Add to that the highly disruptive digital revolution, business face a cohort of innovative solutions as well as threats if they fail to harness them effectively. **In short, business has ample reason to set bold targets and re-invent itself for the better, to ensure it becomes a central part of the solution.**

Harnessing digital technological solutions to re-align business with common challenges in our society and environment is key. Beyond investing in sectors that positively impact citizens, businesses are increasingly adopting approaches and business models that focus on profitable solutions, making the most of digital technologies, to address challenges to their sustainable development. By innovating and targeting new markets and customers, companies are able to create more positive outcomes for clients they touch directly and for the communities and ecosystems in which they operate. By channeling sustainable value chains, purpose-driven multinationals may demonstrate their commitment to responsible business models and move beyond conventional Corporate Social Responsibility. In so doing, they are already gaining from such approaches.

Achieving the UN 2030 Global Agenda offers a holistic vision for a sustainable society, by virtue of being altogether socially fair, environmentally secure, economically prosperous, more inclusive and predictable. The SDG indeed offer a viable model for long-term growth, provided businesses move forward together. As these goals are interwoven, progress across as many SDG as possible stands to have much more impact than meeting only some (Business and Sustainable Development Commission, 2017).

The following report outlines why sustainability is paramount for businesses today and how digital solutions and innovative financial resources stand to help them improve not just their overall performance but also their impact on the global environment and society at large.

The Delivery Decade

I.2 DECARBONIZATION

The Delivery Decade

I.2 DECARBONIZATION

Our actions in the next few years will determine life on our planet for centuries to come. It is of vital importance to remain under the 1.5°C global warming threshold by 2100 (compared to pre-industrial levels), lest we risk catastrophic consequences for all aspects of life. The consequences of that much global warming are in themselves substantial. Still, this would allow us to hold off some of the worst effects of climate change, avoiding irreversible and immensely costly damage to our societies, economies and the natural world. Yet the Paris Agreement only managed to gain support to keep global warming "well below 2°C, while pursuing efforts to limit it to 1.5°C". This despite warnings as to the major difference between 1°C, 1.5°C and 2°C of global warming in terms of hundreds of millions of lives and trillions lost in assets, cutting into global food supplies and fueling more conflicts (IPCC, 2018). Still, global inaction prevails and a 2°C scenario now looms ever closer.

Despite being collectively responsible for 80% of global CO_2 emissions, not one of the G20 countries is on track to fully align with the Paris Agreement (Climate Transparency, 2019). We now also know that there is a major gap between global plans to extract more coal, gas and oil by 2030 and National Development Plans formalized in response to the Paris Agreement. Many of these promises are still based on decisions that have not yet been taken. In the meantime, carbon dioxide emissions and global average temperatures are expected to remain on the rise. Governments around the world are planning to expand production, which would amount in 2030 to close to 50% more fossil fuels than would be consistent with a 2°C global warming scenario and 120% more than would be consistent with 1.5°C trajectory (Production Gap, 2019). As such, our "*rapid and far-reaching transitions in energy, land, urban and infrastructure [systems] (including transport and buildings), and industrial systems*" remain largely aspirational despite being of vital importance for life on Earth (IPCC, 2018).

We are currently on a global warming trajectory ranging between 2.4 and 4.3°C by 2100 (Climate Action Tracker, 2019) – **which may be an underestimation in itself.** Leading French scientists have gone one step further toward a more pessimistic socio-economic scenario, stated we are currently on route towards a 7°C temperature increase by 2100. Incidentally, this discovery was made possible by new AI and machine learning technologies – methods and findings which will feed into the next IPCC report planned for 2021. IPCC reports were indeed able to accurately forecast climate change when they were published in the 70s, 80s and 90s; yet the increasingly complex and uncertain factors of the past couple of decades have shown they were actually too optimistic or constricted in scope (CNRS, 2019) (Hausfather, Drake, Schmidt, & Abbott, 2019). Today, we are already experiencing a 1°C degree temperature increase, with 8 of the 10 hottest years recorded in history occurring in the last decade (NASA & NOAA, 2019). As the consequences from climate change are already posing serious threats to many aspects of life on Earth, one shudders to imagine what the world would look like beyond that 2°C scenario.

What we know, however, is that it is not too late. climate action needs to become much more ambitious in terms of speed and scale. To do so, it must be grounded in the latest science and align with the much more stringent 1.5°C global warming target. Understanding that climate action can in so many ways also provide both short-term efficiencies and long-term relevance and purpose makes it a no-brainer. Yet today, only 64 Fortune 500 companies have set Science-based Targets, which is less than 13% overall (Fortune, 2019) (Science Based Targets, 2019). This at a time when a record 631 investors managing over US $37 trillion have called on world governments at COP25 to align with the Paris Agreement, accelerate private sector investment into the low-carbon transition and improve climate-related financial reporting (The Investor Agenda, 2019).

In December 2019, the European Commission (with the notable exception of Poland) carried out its largest policy overhaul since its inception by setting itself with a 2050 net-zero target. This would entail halving carbon emissions by 2030 and comes along with a comprehensive package addressing biodiversity and nature restoration, climate change and deforestation. (European Commission, 2019) (The Guardian, 2019).

Through both positive and negative developments, we're developing a sounder understanding of what needs to be done and how.

In order not to overstep this vital 1,5°C threshold, we collectively need to halve our emissions by 2030 and then achieve net-zero emission globally by (IPCC, 2018). The time for action is now and the need for collaboration on common challenges is dire. The underpinning opportunities are so massive co-chair of the IPCC Working Group II Debra Roberts stated, "*The next few years are probably the most important in our history*" (Exponential Roadmap, 2019).

GO GREEN TO GO BIG

A concrete success story comes from India, where Dalmia Cement increased its earnings by a staggering 70% and cut costs by 27% upon embarking on a new, sustainable pathway. Using best-in-class low carbon technologies, implementing international energy management standards was not enough. Dalmia also increased its use of "blended" cement, in essence using industrial waste products to extend product lifespan and reduce both the energy intensity and the use of natural resources to produce materials.

The company recently commissioned 8 MW of new solar power, on top of its 9.2 MW of waste heat recovery capacity. It has further plans to expand its green power through investments and aims to be carbon negative by 2040. It included a virtual reality simulation to showcase these commitments in its marketing campaign. (Dalmia Bharat, 2019)

Instead, global CO_2 emissions were up 2,62% between 2017 and 2018 (Our World In Data, 2018). (Le Quéré et al., 2018). Deforestation, plastic pollutions, air pollution, ocean acidification as well as droughts, extreme weather, rising sea levels, melting sea ice, retreating glaciers, rising sea temperatures and heatwaves are severely impacting our ecosystems and biodiversity.

Sustaining life on Earth depends on nature's capacity to absorb carbon before it is released into the atmosphere and further deteriorates our ecosystems. This further cuts back the remaining carbon budget and requires even bolder action to hit the 1.5°C target. **The alternative would spell out massive property damage, population displacement, loss of biodiversity, ecosystems and natural resources degradations.**

This in turn would affect food and water supplies and human health, ultimately hampering our economies and societies. (European Commission, 2019) (U.S. National Academy of Sciences, 2017).

A first essential step is to curb our dependency on fossil fuels. We can also achieve greater energy efficiency through harnessing available industrial technologies. This would not only significantly reduce production costs – especially in developing countries – but also reduce global energy intensity by as much as 26% in the next 25 years. As a result, we could be saving 32% in global CO_2 emissions reduction from the energy system as a whole, as well as providing a striking 8% reduction in our global energy use and a 12.4% reduction in overall global CO_2 emissions (International Energy Agency, 2019).

Improving industrial energy efficiency is therefore one of the most cost-effective measures there is. Regardless of all efforts to date, companies are expected to seriously amplify decarbonization efforts across the following 3 workstreams:

1. Decrease reliance on GHG-emitting assets and value chains.
2. Invest in energy transition, renewables, energy efficiency and decarbonize assets and supply chains.
3. Invest in adaptation solutions to anticipate climate change impacts across assets, operations and value chains.

What is more, by 2025 or 2030, every business will doubtless be held responsible for past efforts as IPCC predictions come to pass. This change in acceptability will impact and disrupt business in multiple ways, including:

- **Stakeholder dialog between business and society is going to become increasingly conflictual**. Flagship industrial projects (e.g. new airport or large infrastructure) are already facing radical resistance. The Extinction Rebellion movement of peaceful disobedience is illustrative of new forms of activism, doubtlessly on the rise.

- **Respect for the environment and related human rights will increase legal disputes significantly**. When youth challenges investors and multinationals on climate issues, it is in fact exercising its right to have a future. Environmental awareness will doubtlessly generate a multiplication of legal disputes in the field of human rights in the coming years. Such activities are well documented through publicly available reports and shall inform disputes in the coming decade. Companies need to align with science to avoid further legal disputes.

The Delivery Decade

I.3 WATER

The Delivery Decade

I.3 WATER

Everything we do requires water, from drinking, to cleaning, washing, growing food, running industries, construction or manufactures. While its importance for human life, business and society cannot be understated, freshwater supplies are ceaselessly being depleted. This poses severe threats to an ever-growing global population expected to reach 10 billion by 2050 and the 70% increased food demand it will rely upon. Add to that a downward trend in global yield potential for all major crops since the 1960's and the resulting threat on food production and food security is even more serious (Lancet, 2019).

Freshwater supplies are rapidly running out due to overuse and pollution, but also as a direct consequence of climate change, with its cohort of droughts, heatwaves and wildfires. Just between 2015-2018, the world experienced a global 77% increase in daily population exposure to wildfires compared to 2001-2014 (Lancet, 2019), with California, Russia, Spain, Sweden and Australia among those locations most recently set ablaze. Many other places such as Paris, London, the Netherlands and Japan have had new heatwave records lately and locations such as Cape Town in South Africa and Chennai in India have had water shortages due to droughts and heatwaves (The Conversation, 2019). India being among the world's fastest-growing economies, its population has tripled in the last 3 decades, having now reached 10 million. The country is consequently threatened by a severe lack of water. Companies have been found to pay 30% more for private supplies, while their very employees struggle to get water. Meanwhile, other stakeholders are setting up their own water-recycling systems, which is far more sustainable (CNBC, 2019).

Such climate-related threats on water are not only disruptive to business at all levels, but societies around the globe. That is likely why experts from NASA claimed, "water may become the key environmental issue of the century" (NASA, 2018) (Moreau, 2019). On top of that, direct health impacts of an indirect or direct lack must be also taken into account (Lancet, 2019).

An industry which is particularly dependent on good quality raw materials and water is, as mentioned, the food industry, which therefore has a major role in transforming global supply chains. Substantial efforts are needed in order to transform agriculture from a source of carbon emissions to a giant store of carbon and use water more responsibly. This could also enhance soil health and improve crop yields. Providing access to clean water also has key benefits to health, education, equity and the broader economy, given £1 invested in clean water yields at least £4 in economic returns on average, which ultimately improves economic, social and environmental dividends (World Health Organization, 2012).

Depleting water resources could therefore seriously impact businesses and people's livelihoods. Being denied such a crucial source of life may also destabilize already complex fragilities and give rise to social unrest, civil wars, war with neighboring countries, terrorism and massive spikes of migration or forcibly displaced people (European Commission Joint Research Centre, 2018). Considering how to use water more responsibly is therefore a key concern for the future of our world.

For business, the stake is threefold:

1. Conduct and **understand water footprints**, similarly to carbon footprint considerations, across their entire value chain (upstream production, sourcing, production, logistics, end-of-life usage).

2. **Decrease water needs and invest in circularity solutions**, with primary focus on areas showing high risk of water scarcity today and consider how climate change is shaping different water scarcity scenarios by 2025 or 2030.

3. Invest in programs and solutions either contributing to **sharing water resources better** or granting access to safe and drinking water across markets and operations.

The Delivery Decade

I.4 DEFORESTATION

The Delivery Decade

I.4 DEFORESTATION

Forests are fundamental to our existence and essential in the world's concerted response to climate change. They are indeed able to store immense amounts of carbon, protect soil from erosion and increase supplies of clean water. They nurture more than 75% of the world's terrestrial biodiversity, maintain healthy essential ecosystems and stabilize weather patterns. They ultimately sustain life on Earth in many different ways. Perhaps most importantly for sustainable agriculture, they stabilize soils and climate, regulating water flows, providing shade, shelter and a habitat for pollinators and the natural predators of agricultural pesticides and other low-input pesticides. They also provide food, medicine, energy and income for more than a billion people. They are particularly important for hundreds of millions of rural communities that shelter many of the world's poorest (FAO, 2018).

Human-driven conversion of forest land for agricultural expansion (e.g. cattle ranching and soy bean production in the Amazon, commercial palm tree plantations to produce bio-fuels in South East Asia or Equatorial Africa) and livestock areas for wood extraction (e.g. logging or wood harvest for domestic fuel or charcoal) and infrastructure expansion (such as road building and urbanization) is limiting forests' potential to contribute to curbing climate change in the long-run (NASA, 2007). Today, livestock is the world's largest user of land resources, taking up one third of the world's non-ice landmass. Half of the grain produced goes to feeding livestock. Incidentally, meat also uses an immense amount of water. The planet can no longer this system, especially in light of the projected growth in food demand (Moreau, 2019) (FAO, 2017).

While this negative trend is not homogenous over the globe, global forest land has decreased by 3,2%, which accounted for 31,6% of total land in 1990, as opposed to 30,6% today. **The idea that forests are important for a healthy and prosperous planet and needs to be protected has gained a strong foothold in the last decade**. A recent study concluded that the top 350 influential companies dealing with forest-threatening commodities (cattle, palm oil, soy and timber including pulp and paper) and the 150 financial institutions that support them would fail to reach their zero deforestation targets.

Only 50 of the 350 reported activities had been implemented, none of which fully encompassed all forest-threatening commodities in their supply chains. While an increasing number of retailers and banks are making voluntary commitments to exclude deforestation from their supply chains or finance base, of the 150 financial institutions supporting these 350 companies, only a third had a financing policy in place that was specifically linked to the 4 key forest-threatening commodities (FAO, 2018) (Rogerson, 2019).

Such continued depletion of the planet's natural resource stock is bound to have major socio-economic and environmental consequences. The traditional linear model of resource extraction, product ownership and eventual disposal is incompatible with a sustainable transition plan. Conversely, avoiding deforestation and improving land management could reduce emissions by the equivalent of about 9 gigatons of carbon dioxide a year by 2030, a major help in helping the global community not exceed its remaining Climate Budget (Exponential Roadmap, 2019). This major potential is due to the fact deforestation is second only to burning fossil fuels in terms of accelerating climate change as it accounts for nearly 20% of all greenhouse gas emissions (FAO, 2018).

Business is doubtlessly a key contributor of deforestation and has failed to appropriately commit and manage zero deforestation programs. A recent CDP report pointed to very limited achievement by 2020, despite multiple zero-deforestation commitments made by large companies in 2015. The coming decade is critical, and business will be increasingly challenged on deforestation issues.

Business has no choice but to innovate and define new approaches… fast. That entails:

1. **Cooperation with governments and multilateral organizations** to develop capacities of local civil servants, encourage enforcement of local regulations related to land property, land development, local circularity programs, or local biodiversity preservation. This goes hand in hand with zero tolerance programs on bribery and corruption.

2. **Collaboration between buyers and investors** to define principles, share information and activate a common understanding of traceability concerns for high-risk sourcing activities.

3. **Investment in programs and solutions** providing better access to quality education and vocational training activities, **better working and living conditions for workers, smallholders and local communities**. Poverty also incentivizes deforestation.

GSMA-Connected Living Program: Addressing the Impact of Mobile Technology

As every child has the right to an education and develop to the fullest, mobile devices provide an ideal platform to mainstream educational content and support.

Mobile operators can support organizations to disseminate online content matched to the learning and educational needs of children of all ages. They can also promote the use of ICT in education and help bridge the current digital divide through e-learning, creating new opportunities for children.

In addition, mobile technology can help education professionals connect to new tools and online networks so as to improve their teaching outcomes. Working with education partners, the mobile industry can also enable mobile money services to facilitate the payment of school fees and salaries.

The Delivery Decade

I.5 CIRCULARITY

The Delivery Decade

I.5 CIRCULARITY

Businesses are increasingly paying more attention to decoupling economic activities from natural resource use. For instance, improved resource efficiency and transitioning toward a more circular economy are key concepts to advance greener production and consumption approaches. New circular business models are emerging, focusing on 5 priorities: renewable materials in manufacturing, recycling and remanufacturing of end-of-life products, and the sharing and leasing of already existing assets (OECD, 2019).

However, in a recent survey of 317 senior executives from large corporations around the world, only 30% stated their company had a strategy for circularity in place, while over 75% were still in the process of planning circularity targets for their products, processes or business models in the next 5 years (Newsweek Vantage, 2018). **Although circularity is indeed a promising concept, it has so far struggled to reach the necessary scale and pace to address our sustainability challenges** (OECD, 2019).

Industry faces increased pressure in the form of new regulations, media attention and public outcry regarding their use of plastic. In June 2018, a group of 25 investors managing more than $1tn in assets demanded Nestlé, PepsiCo, Procter & Gamble and Unilever reduce their plastic use. Increased attention has consequently focused on phasing out single-use plastics, using more recycled plastics or making them more recyclable or compostable (UNEP, 2018). That said, of the 300 megatons of plastic produced every year, 50% is used for single-use products, while packaging accounts for 40% of total use (Plastic Oceans, 2019). This will likely not biodegrade and endanger ecosystems and species. Indeed, every minute, **one garbage truck-worth of plastic is dumped into the sea, a number expected to double by 2030 if inaction persists** (World Economic Forum, Ellen MacArthur Foundation and McKinsey, 2016).

Another challenge lies in the fact plastic remains cheap, convenient and open to multiple uses. Be it in China, South East Asia or across OECD economies, governments, clients, consumers and other stakeholders are rapidly changing their take on plastic, whereas changing industrial processes needs time, pertinent technologies and capital. A growing number of public and B2B businesses are increasingly banning plastic themselves. Moreover, youth and emerging consumers are rejecting plastic altogether. Businesses urgently need to bring circular models at scale, especially with regards to tackling of the emblematic plastic pollution challenge. This on 3 distinct levels:

1. **Select battles**, by identifying where plastics can remain and define pathways to eliminate where it can't. In a constrained world, carbon budgeting will increasingly guide stakeholders to challenge businesses that use petrochemical components. Surgery and health are examples of a niche segment where disposable plastics remain unrivalled to safeguard patient hygiene and safety.
2. **Invest** in circularity and alternative industrial technologies or packaging solutions to **rapidly phase-out plastics.**
3. **Collaborate with governments and stakeholders** to converge on regulations (e.g.: R-PET), tax incentives, waste reduction and recycling programs, by learning from past efforts in order to boost impact in the next decade.

Aligning Science-Based Goal-Setting and Sustainable Development Goals

A Swedish hygiene and health company, Essity recently published a goal to use 85% of materials either recycled or derived from renewable materials in packaging by 2025.

Praised as one of Sweden's most sustainable grocery companies in 2019 because of its SDG strategy, Essity actively promotes the transformation of packaging materials. This advantageously anticipates on increasingly stringent single-use plastics legislation in countries in the EU and other markets.

The company recently saw their goals approved by the Science-Based Target Initiative. It is also exploring new ways of manufacturing paper from alternative fibers, to reduce its reliance on pulp and become more circular. To that end, Essity is looking into repurposing a local oversupply in straw as a residue of agricultural activities surrounding one of its plants in Mannheim, Germany. As a consequence, Essity expects both short and long-term benefits from increased cost-efficiency, reputation and attractiveness. (Dagens Industri, 2019)

The Delivery Decade

I.6 INCLUSIVE GROWTH

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I.6 INCLUSIVE GROWTH

Inequalities in Europe have risen, but much less so in Europe than in the US between 1980 and 2017. This despite the persistence of strong income differences between European countries and the weaker progressivity of European-wide income redistribution (Blanchet, Chancel, & Gethin, 2019). Europeans generally perceive differences between income groups and the social elevator to be larger and graver than Americans do, when in fact the opposite is generally true (OECD, 2018a).

The World Bank has warned that the Covid-19 crisis could push approximately 50 million people into extreme poverty in 2020 and hit sub-Saharan Africa and South Asia the hardest. As a result of the Covid-19 crisis, the UNDP updated estimates for global human development – as a combined measure of the world's education, health and living standards – now likely to decline in 2020, for the first time since the concept was first developed in 1990. This decline is expected to hit the majority of countries, both rich and poor, in every region (COVID-19 and Human Development: Assessing the Crisis, Envisioning the Recovery, UNDP 2020).

Rising inequalities are causing major political and social turmoil across the world. For instance, what started as a protest against a proposed tax increase on fuel (€0.029/liter on gas and €0.065/liter on diesel) sparked the French Yellow Vests movement. Demonstrations aimed at the wider government took place every weekend for over a year (Citylab, 2019). Recently, the French national statistics office (INSEE) published data demonstrating inequality – as measured by the Gini coefficient – had increased faster in 2018 than in 2010. This spike was attributed to a strong surge in capital income benefiting the wealthiest, as a result of the new flat rate withholding tax enacted in France in 2018. Moreover, the national poverty rate (the percentage of the population with a living standard below 60% of the median) also rose from 14.1% to 14.7% between 2017 and 2018 (INSEE, 2019).

In Chile, what started as a protest over a $0.04 hike in subway fares turned into violent demonstrations and social unrest over the entire economic system (Vox, 2019).

Despite steady growth thanks to Chilean economic orthodoxy, the privatization of industries and pensions, responsible fiscality and sensible monetary policies, **protesters felt gains had not been equally shared, that inequalities remained and so did insecurities.** Grievances included the rising cost of higher education, healthcare, transportation, as well as low retirement pensions (QZ, 2019). Chile indeed has higher rates of income inequality, less generous pensions and government expenditure (in terms of a citizen's share in the national GDP) is lower than in other OECD countries (OECD, 2019) (OECD, 2019) (OECD, 2019). In comparison, Lebanon levies a $6 monthly tax on WhatsApp users so that thousands of citizens took to the streets to protest a drawback on a tax targeting the wealthiest. Given the country's top 1% earned 25% of GDP, protesters demanded – and obtained – the Prime Minister's resignation (The Guardian, 2019).

Economists highlighted similarities between these 3 examples. A closer look at Chile shows That, while the poverty rate dropped from 40 to 10% in the last 30 years, a national debt linked to private health and education created a sense of economic fragility. More than poverty, that was the main motivation for the middle-class to join the protest. Although the country has thrived, the benefits are perceived by many as very unevenly shared, when wages often do not cover the bills. In France, protesters largely came from peripheral towns, cities and rural areas; they were of all ages and genders and often working class. Claims to not being able to meet ends are common and demonstrators were prone to blame an unfair and unjust tax system and too low a minimum wage (The Guardian, 2018). In Lebanon, as opposed to Chile, the middle-class had been shrinking due to a drop in the average income these past decades, while the cost of living had kept increasing (Fanack, 2019).

Common to all 3 examples, the **middle-class mobilized quickly over social media in reaction to a perceived rise in cost of living.** Beyond the traditional socio-economical divide between the rich and the poor, the middle-class felt it could ill afford essential goods and services, such as health and education. In addition, the middle-class also seemed increasingly worried about the future and their retirement.

As social safety nets may work well for the poor, they can be perceived as largely inadequate by the middle-class. **Reducing poverty and promoting growth is not enough. Effectively reducing inequalities is essential to inclusive, stable and prosperous societies.** (QZ, 2019)

"To those who say: 'The president talks about the end of the world, we are talking about the end of the month'; we are going to address both, we must tackle both [inequalities and climate change]".

- **President of France Emmanuel Macron's response to the Gillet Jaunes (France 24, 2018).**

As key players in our societies, businesses are often embroiled in social turmoil as well as scandals linked to Human Rights violations across their operations (e.g. gender and other discriminations) and supply chains (e.g. decent wage, labor conditions). Insufficient contributions to society and workers (e.g. decent wage and pensions plans) are affecting businesses wherever they operate and precondition consumer trust. **Business creates wealth, jobs and taxes but only a context of social stability.**

"Business has increased profits and margins across the past decades without seriously tackling the questions of inequalities".

- **Joseph E. Stiglitz (People, Power and Profits, 2019)**

Stakeholder reactions are increasingly radical and quickly gain support. Protest are spreading at an accelerated pace, thanks to technological developments which allow people to mobilize faster. The peer-to-peer effect of social media also comes into play, so that witnessing the success of another campaign may spark optimism concerning one's own potential to influence decision-makers. **Being unable to anticipate, address grievances or respond in timely fashion will be crucial in the near future**. This is particularly true in times of social unrest, since there are few short-term solutions for such structural problems.

ACTIVIST CONSUMERS

Yuka is a mobile application that offers to inform consumers on the presence of additives in their products and help them make healthier choices.

The ratings of its grocery products were so low that Intermarché was forced to address the growing popularity of the app and adapt. 95% among the 11 million users in France indeed claimed they had stopped buying a brand in the past year.

As a result, the Group modified 900 recipes among its private label products and removed 142 potentially harmful additives from their composition, without increasing their price. (France Inter, 2019)

The current digital revolution enables people to connect, share ideas or complaints, mobilize and gain more support in demanding solutions to their problems. This can come from anyone, anywhere, at any time. Support for Greta Thunberg's mobilization for climate justice in Sweden was unprecedented in that it mobilized millions around the world and influenced both government and corporate policy (Gurría, 2019). That Thunberg received the TIME Person of the Year award of 2019 also proves how an ordinary citizen may have a truly global impact scale (TIME, 2019). This makes transparency, accountability, measurability, socio-environmental performance and stakeholder dialog all the more important.

Businesses also need clarity and predictability to invest. Businesses typically rely on the rule of law to sign contracts and manage transactions. Among other turbulences, neither Brexit or the US-China trade war inspire confidence to properly plan, invest and safeguard their assets' long-term growth. This strengthens the case for business to stand at the heart of an open, global economic system, as opposed to more closed, nationalistic, protectionist, xenophobic and self-centered approach. To that end, business and finance need to regain public trust, by embracing more sustainable and inclusive economic models, that are also low-carbon and environmentally sustainable.

As smart, progressive, profit-oriented companies seeking to tap into to market opportunities, they must also be wired to tackle social inequalities, poverty and the financial challenges of the future. By acting immediately and collectively, we may identify new ways of doing business, which ease the burden on finite resources and includes those currently left behind or excluded from the market. In so doing, businesses stand to address current political grievances, grow and ultimately outperform those stuck in yesterday's economic game. (Business and Sustainable Development Commission, 2017)

For these reasons, businesses need to explore their responsibilities to tackle inequalities, by:

1. **Conducting Human Rights impact assessment across operations and value chains**, which will concomitantly signal inequalities. This is a good way for business to understand how its products, operations and sourcing activities have actual Human Rights impacts on a day-to-day basis in terms of gender, discriminatory practices, working or living conditions of contractors, etc...With a holistic understanding of what's at stake, businesses can focus their efforts on finding solutions to address inequalities.

2. **Catalyzing economic, social and environmental performance, to align business strategies and societal impacts with the 2030 Global Goals.** Designing targets for poverty, decent wages and gender can for instance offer a major opportunity for businesses to align purpose, strategies and impact.

3. **Developing risk mitigation programs,** through product design and access (e.g. gender), investments and fair tax payment across markets and production site areas. Also including targeted investments in high-risk supply chains helps improve workers' access to decent wages or quality jobs.

4. **Joining coalitions to collaboratively identify and activate solutions and incentivize policy reforms for more inclusive growth.**

In 2019, 40 leading multinationals partnered with the OECD in signing a pledge to take concrete action towards ensuring the benefits of economic growth are more widely shared. Initiated by French President Emmanuel Macron, the Business for Inclusive Growth coalition seeks to tackle persistent inequalities and reduce regional disadvantages, by supporting local development programs and supply networks. The initiative has committed to fight inequalities, tackle Human Rights issues throughout their value chains and create equitable, inclusive and diverse working environments. This by providing decent wages for instance, or promoting gender equality and helping employees to prepare for tomorrow's work through training or improvement programs for skills.

The coalition is the first of its kind and could pave the way for better alignment between key players and thus, larger impact. With a combined 3,5M-strong workforce and $1tn in annual turnover, the coalition indeed sent a strong message. The initiative also launched an incubator to design and develop new inclusive business models, as well as a forum to finance inclusive growth, based on innovative financing mechanisms between companies, public authorities and philanthropic actors. Partners include AXA, Schneider Electric, Bayer, IKEA, standing alongside the G7, the ILO and the Bill & Melinda Gates Foundation, among others (OECD, 2019) (Danone, 2019).

"The erosion of the middle classes, the foundation of the market economy, must be an alert. Inequalities weigh on the economy. Underneath the impetus of the 15-25 generation and its social networks, the consensus on these subjects are evolving very rapidly which means that the market economy will not be able to function without greater social equity. It is not a question of ideology; it is a question of realism."

- **Emmanuel Faber, Chair of B4IG & Danone CEO**

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I.7 HUMAN RIGHTS

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I.7 HUMAN RIGHTS

In July 2019, two US senators suggested conducting due diligence covering cocoa imports from Côte d'Ivoire and potentially banning products subject to child labor concerns from the US market. This illustrates how potential **Human Rights abuses could have significant business implications**.

HUMAN RIGHTS VIOLATIONS LINKED TO MAJOR LEGAL RISKS FOR BUSINESS

Human Rights lawyers are currently preparing a record-breaking case against British American Tobacco (BAT) in London. They indeed claim poverty wages forced more than 350 children and their families to work in grueling conditions in the fields of Malawi, as revealed in June 2018 by the Guardian.

The number of child claimants may rise as high as 15,000. While BAT claimed it formally banned farmers from using their children as unpaid workers, lawyers retorted families cannot afford to work their fields otherwise, given they receive so little for their crops. (The Guardian, 2019)

While global supply chains have the potential to generate growth, employment, skill development and technological transfer, major disputes and potential Human Rights violations and abuses are still being linked to global supply chains. Based on the latest global estimates, 152 million are subject to child labor and 25 million adults and children suffer forced labor, including in global supply chains – with 70% working in agriculture.

To achieve SDG 8 and promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (UN SDGs Knowledge Platform, 2019), business, along with other actors, must take strong action.

That starts with addressing the root causes of child labor, forced labor and human trafficking in their global supply chains as well as Human Rights violations in their workplaces.

Intergovernmental standards on responsible business conduct from the UN, the ILO, and the OECD, along with recent governmental regulations, notably from France (the 2018 law of the Duty of Vigilance), Great Britain (the 2015 Modern Slavery Act) and the European Union (mandatory due diligence directive expected in 2021) all require companies to ensure responsible business practices and conduct due diligence across their supply chain. This typically includes processes which are preventive, are commensurate with and prioritized in accordance with the severity and likelihood of harm. These form an integral part of company's risk management and decision-making and are informed by continuous stakeholder engagement. However, much remains to be done in terms of translating this into practice.

A common issue for companies is typically poor awareness on Human Rights risks, the complexity of their own operations and supply chains, along with the inherently sensitive nature of these violations. This poses several challenges in terms of gathering the necessary information on their business partners across their operations and value chains, let alone their Human Rights performance. This lack of visibility merges with the dilution of responsibilities and leverage points among customers, suppliers and other stakeholders.

To fully address this complexity, companies may:

- **Develop awareness, to explore areas and situations generating Human Rights risks across their operations and value chain.** The #MeToo movement has for instance revealed unacceptable practices insufficiently identified or addressed until then. Human Rights Impact Assessments can help to identify risks and vulnerable people segments at stake.

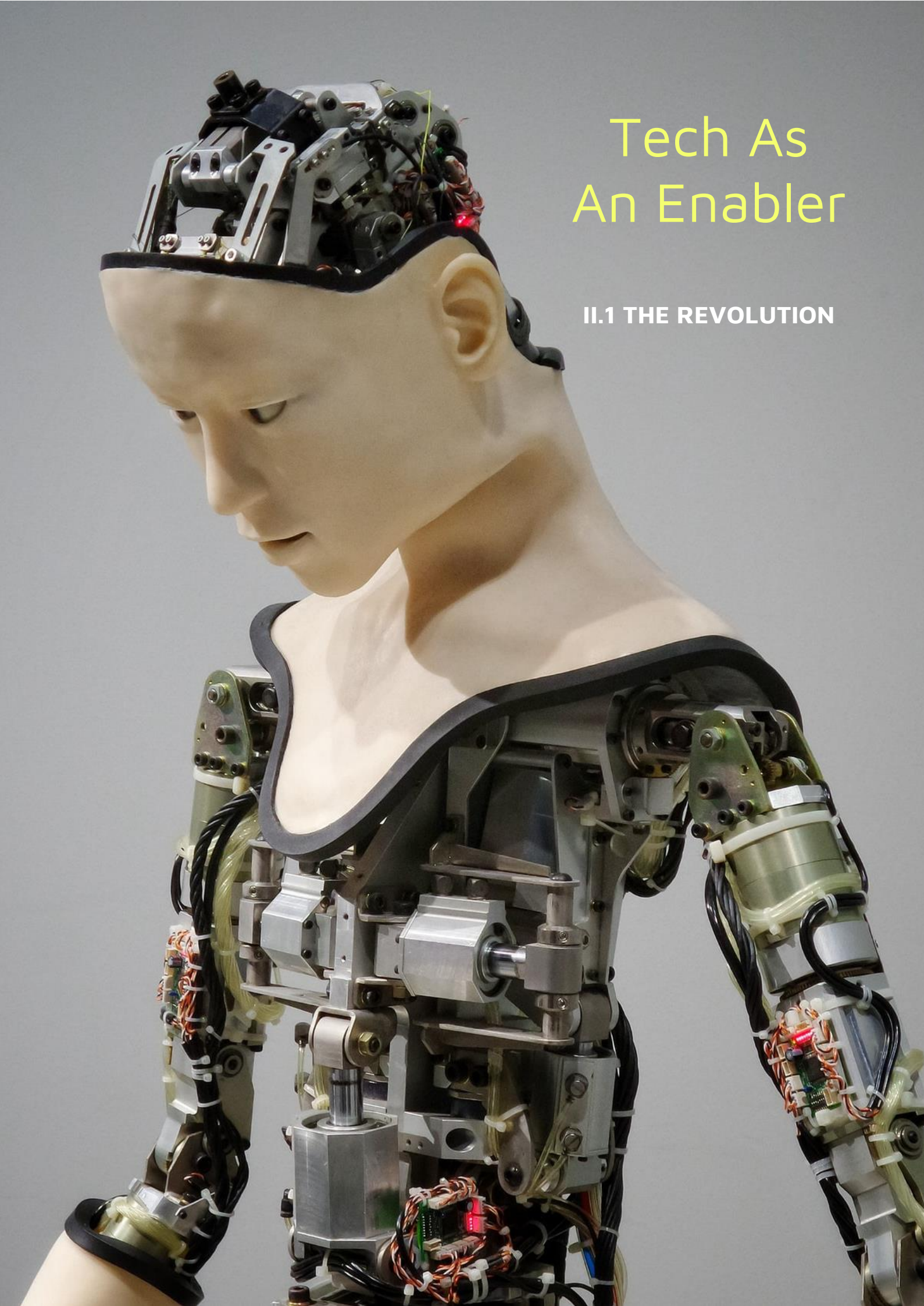
- **Strengthen internal processes to ensure alignment across business units.** Here, those in sourcing and buying departments or in charge of addressing Human Rights risks need to collaborate more closely. Companies are increasingly exploring ways to address their own business models and purchasing practices, including by providing long-term contracts to suppliers and ensuring prices paid indeed cover the full costs of production.

- **Identify customers, business partners or suppliers at risk thanks to traceability or chain of custody tools, either individually or through industry or through multi-stakeholder initiatives.** This is another avenue for business to explore, to gain more information on their business relationships and monitor compliance further upstream in the supply chain. Importantly, new technologies such as blockchains advantageously increase traceability. Engaging with midstream suppliers operating at control points within a supply chain has also been demonstrated to be effective, as these players may have greater visibility and leverage over their own suppliers and business relationships further up the supply chain, as opposed to companies closer to consumers or end-users. The minerals sector is notably sharing best practices on the matter.

- **Uncover Human Rights issues through social audits designed to address these specific risks and promote engagement among vulnerable rightholder segments throughout the assessment process.** Here, worker-driven social responsibility programs may be one way to proceed. The continuous monitoring of suppliers also needs to be strengthened, while prioritization through streamlined information and analysis using digital technologies may also help zero in on likely occurrences. Global frameworks and improved grievance mechanisms are other tools that can help close this gap.

- **Sign and comply with international frameworks negotiated between multinationals and global trade-unions.** As they grow in number, they have the potential to promote freedom of association and collective bargaining and help organize workers in subsidiaries and suppliers of multinational enterprises. This secures the involvement of local trade-unions, liable to flag specific incidents as well as systemic risks of child labor, forced labor and human trafficking. Collaboration plays an important part, both between businesses and with stakeholders and helps ensure corporate action is embedded in existing solutions that effectively address root causes locally. It can also help address the cost and leverage limitations an individual company may face. (OECD, 2019)

II. TECH AS AN ENABLER



Tech As An Enabler

II.1 THE REVOLUTION

Tech As An Enabler

II.1 THE REVOLUTION

II.1.1 The World Is Connected

Our world is more connected than ever, and Internet access is likewise expanding rapidly. In 2017, 50% of the world's population was online, most of whom on a close to constant basis, thanks to their smartphone (World Bank, 2019). Connectivity is also increasing rapidly. For instance, by the end of 2017, 62% of the Latin American and Caribbean population was online, up from 50% three years before (OECD, 2019).

In 2022, 75% of the projected 8-billion global population will have access to the Internet, a portion expected to hit 90% by 2030 (Cybercrime Magazine, 2019) (World Bank, 2019). Such developments can also bring tangible benefits to citizens, such as the 2013 telecommunications reform in Mexico, which enabled a 43% reduction in mobile phone costs, and a reduction in the price of mobile service packages ranging from 61% to 75%, all within 3 years. This in turn significantly reduced digital inequalities across income levels and geographical locations. (Gurría, 2019)

This is also why companies such as Google, Amazon, SpaceX and OneWeb, among others, are currently experimenting with new technologies – from satellites to air balloons – soon to provide high-speed broadband to yet unserved or underserved communities around the world. These companies have understood that, despite the previously mentioned increased Internet coverage, an estimated 3.7 billion people living in low- and middle-income countries around the work are still offline. **To fully capitalize on the potential of the digital transformation and secure sustainable development globally, inequalities must be addressed by providing both internet access for all and digital training for those furthest behind.** (OECD, 2019)

An ever-expanding and truly global nervous system is being developed that would bring human civilization together and facilitate a rapid and global exchange of ideas, goods, services and human capital. Companies must therefore understand how to make the most of it (Moreau, 2019). New generations that will have grown up immersed in the digital world will likely generate further opportunities as well as impacts.

The tools allowing us to partake in the ongoing digital revolution – computers, mobile phones or the Internet – are already widely available in less-developed countries, especially amongst the young. Countries may advantageously facilitate technological adoption to leapfrog, start experimenting and innovate to claim new leadership.

Investments made in tech education can likewise be very impactful. Here, technical and vocational training can also provide new opportunities with massive productivity gains (Gurría, 2019). Unlike many advanced economies still tied up in an antiquated infrastructure, countries such as Kenya (mobile payments), India (digital land registration) and China (e-commerce) have made headway. In today's economy, market opportunities are growing for all who participate. Key platforms are creating new marketplaces to trade goods or services. Even small enterprises are designed global and many able to grow very fast. As it is to be expected, what is today a new technology will soon become outdated, so that only those able to adapt, adopt and prepare for the future will prevail. (World Bank, 2019)

II.1.2 Demystifying Digital Technologies

The Fourth Industrial Revolution is underway, where **disruptive forces from new digital technologies are transforming the way the world works**. To understand what so significantly affects all aspects of life, we first need to distinguish a few closely related issues.

To start with, digitization is the process through which physical information turns digital. Conversely, digitalization is the process of transforming business operations by employing digital technologies, to provide new revenue, for instance through efficiencies in productivity or value-producing opportunities. Digitalization projects the likes of automating production processes thanks to robots are good examples. The digital transformation, by contrast, is a broader term that refers to the customer-driven strategic business transformation, requiring cross-cutting organizational change as well as the aforementioned implementation of digital technologies. In that regard, digital transformation initiatives normally include several digitalization projects.

Executives who believe there is nothing more to the digital transformation than digitalization are therefore making a profound strategic mistake. **The digital transformation in fact requires organizations to better adapt to change. As a company becomes more customer-driven and integrated through digitalization, it also becomes more responsive to change.** As such, the digital transformation enables businesses to improve both business model and strategy. (Forbes, 2018)

II.1.3 AI, VR, AR, IOT, 3D, 5G & Many More, Are Shaping The Business World

New digital technologies transform the world in profound ways. They happen to do so at exponentially higher speeds and with wider reach. While it may seem each new digital technology – and none more so than blockchains – comes with a massive hype even before it reaches full potential, they undeniably carry massive potential to change the world in ways what we cannot begin to fathom. (Blockchain Expert, 2019) (Singularity University, 2019)

Similarly, the current generation of Artificial Intelligence (AI), often powered by Machine Learning (ML) or Deep Learning (DL), may be a game-changer. AI not only stand to significantly affect transportation, agriculture, healthcare, retail, finance, entertainment, education or manufacturing sectors, as we are already witnessing, it is also capable of "quantum leaps" likely to reshape every aspect of our lives.

Through this unique potential to move faster, better and in innovative fashion, AI have already outsmarted us, which means that it could help us to transform, displace or replace our way of operating. The UN has accordingly recorded a dramatic growth in AI patents since 2013, which further suggests quantum leaps lie around the corner that could potentially outweigh projected change from other technologies (WIPO, UN, 2019).

Finally, the main reason why AI is starting to achieve such profound impacts lies in its inherent capacity to keep learning, improving, and perfecting itself at an ever-growing pace and degrees of precision. Its impact will continue to be felt across the world and expand by the hour.

DATA-DRIVEN INSIGHTS FROM GLOBAL CLIENT NETWORKS

In October 2019, Schneider Electric released a report exploring 40+ customer stories to provide concrete evidence on the disruption potential of digitization.

The report examines how the digital transformation drives energy savings, sustainability initiatives, time-saving and other key business goals. It goes on to document the business benefits of digital transformation in data centers, cloud facilities and colocation sites, demonstrating efficiency gains, reliability improvements and cost-savings benefits are both realistic and achievable.

As we learn better data collection skills to feed, adapt and implement AI-generated results, we may be empowered in building yet more numerous and powerful applications, which in turn fuels the expansion of AI (Singularity University, 2019). Looking to the future, that trend is clearer still:

- **The AI market, valued at $16.06 billion in 2017, is expected to hit $190.61 billion by 2025, with a compounded annual growth rate of 36.62% (Markets And Markets, 2018).**
- **Companies using AI, Big Data and the IoT to explore advantageous business insights could steal $1.2 trillion per annum from their less-informed peers by 2020. (Forrester Research, 2016).**
- **AI has the potential to boost profitability rates by an average of 38% (Accenture, 2017).**
- **By 2030, the global GDP could rise as much as 14% thanks to AI, a spike equivalent to injecting another $15.7 trillion into the economy (PWC, 2017).**
- **AI could double annual economic growth rates by 2035 (Accenture, 2017).**

"The 'upsurge' in patent applications for devices and machines powered by Artificial Intelligence (AI) in the last five years suggests that it could soon revolutionize all areas of daily life far beyond the tech world"

- The World Intellectual Property Organization & UN (WIPO, UN, 2019)

THE WORLD'S FIRST DIGITAL OCEAN CUSTOMS CLEARANCE

Every port in every country enforces various rules, regulations and laws on cargo. In an effort to provide simple and easy-to-use solutions, Maersk launched the Customs Clearance online shipping management platform in 7 European countries – namely, Germany, France, Denmark, the Netherlands, Poland, the United Kingdom and Spain. The goal is to expand this offering across the world by the end of 2019. This new one-stop-shop allows Maersk to efficiently handle export and import declarations for their customers in a timely manner. Further downstream, this solution also offers the benefits of full governance and compliance, and eliminates the need to provide a quote as pricing is displayed online, which saves 3 to 5 minutes per quote (Maersk, 2019).

Other digital technologies which have matured lately include mobile internet, cloud computing, big data, mobile apps, smart devices and first-generation industrial automation. They are now contributing to efficiency gains across all industries and offer significant opportunities for business to digitally transform. **Companies have yet to tap into the full potential offered by digitalization. For instance, while most firms are present on social media, only 11% of small business and 33% of large companies perform big data analyses.** (OECD, 2019)

Still considered nascent, blockchains may require in another decade to fully mature (OECD, 2019). That said, all 10 of the world's largest public companies were already exploring blockchains by mid-2018, joined by around a third of the top 150 companies on the Forbes 2000 list (Forbes, 2018). While blockchain is nothing new, its potential is decidedly massive.

Blockchains are in essence an asset database that uses cryptography to create a record of transactions, thereby creating a mechanism to enshrine trust between market players without a regulatory authority. In that sense, blockchains may be likened to a standard accounting ledger, with the notable difference that each transaction is permanently recorded, cannot be modified and is stored simultaneously by everyone within a peer-to-peer network. What is more, the next generation of blockchain technologies, such as Ethereum, are building on this transparent approach to create "smart contracts" capable of making decisions along the lines of releasing payments at specific instances and in accordance with contract rules. By disrupting traditional record-keeping, blockchain could substantially improve productivity, add value and share information more securely. (IFAD, 2019)

Yet more industry-wide disruption is expected from 5G networks, digital fabrication, the mainstreaming of the Internet of Things (IoT), drones, intelligent interfaces and experiential marketing. **For instance, the IoT is growing so fast that by 2022, every single individual could own three connected devices.** Another example is Quantum computing, which will soon change the world as we know it. As proof of its magnitude, what takes a computer 300 trillion years to perform today could be cut back to 10 seconds by a quantum computer.

However, building these computers remains a big challenge; though readily-available, they will not be powerful enough for another 10 to 20 years. Until then, Quantum computing can readily be applied to machine-learning, so that quantum algorithms will soon start outperforming classical algorithms. Further short-term applications have targeted cryptography, chemistry, optimization and communications among others. Google and NASA recently announced they had achieved "quantum supremacy", which is to say their quantum computers can perform certain tasks a classical computer cannot in a reasonable timeframe. **Their quantum computer indeed solved a problem in 200 seconds that would take the world's fastest supercomputer 10,000 years.**

This demonstrates the huge potential of quantum computers in the coming years. IBM, Rigetti, Google and IonQ all offer public access to real quantum computing hardware, something companies should start exploring (World Economic Forum, 2019).

Similarly, **5G networks promise to be up to 200 times faster than 4G counterparts with 1/10th the latency – or network response time.** In other words, they would considerably decrease network delays and improve precision for many remote tasks. What is revolutionary with 5G networks is that it is **the first wireless network generation designed with the IoT in mind.**

We could soon start seeing IoT applied to massive and dispersed machine to machine communications and critical IoT communications. In South Korea, the 5G network expansion has already changed the way operators' networks are used, as **AR and VR applications now account for as much as 20% of all traffic across 5G networks** (OECD, 2019).

On top of the long list of emerging digital technologies poised for widespread impact in the coming years, one must also consider immersive user experiences powered by virtual (VR) and augmented reality (AR), as well as 3D printing, gene editing, advanced robotics and digital assistants (Deloitte, 2019) (Exponential Roadmap, 2019) (International Energy Agency, 2019) (Malmodin & Bergmark, 2015).

To harness these numerous opportunities, business need to quickly learn how to move from pilots to mainstream adoption and improve their adaptation capabilities if they hope to improve both their business performance and impact against the SDG. The highest quality of data collection and analysis is now essential to stay on top of the best available information and make the right decisions (Bond, 2019).

II.1.4 Convergence

As touched upon, digital technologies are often used in collaboration – and reinforce one another in improving their combined abilities and stretching current boundaries. For instance, data collected through the IoT, distributed via Blockchain technology and analyzed by AI through machine learning could increase efficiency and safety, by simultaneously providing AR or VR insights to an on-site engineer all the while being fed directly into his machine. (UN, 2019)

USING AR TO BOOST EFFICIENCIES

Through its new Vacuum Technique Service project, Atlas Copco's maintenance engineers will soon be equipped with AR glasses which will support them when to help them repair pumps. Thanks to these AR glasses, technicians will receive exact instructions on the specific pump they are handling and tap into data collected from the pump itself by way of the IoT to better assess the machine.

Rather than running diagnostics, memorizing the specs of the company's massive fleet of pumps and their corresponding instruction books, technicians will access solutions and instructions on-the-go, project them over their real environment, visualize contents and proceed directly.

Such innovations increase efficiency, safety and health and support the upskilling of employees. They also allow technicians to file instant reports, to help the company evaluate and improve pump performance and ensure checklists are enforced. Since AR relies on animations, it presents no language barrier, meaning the company may also draw from a larger talent base and increasingly send technicians to locations of which they do not master the language. (Atlas Copco, 2019)

Satellites, social media, drones, robotics, sensors and the Internet of Things working in concert are able to measure things at unprecedented speed, precision, scale, cost, etc.

If one can not only collect more data from a larger variety of relevant sources but also analyze it faster and smarter than before with AI, the result will that much "smarter" thanks to a much broader scope of analysis. This provides both factory floor and management with the ability to adjust in a more accurate manner and at a moment's notice, which are both of profound interest given the unprecedented pace of work or societal change.

II.1.5 The Business Case

Such groundbreaking new ways of delivering value are spreading at record speed, which also mean business models must adapt to harness the full potential of digital technologies. New competitive business models, powered by digital technologies, are therefore more efficient from inception and could disrupt entire industries, as recent years have proven across many different industries.

"Today, the largest taxi company in the world, Uber, owns no cars, the largest media company, Facebook, creates no content, the largest accommodations company, Airbnb, owns no hotels, the largest e-commerce company, Amazon, has no inventory."

- **Matthew Roszak, co-founder and chairman of Bloq and Tally Capital (TEDx Talks, 2017)**

The generalized acceleration brought to bear by digital tools emphasizes the need for anticipation and implementation skills at the earliest possible stage. Laggards may face a much harder competition and transition risks. Meanwhile, early adopters will have gained a significant head start, as indicated in a recent study suggesting first-movers saw a 70% productivity boost, compared to just 30% for industry followers (World Economic Forum & Accenture, 2018) (Moreau, 2019). The acquisition of digital skills is therefore a prerequisite for individual, industry-wide and regional success (Forbes, 2018).

One of the most comprehensive studies to date on the return on investment of digital technologies unsurprisingly found great potential for business overall; it further pointed to a threefold productivity boost wherever digital technologies were deployed concurrently (World Economic Forum & Accenture, 2018).

It is true, however, that rapid technological changes may not immediately churn out significant productivity gains, especially in less productive SME. To actually carry out their digital transformation, companies should prioritize the dissemination of technology among less productive and smaller subsidiaries and invest in education, skill development, organizational changes, process innovation and new business models before they can hope to tap into relatively large productivity gains. (Gurría, 2019)

For businesses, it is essential to anticipate these changes and act early to boost innovation, build-up their competitive advantage and avoid profound economic, environmental or social losses. Being proactive and bold rather than responsive and compliance-based is key. It will be critical to be on the forefront of climate actions and digital transitions, given how likely they are to shape major value chains reconstructions. This could coincide with quick shifts in the geographical location of key sectors – such as steel, chemicals and automobiles – whereas recent decades have seen cost competition shift major industrial activities toward emerging and developing economies. To strengthen industry and create jobs in the face of the fast-approaching green revolution, companies have a vested interest in building their competitive advantage at the earliest possible opportunity, in order to benefit from the boon in economic productivity triggered by innovation (New Climate Economy, 2018).

Tech As An Enabler

II.2 SOUND SOLUTIONS

Tech As An Enabler

II.2 SOUND SOLUTIONS

II.2.1 Digital Technologies Can Help Businesses Achieve the SDG & the Paris Agreement

Digital technologies will clearly play an essential role in accelerating SDG competition in the coming years. If only a small portion of readily-available digital technologies were widely adopted, emissions could be halved by 2030 and net-zero emissions achieved by 2050. Harnessing the full potential of digital technologies for a more sustainable world, rapid transitions across all economic sectors and a shift towards sustainable consumption therefore requires a fast and large-scale adoption of technological advancements (International Energy Agency, 2019).

Digital technologies may in fact enable approximately 33% of the necessary carbon emission reduction by 2050, thereby indirectly influencing the remaining 67%. Companies would therefore do well to accurately assess the impact of the digital revolution and its potentially huge contribution to the SDG. This indeed paves the way for them to transform their business models and shore up their socio-environmental relevance (Exponential Roadmap, 2019).

At a more granular level, digital technologies can help businesses or even industry-wide stakeholder ecosystems identify cost solutions to bring the most efficient sustainability initiatives to scale. They would for instance enable major gains in material waste, energy consumption, process and logistical efficiency - in all sectors – all the while achieving progress across global health, sustainability and economic goals. It is key for companies to keep exploring such opportunities, to remain profitable over time and in an increasingly carbon-constrained and digitalized world, where social issues are becoming more pressing by the hour (Exponential Roadmap, 2019).

II.2.2 Adoption and Adaptation

Generally speaking, digital tools will first enter a period of deceptively slow growth. Past the inflection point where performances go up and costs drop, they enter a virtuous cycle of rapid adoption, expansion and disruption.

"We typically tend to overestimate the growth of these technologies in the short-term but underestimate them in the long-term."

- **Peter H. Diamandis, Executive Founder of Singularity University and Executive Chairman of the XPRIZE Foundation & Tony Robbins, multi-entrepreneur, author, philanthropist, and life and business strategist (A CONVERSATION BETWEEN: PETER H. DIAMANDIS & TONY ROBBINS, 2019).**

For example, as it became easier and cheaper to build interactive websites in the mid-2000s, Massive Online Open Courses (MOOC) seized their chance to spread more sophisticated content, where interactions were possible as long as users had access to a smartphone and the Internet. This demonstrated educating millions via the Internet was possible, despite the fact many lacked electricity at home. Today, we live in a world of personalized learning and soon AI, VR and AR could teach us what to do on the spot, in real-time, *en masse* (Singularity University, 2019).

While blockchain is still in infancy, as of 2019, the sophistication of the corporate toolkit greatly improved, as new projects started relying more on low-level toolkits and focused on developing business, product design and UX/UI. The challenge today is that many consortia are competing over the same topic, creating a myriad of platforms using different technologies. This requires users to use several incompatible platforms, which restricts their adoption and effectiveness. Conversely, the blockchain ecosystem has an inbuilt inclination toward cooperation and network consensus. In order to boost adoption rates, interoperability is essential across platforms, internal systems and industry standards and protocols.

It is fairly common for major players to launch a platform and invite other participants sharing the same issues to join in order to share the costs, but without disclosing the underpinning data.

All stand to benefit from real-time events, smart contracts, electronic signatures, finality transactions, traceability and transparency. For the time being, paper contracts still prevail, forcing companies to handle parallel flows of paper and digital documents, when they could be focusing on implementing a gradual transition toward a fully digitized exchange of documents and data. (ConsenSys & Paris EUROPLACE, 2019)

USING BLOCKCHAIN TO VERIFY LUXURY GOODS

Banding with Microsoft and blockchain software company ConsenSys, LVMH recently developed the AURA platform, a blockchain system for authenticating luxury goods.

Using Ethereum, the process to develop the blockchain platform began more than 3 years ago. The technology is now being implemented for both the Louis Vuitton and Parfums Christian Dior brands.

While the platform was design with authentication in mind, LVMH also expects the technology to help safeguard creative intellectual property and curb advertising fraud. Consumers may indeed trace their products' lifecycles, including their design, raw materials, manufacturing and distribution. They may also access specific product care instructions, after-sales and warranty services via the AURA platform (Retail Dive, 2019).

II.2.3 Adoption Within the Supply Chain And Smaller Businesses

Key digital technologies are becoming increasingly affordable for smaller businesses. Meanwhile, larger businesses tend to make greater use of advanced technologies contingent on scale, such as automated production process technologies. Businesses in Europe have yet to exploit the full potential of the digital transformation, though key players in ICT, tourism and wholesale sectors tend to be ahead of the pack, while construction services, food, textile and metal manufacturing industries could be found among the laggards (OECD, 2019).

Few sectors have more reason to adopt IoT, AI and Machine Learning than agriculture, in what is generally referred to as "precision farming" (OECD, 2019).

AI and Machine Learning can indeed help the sector analyze big data spanning across farmer profiles, crop coordinates and remote-sensing data from drones and satellites. Subsequent analyses may ultimately reveal patterns, trends, insights and associations to inform smallholder farmers and other related players (banks, agro-input dealers, aggregators and others). The outcome would be a more efficient use of agricultural inputs and outputs, notably through helping players optimize their water usage, fertilizer and pesticide application, sustainable grazing, crop planting schedules and responses to infestations or diseases. Such advice can further impact other areas of activity that affect food production, such as developing index-based insurance schemes in support of farmers to build resilience ahead of the natural disasters brought to bear by climate change.

AI empowers a more precise treatment of applications – thereby reducing inputs. It can also enable production to better match demand – ultimately reducing waste. By fueling automation, smarter farm machinery and robots, AI will be key in the necessary transformation of the agricultural production and enable more productive farm management through bypassing reliance on chemical inputs and the resulting environmental damage (Filling Space, 2019). AI techniques can also be applied to rapidly develop a new generation of ultra-low carbon materials. In turn, Machine Learning may analyze consumer emissions related to spending and promote a low-emission behavior through smart grids. (Exponential Roadmap, 2019)

"In the past, our tools made us stronger and faster, capable of lifting mountains and rocketing into space. Our new tools such as AI will make us smarter, enabling us to better understand our world and ourselves. Even the smartest algorithms and robots are still tools, and so, we should use our tools to expand our reach, power, knowledge and abilities."

- Garry Kasparov, Chairman of the Human Rights Foundation, member of the Executive Board of the Foundation for Responsible Robotics and Former World Chess Champion, by many considered to be the greatest of all time, who was the first world champion to lose a match to a computer in 1997 (Fortune, 2017)

Applied to the corporate sustainability arena, **blockchain technology can assist businesses with the real-time propagation of data and events as well as tracking instant settlement dates.** Enshrining the audit trail would indeed boost trust, transparency and traceability. That in turn reduces risks, as blockchain ledgers are immutable and resistant to collusion. This tool is indeed designed to guarantee the privacy of data exchanges, reduce human error and execute contractual terms via self-executed code. This ultimately cuts costs by removing intermediaries and streamlining processing, updating and manual errors. From then onwards, new opportunities arise from decentralized business, improved product and service development and streamlined process execution.

These are just a few of the ways blockchains can improve operations. Another innovative use of blockchain technology lies in tokenization (further described later in the report), as a new, easier and more secure way of accepting payments, IOUs (informal documents of debt), invoices, purchase orders, documents, physical or digital collateral assets and payments via other types of currencies such as stable-coins or digitized fiat currencies (ConsenSys & Paris EUROPLACE, 2019). Using 5G and other network technologies to boost precision in manufacturing could further save materials and energy. Reverse logistics and the real-time tracking of materials, components and products though the IoT will likely improve utilization rates across consumer goods, vehicles and physical infrastructures. This can in turn accelerate the mainstreaming of the sharing economy as well as circular business models and the design of zero-carbon products optimized for re-purpose, sharing, re-use and recycling (Exponential Roadmap, 2019).

There are in fact a number of promising avenues for business development (New Climate Economy, 2018), which generally outline substantial gains in resource efficiency and support a shared responsibility over global sustainability issues. As a consequence, business models are in the process of switching from exclusive ownership towards a sharing economy, from product to services and from linear to circular models powered by digital technologies (Exponential Roadmap, 2019).

It follows digitalization, in its various forms and capacities, constitutes "the largest business opportunity on the planet" (Exponential Roadmap, 2019). **It indeed advantageously lends itself to an industry-wide disruption in the years to come.**

TOWARD BLOCKCHAIN-POWERED RENEWABLE ENERGY CERTIFICATE MARKETPLACES

When a business or household sends 1000 kWh of renewable energy into the power grid, they receive a certificate. Hence a REC represents 1000 kWh of energy and producers may sell certificates to individuals and firms. These REC are fully traceable, so that governments may monitor their spread and ownership.

However, the renewable energy generated, whether through solar, wind, hydropower, or other means is not in itself traceable. The power goes into the grid and becomes part of the energy pool, while RECs cover the electricity thus generated. Companies can buy and "retire" (remove from circulation) RECs to prove to governments and consumers they abide by clean-power regulations and protect the environment.

The Singapore-based SP utility company decided to implement a blockchain solution to improve their system compared to the competition. The utility indeed hopes blockchain will boost its security, integrity and traceability.

The SP marketplace supports local, regional and international RECs to sell to domestic or overseas buyers. There are multiple like-minded initiatives, including GE Power, the New York Utility coalition of Avangrid, Con Edison and the New York Power Authority and National Grid.

II.2.4 How Companies Are Adapting

Businesses need to harness digital technological solutions to effectively shift to zero- and low-carbon solutions. Doing so slashes costs and boosts their competitive advantage. **Major firms like Stanley Black & Decker, Unilever, Dell, IKEA, Apple, Google, BT, Ericsson, Danfoss and Intel are systematically and rapidly shrinking their carbon footprint, setting strong targets for future cuts and expanding target-setting and achievement for their suppliers** (Exponential Roadmap, 2019).

COLLECTING DATA TO DECREASE FOOD WASTE

Approximately a third of food produced for human consumption is either lost or wasted globally. Meanwhile 842 million people go hungry. The environmental impact is equally troubling: if food waste was a country today, it would be the third largest carbon emitter second only to the USA and China (FAO, 2017).

Global leader in Quality of Life services Sodexo focuses on food waste in its sustainability commitments. In 2019, the group developed WasteWatch, a data-driven food waste prevention program powered by Leanpath, which it implemented across 3,000 sites within a year. This tech-based approach aims to track just how much food is waste in each service site. Sodexo committed to make these figures public to bring a sense of urgency. Beyond data, the program also allows food services to also train and encourage chefs, supply experts, site managers and frontline teams to think creatively and innovate in the way they plan, use and serve food to reduce avoidable waste.

Companies that embed climate leadership in their core strategies using a suitable mix of digital technologies already seem to outperform those that stuck to business-as-usual. The only way to keep up with change is to constantly evolve and stay appraised of new opportunities and discoveries. It is therefore not surprising 86% of business leaders recently surveyed stressed their current priority was to reinvent their ability to learn (Deloitte, 2019). While most leaders tend to understand its potential for both business and society, **a key hurdle to unlocking the value of digitalization for sustainability is that many they lack the ability to plan as innovation moves faster than conventional organizational and societal frameworks**. This creates a gap between strategic digital intent and operational execution, limiting full impact at a time when the need for industry-wide progress is dire. (World Economic Forum & Accenture, 2018). The private sector could improve its ability to explore new digital technologies and transform business models by envisioning digital strategies the same way they do scalable products.

Solutions range from experimentation to pilot schemes, rapid iterative development models, open source sharing and even crowdsourcing and strategy hackathons to brainstorm ideas and demonstrate feasibility. In addition, existing models are readily available to avoid reinventing the wheel for business, freeing up time and space for more trial and error and creative applications of the knowledge at their disposal. Companies can indeed start by adapting existing models or combining them to fit the specificities of their businesses and sustainability priorities to reinvest their value proposition, improve practices and boost performance. New-comers and experienced adapters alike would do well to focus on replicating and adapting proven digital leapfrogs, starting with mobile banking for financial inclusion, or drones.

Turning to blockchain technologies, users may already include biometric data to their records to leverage their digital identity in a way that protects their privacy whilst carrying out important transactions and interactions, resulting in clear developmental benefits. This could for instance be applied to securing land rights for the poor, essential for smallholder farmers to make long-term investments. Connecting whole cooperatives to blockchain technology via mobile apps could also enable smallholders to keep transparent records of transactions and facilitate collaboration. Such "smart contracts" could allow money to be released across the supply chain the second planned action occurs. Real-time payments lays out the foundation for rural communities to significantly increase their savings, lower their credit scores and effectively leverage their collective bargaining power. These smart contracts could also facilitate insurance claims for smallholder farmers and reduce instances of fraud, which in turn could lower insurance premiums and speed up payments. In the event of a flood or drought, automated payments linked to smart contracts could instantly go out to smallholder farmers, substantially raising the bar in risk mitigation and stabilization of (IFAD, 2019) (OECD, 2019).

Focusing on how to use digital technologies is only part of the equation. **For companies to make a sustainable impact and achieve long-term business value, they must integrate sustainability throughout their business and across their entire value chain - and then harness digital technologies to hit their performance targets.**

"Before exploring technologies to manage complex supply chains, we've simplified our dairy sourcing model and made it more local. We believe that it is good to start making business and operations less complex before exploring technology solutions helping to manage the remaining complexity."

– **Didier Moreau, Nature and Sustainability Director at Danone**

AI, IOT AND BLOCKCHAIN TO IMPROVE AGRICULTURE

IBM has driven AI and Blockchain projects to help improve crop yield for agriculture companies in India. The system also helps them comply with the Unified Goods and Services Tax (GST) launched in 2018.

Three ongoing pilots respectively focus on pest and disease prediction, improving yield, and yield prediction for crops specific to India including potatoes and sugarcane, while working closely with India's Central Bank to upgrade its applications.

IBM is exploring an insurance program to help farmers face hurdles like inclement weather. Here, IoT sensors in their fields could guide farmers toward buying the most appropriate crop, for instance. (Wharton University of Pennsylvania, 2018)

Sustainability-motivated uses of digital technologies are currently reengineering entire industries. Solutions are constantly being invented that replace outdated, inefficient processes and behaviors. Along with integrating sustainability across the entire value chain, companies can capture return on capital today and build leadership and business value for the future. Investments such as these help companies create a competitive advantage, build stability and assure stakeholders they are well positioned to address the challenges of a fraught 21st century. (CDP, 2014)

A closer look at digitally-powered sustainability

Being transparent in tracking and reporting GHG emissions allows companies to measure progress, make the necessary corrections and promote their broader accountability. Blockchains are particularly relevant to reinforcing due diligence, notably in agricultural supply chains (OECD, 2019). By being grounded in data, digital technology promotes results-based rather than compliance-driven practices, allowing agri-businesses to robustly evaluate performance and make targeted adjustments. The next step is then to re-think monitoring and compliance in such a way as to reduce the burden on producers and overall cost of monitoring and compliance programs.

Digital technologies outline new pathways toward finance, reputation and sustainability approaches that move beyond compliance. Rather than rely on penalties to incentivize compliance, digital technologies may allow companies to create long-term partnerships with suppliers and focus on win-win approaches. A prime example would be a cloud-based platform to allow all parties – suppliers, manufacturers and consumers alike – to track transactions in real-time, ultimately nurturing trust and transparency throughout the supply chain. Algorithms can also improve administrative functions and reduce costs, freeing up staff time and reducing the likelihood of human error, as well as developing more complex and detailed analyses, contributing new knowledge – faster and more precisely. (OECD, 2019)

The apparent simplicity of blockchains tends to cloud our understanding of the complexities of applying them to real-world scenarios. For instance, although there has been considerable hype around the disruptive potential of blockchains, we are now beginning to consider applications outside the realm of cryptocurrency, across finance and other industries (Singularity University, 2018). For now, blockchain technology is not fully mature; yet business should get on board to best plan ahead, in the pursuit of an increased economic, social and environmental performance.

For the time being, digital transformation and sustainability strategies are all too often dissociated. Taken in concert, climate and technology mutually reinforce one another, particularly in planning the necessary processes to maximize the potential of low-carbon solutions and identify future competitive advantages.

Tech As An Enabler

II.3 THE CHALLENGES

Tech As An Enabler

II.3 THE CHALLENGES

II.3.1 A major Impact on Jobs

Our future – the way we work, move, interact and experience the world – will be shaped by digitalization. For that reason, **it is critical to ensure the digital revolution is shaped in a comprehensive and far-sighted manner, which prioritizes equity, accessibility, inclusion, human dignity, international collaboration and sustainability** (OECD, 2019). While many businesses are exploring new ways to use technologies and improve business performance, many also fear going too fast for people and businesses to adapt adequately. Many wonder whether automation will put them out of work. As such, can tech investments be equated to reducing human capital?

Based on the available data, predictions vary widely between how many and what types of jobs are actually at risk. The World Bank argues tech threats to jobs are exaggerated and not homogeneous around the world, pointing to different studies that pin most of the impact on Japan and estimates variations between 2% and 60%. Such discrepancies arise from advanced economies shedding industrial jobs, while industrial employment is on the rise in parts of East Asia and is still stable elsewhere (World Bank, 2019). That said, the OECD estimated 14% of jobs worldwide to be at risk of automation in the next 15 to 20 years, while another 32% of jobs stand to be radically reshaped (OECD, 2018b). McKinsey similarly concluded 40% of jobs in the U.S. could be cut by 2030, but "*even as some jobs decline, the US economy will continue to create others — and technologies themselves will give rise to new occupations. [Therefore] all workers will need to adapt as machines take over routine and some physical tasks and as demand grows for work involving socio-emotional, creative, technological, and higher cognitive skills*".

Thousands of routine tasks are bound to be replaced by robots in the near future. The least skilled who tend to hold such jobs are also the least-equipped to seize new opportunities, as their skills may be outdated and do not match newly-minted positions. The same are likely to look for other low-skilled jobs, thereby further increasing pressure on other low-skilled workers and wages.

Such considerations hark back to current challenges to social and economic inclusion (see infra) and stress the call for business and society to handle automation responsibly (ILO, 2019). From a strictly business point of view, the fact digital technologies do not spread immediately means employees will need to continuously be re-skilled as their company improves its broader organizational capabilities. As a consequence, investment in digital technologies is contingent on funding human capital and organizations to be beneficial. In other words, **investing in human capital is becoming more important because the premium on adaptability is higher than ever before** (World Bank, 2019).

In fact, the boundaries pushed by technology in life and business suggest any job will require new skill development. As only 40% of low-skilled workers currently receive firm-based training compared to 73% of high-skilled workers, only 31% of adults are considered to have sufficient problem-solving skills to succeed in a digital world, all the while the most skilled tend to benefit more from digital opportunities. The knowledge-based assets at the foundation of the digital revolution are generally costly to set-up and also tend to take time to integrate into business models and processes. However, once accumulated, the same knowledge can be re-used without any additional cost, allowing companies to scale faster and more easily as they generate increasing returns for the company to reinject toward scaling its reskilling programs (OECD, 2019). **Three skills will likely be particularly competitive on the market**:

"The following skills are increasingly important, alongside digital skills: creativeness and capacity to manage exceptions, Emotional Intelligence, teamwork and collaborative attitudes."

- **World Development Report (World Bank, 2019)**

That said, newly-acquired skills may quickly become obsolete, based on the pace and scale of these technological advancements.

This means we cannot fully know now what jobs might look like in the future and the skills they will call for. The importance for business and society at large to offer opportunities for life-long learning and greater job flexibility is all the greater.

Employees must be empowered to learn and adopt the latest technologies, as well as be incentivized to creatively use the latter and suggest new applications. By teaching people how to learn, businesses may encourage workers to acquire new skills throughout their working life, thereby enshrining life-long learning (World Bank, 2019). Managers, human resources or employee representatives can clearly see the need for companies to help workers navigate skill development better and prepare them for the future. This requires embracing a greater responsibility and for businesses to begin to shore up their expertise and gear its innovation capabilities towards addressing this global challenge. In so doing, companies will harbor not just a more stable and engaged workforce but also a more economically secure society wherever they operate. (BlackRock, 2019)

II.3.2 Changing the Way We Work

When setting a sustainable strategy linked with the digital transformation, using digital technologies in training employees may further boost the broader transition. For instance, training programs would likely be more impactful if they harnessed AR, VR and gaming, training (OECD, 2019). AR and VR indeed allow us to better embody, live and understand how to act in any given situation, so that the future may not feel such a distant or abstract concept.

A digital transformation necessarily implies a cultural shift. It demands corporate leadership focuses on human-centered approaches, where social impact is key. On a side note, while technologies can make workplaces both safer and cleaner, ensuring adequate employee protection remains vitally important. Showcasing the outcomes digital data collection initiatives such that of Sodexo may increase engagement from within. It indeed demonstrates the kind of impact likely to convince investors to pursue digital approaches to improving their economic, social and environmental performance. The OECD recently delved into the changing nature of European jobs as a consequence of digital transformations, estimating 7% of surveyed European companies with more than 10 employees had introduced robots, while 4% used 3D printing.

As a consequence, employees spent more time learning new tools and acquiring new skills in the year of 2018 than ever before. As many as 40% of workers in the EU had to learn to use new software or ICT tools, which generally resulted in cutting out repetitive tasks. While employees found it easier to collaborate with colleagues, many stated they increasingly felt their performance was being closely monitored. Nevertheless, technology has demonstrably contributed to worker productivity in key sectors (OECD, 2019).

VR FOR BETTER PERFORMANCE

Sodexo uses VR to train employees. The goal is to simulate working in a kitchen, and teaching employees best-practices related to reducing food waste, avoiding safety hazards and ensuring the highest degree of hygiene and quality.

"Virtual Reality is a game-changer in delivering scalable, cost-effective and impactful training solutions on safety or best practices in mitigating food waste for kitchens collaborators. VR is a critical to delivering on our commitments."

Damien Verdier, Group Chief Strategy and Corporate Responsibility Officer, Sodexo

II.3.3 Changing our Motivations to Work

In some parts of the world, using digital technologies at work may render certain sectors more attractive than they are today. For instance, the African agricultural sector only contributes 4% of the overall output, despite the fact 60% of the continent is arable land. The average age of farmers being around 60 also poses a threat to the sector in and of itself. Younger generations are increasingly moving to cities in search for higher paid and less tedious jobs. There they find massive unemployment, as cities can only create so many jobs and absorb a portion of the 25% of young people entering the workforce every year. By adopting digital solutions in the agricultural sector, such risks may be mitigated to an extent, particularly in light of climate change's adverse impacts. This stands to increase financial inclusion, improve productivity by enhancing practices through education.

It could also increase output, through smart or precision farming as well as decrease the use of pesticides and the resulting environmental and health issues by using more sustainable agricultural practices. Such effort could make the agricultural sector more attractive again and reap shared benefits in the long run (Oxford Business Group, 2019).

CLIMATE-SMART FARMING

Sero RICE is a crop intelligence company based in Vietnam which set out to help relatively low-skilled young farmers produce higher quality crops, increase their income and become self-sustainable. The company supports climate-smart farming and optimizes rice production, by collecting images taken by farmers with smartphones and IoT sensors to produce full-cycle data analytics and deliver preventative recommendations via their Computer Vision Technology.

The company also works with governmental extension centers in mountainous regions – where the average education level tends to be lower – to train young ethnic farmers on good farming practices and using the app to collect and document their farming activities.

In so doing, the company shares production insights with farmers, agribusinesses, government extension workers and importers. It also increases the attractiveness of the agriculture sector among the low-skilled youth. (MIT Solve, 2019)

II.3.4 Improvements for All

In virtually every agricultural commodity supply chain, smallholders lack access to vocational training. This directly impacts their safety, productivity and income. Multiple stakeholders have been working on training programs but overall, find it difficult to provide cost-effective solutions to address millions, across fragmented chains. Ubiquitous smartphones tend to open access to training materials, however. AR and VR technologies could likewise positively impact day-to-day practices in the field (Ksapa, 2019).

Still, different geographies entail informal norms, stressing the importance of adapting agricultural training to local and often culturally-rooted farming traditions. (Filling Space, 2019)

Setting a sustainable digital transformation strategy toward training employees further bolster the broader corporate transition. For instance, harnessing the next generation of digital technologies such as AR, VR and gaming, training programs can become all the more impactful (OECD, 2019). The reason is AR and VR allow us to better embody, live and understand how to act in any given situation, making the desired future not feel as so distant or abstract anymore. (Filling Space, 2019)

II.3.5 Proactive Value Chain Engagement

Another hurdle lies in large buyers being typically reluctant to risk challenging business partners and suppliers in their attempt to improve agricultural commodity supply chains on the ground. Major environmental and social issues also come with a political dimension and buyers often prefer to stay clear. Finally, when a major buyer only accounts for a portion of turnover, their leverage is too limited to durably affect practices on the ground.

New financial vehicles may encourage stakeholder ecosystems to develop joint funds to tackle specific priorities (traceability, vocational training for instance). They may indeed aggregate resources and dilute responsibilities through a third-party fund manager to oversee subsequent programs. These funds could for instance cater to multiple activities aiming to open access to and adoption of technologies. They may include loans to buy new digital equipment; capital ownership to access resources and expertise from strategic business partners, or even scalable training through mobile phones, to ensure broad content dissemination across entire supply chains. (Ksapa, 2019)

In Southeast Asia, the increasing use of digital technologies ushers in the digital transformation of economies and societies across the region. Not only does this transformation facilitate the rise of new services, products and applications, it also affects how people live and work, opening up a range of opportunities for small and medium-sized enterprises. The latter play a vital role in Southeast Asia, through their contribution to employment and inclusive growth. They may also help partnering global brands to be more agile and adapt processes to local specificities.

Supporting such a digital transformation improves market intelligence, access to top talent as well as financing instruments. It ultimately enhances performance and competitiveness across the value chain – and society at large. To that end, connectivity is essential for SME to truly go digital. Promoting inclusiveness in accessing and using digital services and applications makes good business sense, as does supporting SME workforces in adapting to digitally-powered work environments (OECD, 2019).

II.3.6 Potential Challenges

Major improvements are nevertheless essential to avoid business being negatively impacted by digital technologies. For instance, while Artificial Intelligence can indeed enable a new generation of sustainable development solutions, the underpinning regulations and codes of conduct must also be ethically grounded, striking a proper balance between technological progress and people's right to privacy and human dignity as well as possible built-in biases (UN, 2019). AI systems are not necessarily built to function ethically, yet the resulting decisions may affect the lives of many. Fully taking into account such considerations is therefore vital for AI to effectively improve lives. The technology in fact stands to self-improve faster without the help of humans, but ethical safeguards must imperatively be built-in from the get-go (Singularity University, 2019).

"The debate that started about State behavior and responsible State behavior has really become a much wider discussion about the role of the private sector, the role of communities, of regions, of cities, and indeed of individuals – and how to develop space for rights, for equity, for development and for access that enhances development of all"

– **Renata Dwan, Director of the UN Institute for Disarmament Research (UN, 2019).**

Such protections would improve trust in AI systems, further supporting their adoption and improving their potential to provide solutions for our challenges. Self-regulation is however insufficient and data management calls for data privacy, particularly for AI. (UN, 2019).

National and regional policy may help, and global and cross-sectoral cooperation is paramount.

II.3.7 Digital Tech's Energy Footprint

The digital transition underway has generated a massive surge in the ICT sector's direct energy footprint, be it to produce or use equipment (servers, networks, terminals). Its energy demand is still growing an estimated an annual 9% and may grow even more when energy-intensive digital technologies – such as 5G and data mining associated to blockchains – go mainstream (Schneider Electric, 2019). Because of the Proof-of-Work system underpinning Ethereum, 47 Terra Watt/Hours – equivalent to 23,000 kilo tons carbon dioxide and enough to power a small country – go to mining blocks for Bitcoin on annual basis. This demand will likely keeps increasing as Bitcoin grows in value. Though partly powered by renewables, new developments such as the transition of the Ethereum community to Proof-of-Stake is bound to require even more energy (Medium, 2019).

By 2025, the ICT industry's electricity consumption is expected to jump to 20.9% of the global consumption, which would amount to 5.5% of the world's GHG emissions (Schneider Electric, 2019). Leveling this carbon footprint is all the more essential (The Shift Project, 2019). Meanwhile, mainstreaming high-speed 5G internet is necessary to further leverage the IoT towards improving our daily lives, though it involves computer power that much more in the smallest details of our lives (OECD, 2019).

Digital technologies are also part of the solution. An example lies in the so-called "Holochain", which does not rely on energy-intensive mining procedures. In fact, it uses competing supercomputers to solve equations. It is still built on the same technological solution as blockchain but works differently, so that a given cell interacts with neighboring cells and not necessarily with the system as a whole. The energy-intensive mining process behind blockchains gives way to a more sober process of validation, where only a critical number of players validate transactions (L'ADN, 2019). Another example is the Peercoin, which runs on proof-of-stake. Traditional blockchains are secured through demonstrating proving they consumed electricity, in what is called proof-of-work. Proof-of-stake replaces this expensive security protocol by referencing time spent instead (Peercoin, 2019).

While new technologies help us make headway in solving key societal challenges, they come with their own set of issues. What is certain, however, is that the leading, organizations, companies and even countries owe their success to their capacity to understand and adapt to the ever-changing rulebook.

"We're at the point of asking ourselves, 'will emerging technologies contribute to peace overall or will they undermine it? Will they generally further access to sustainable development or will they further inequality? Will they facilitate respect for Human Rights, or will they provide new tools to those who wish to contain or violate the realization of human rights?'"

– **Fabrizio Hochschild Drummond, UN Assistant Secretary-General for Strategic Coordination (UN, 2019).**

THE GREEN NEW DEAL

Jeremy Rifkin's Green New Deal vision is controversial among those who closely track energy costs and transition. French magazine Alternatives Economiques provided mixed and argued insights in blog posts, expressing doubt technology and market principles alone may drive down the price of clean energy, regardless of growing evidence the ton of carbon will substantially increase in years to come.

III. BETTER FINANCE

Better Finance

III.1 RESHUFFLING THE DECKS OF THE FINANCIAL CONTEXT

Better Finance

III.1 RESHUFFLING THE DECK FOR FINANCE

The development of Responsible Investment and Impact Investment strategies, the integration of Environmental, Social and Governance (ESG) criteria in financial models as well as the general evolution of our common understanding of companies' societal role have all converged to demand business and investors actively address global challenges.

Developed in the 1990's, the concept of responsible investment only kicked off in the wake of the 2008 financial crisis. It is now gradually reaching more capital and engaging an increasingly broader audience.

The UN Principles for Responsible Investments launched in 2006 **(UN PRI, 2019)** are evidence of this trend. In 2010, they had 784 signatories, representing USD 22 trillion in Assets Under Management (AUM), which corresponds to approximately 10% of the global capital market **(UN PRI, 2010)**. By 2019, the UN PRI gathered closer to 2500 signatories and USD 80tn in AUM, rising up to 25% of the global capital market. This sends a powerful message from mainstream investors and the broader global market.

III.1.1 Allocating Private Financial Resources to Invest and Finance SDG-Related Projects

While the pace of this change has quickened, the gap to finance the completion of the 2030 Sustainability Development Goals is still vast. The social and environmental challenges we face require bold corporate and investment action. As quantifying the financial resources necessary to achieve the SDG is particularly complex, estimations vary widely, from USD 2.5 trillion to over USD 5 trillion every year until 2030. While certainly part of the equation, Official Development Assistance (ODA) mechanisms are under pressure, having dropped by 2.7% in 2018 – from USD 146.6 billion in 2017 (OECD, 2019). While ODA remains strong, particularly in lesser-developed countries, it alone cannot ensure SDG completion. **That said, even if public funds were to be successfully injected, we would collectively far short. (OECD, 2019)**

With the adoption of the UN SDG in 2015, countries called the private sector to innovate and scale activities to fully contribute to achieving the 2030 Global Agenda. Investors and governments further recognized companies are uniquely poised to support sustainable development efforts globally. **(UN Global Compact, 2019)**. For these reasons, private and financial sectors have a key role to play to catalyze finance and achieve the SDG.

"Private development flows are also declining, and donor countries are not living up to their 2015 pledge to ramp up development finance… this bodes badly for us being able to achieve the 2030 Sustainable Development Goals."

- **Angel Gurría, Secretary-General of the OECD (OECD, 2019)**

Alarmingly, private investments in SDG-related programs and infrastructure in developing countries were lower in 2018 than in 2012 (UN Inter-agency Task Force on Financing for Development, 2019). **On the other hand, SDG-aligned opportunities could amount to as much as USD 12 trillion and create up to 380 million new jobs. Climate action could also result in USD 26 trillion in savings by 2030 (Business and Sustainable Development Commission, 2017)**. Meanwhile, the global sustainable investment market is on the rise and is now estimated at USD 31 trillion in AUM – that is, one third of global assets under management. In addition, multiple other factors have accelerated a broad rethinking of the future of corporate finance and investment as growth, value creation and social impact catalysts **(UN Global Compact, 2019)**.

The present gap is nevertheless expected to close. Already, about 1/4 of global assets under management are covered under an ESG mandate and given current growth rates, 95% of AUM amounting to USD 130tn could end up under an ESG mandate by 2030 **(Deutsche Bank Research, 2018)**. **Financial assets valuation – made possible notably by the monetary policies of the past decade – have also reached an all-time high.** Though the SDG require tremendous means, they amount to a reasonable portion of the USD 300tn in global financial assets.

This would be all the more reasonable as a significant part of the required SDG financing lies in investing in preexisting as well as new assets. Additionally, there is major potential for these to investments to provide substantial returns. **(Business Insider, 2015)**

III.1.2 Embedding Non-Financial Criteria Lends Investment Strategies a Much-Needed Update

ESG performance indicators inform our capacity to measure future risk as well as businesses' ability to address stakeholder expectations. This translates into investment strategies solely geared toward ESG performance, as well as the growing integration of non-financial analyses among mainstream investors.

One of the main financial trends in the last decade lies in the rapidly-increasing amounts of financial assets invested in sustainable funds. Those picking stocks based on ESG performance have tripled within a year, reaching an estimated USD 16 billion in AUM. This has largely been fueled by growing allocations to index-tracking funds (ETF). It was also facilitated by the change or improvement of sustainable business practices among large corporations, bolstering the broader universe of stocks eligible for ESG funds. (Reuters, 2019)

Studies show such strategies have struck a certain balance, by generating higher performance and offering greater volatility-control than mainstream indexes. In addition to these "ESG only" investment strategies, embedding the socio-environmental impact of corporate activities in standard financial analyses has become a must (Robecco, 2019) (Amundi, 2019) (Nordea Equity Research, 2017) (Eccles, Ioannou, & Serafeim, 2014) (Khan, Serafeim, & Yoon, 2016) (Harvard Business Review, 2019).

The link is therefore increasingly clear between sustainability and CSR performance at the core of business practices, the corresponding ESG ratings and overall financial performance. As they seek ways to lower their risk exposure, asset managers – and investors in general – are increasingly factoring in performance across social, environmental and governance issues as an efficient means to anticipate an uncertain future. **Digital, climate and social disruptions indeed generate so many different uncertainties for assets and operating models, that it has it makes fairly common to include these aspects in risk-hedging design and appreciation.**

Likewise, the audited financials of assets under management are increasingly balanced with extra-financial criteria. Companies that negatively impact society will undoubtedly face adverse changes to their operating environment, notably due to the regulatory context, but also - and perhaps mainly – because of fast-evolving customer expectations. (Barclays, 2016).

The resulting risk is threefold:

- **Regulatory risk**

The new law on the Duty of Vigilance in France or the Modern Slavery Act in the United Kingdom, for example, are being adapted in more countries (e.g.: Netherlands, Germany, European Union directive) and will reinforce the necessity to effectively implement Duty of Care across corporate value chains.

- **Social and/or environmental crisis risk**

Responsible Business Conduct principles are quite clear. Meanwhile, the growing risk of social or environmental crises opens onto potential financial costs, a degraded market position or even disqualification for certain partners – all of which are being closely monitored by investors. (OECD, 2019)

- **Transition risk**

Fed by evolutions in the perception of the role of companies in societies (as described later in this chapter) or increasingly important economic valuation, business models are in jeopardy if they fail to transition toward more responsible and balanced practices. For example, the social cost of greenhouse gases associated with economic activities will likely be taken into account in a radically different and probably exponential manner within the next 10 to 15 years. We can deduct this from the evolution and volatility of carbon allowances pricing on carbon stock exchanges in 2018/2019, for example. Supply chain design and operation model transitions while therefore prove vital.

To avoid such risks, ESG analyses increasingly supplement traditional financial reporting and provide an all-encompassing assessment of performance and risks, instilling a holistic long-term attitude to risk management. As ESG factors are expected to play out over the long-term, responsible investing can encourage corporations to take a longer-term approach to value creation.

This can in turn successfully counter the growing pressure for short-term financial performance if it conflicts with a company's sustainability in the long run (Barclays, 2016).

ESG is increasingly not just good public policy, it is also – and chiefly – good for business. For instance, increasing workforce diversity can open onto broader engagement, thereby reducing work-related injuries and boosting output by several percentage points. Moderating executive compensation can likewise boost asset returns. That said, ESG transparency across the corporate sector stands to lower the cost of capital and moderate the effect of economic downturns. ESG analysis is therefore far from being the luxury one may want to incorporate after sufficient growth or use to satisfy new expectations. It might in fact bolster social and governance standards, ultimately contributing to international development, even in developing countries. (Deutsche Bank Research, 2018)

Corporate ESG data is becoming more quantifiable, readily-available and of better quality. Data providers are continuing to integrate AI, machine learning, and worker-voice technology to improve the reliability of their suppliers' performance scores, as part of their ESG supply chain due diligence. While information is still being collected by asset managers and service providers, non-financial information standardization initiatives have multiplied – including Sustainability Investor Forums (SIFs), the International Integrated Reporting Council (IIRC), the Global Reporting Initiative (GRI), the Task Force on Climate-related Financial Disclosures (TCFD) and the Carbon Disclosure Project (CDP) to name but a few global efforts. The upcoming revolution in ESG data will likely be tied to real-world impact, Science-Based Targets, the inclusive economy… and come to test leaders' readiness for transition. ESG data must therefore be contextualized to make sound investment choices (Generation IM, 2019). In essence:

- Automating ESG performance data collection and harnessing AI and machine learning to analyze it **will shape the investment landscape in the decade to come.** As we speak, massive investments are going to channeling digital technologies in the investment space. More and more, AI is able to learn and infer context properly. It is also embedding and interpreting non-financial, ESG-oriented data better than ever before. In so doing, it may highlight high-performers effectively as well as detect greenwashing.
- **ESG nevertheless calls for nuance** as it deals with very heterogenous sets of data, combined with very limited alignment in taxonomy between issuers and investors. While Big Data and automation are bound to shape the industry of the future, they come with a clear risk of making inadequate calculations and providing misleading insights. **For instance, multiple academic studies stress the positive correlation between investments in water preservation and climate risk mitigation.** Meanwhile, rating agencies may assess climate-related performance through Big Data but miss negative side-effects on water stewardship, for instance. **Combining human expertise with Big Data remains the best solution available to base business decisions on a savvy understanding of local contexts and operations**. **(Deutsche Bank Research, 2018)**

Unsurprisingly, ESG performance is proven to impact the cost of debt, especially with regards to bonds, as a measure of the risk borne by bond subscribers. Companies with comparable balance sheets may issue bonds with different costs on the basis of their ESG rating alone. ESG ratings could result in a steady financing cost advantage of around 30 basis points (bps). That said, ESG impacts are most felt among top and poor performers. For the top 10% ESG performers and the bottom 10%, the correlation between ESG and bond interests is undeniable. For the remaining 80% the impact of ESG performance on cost of debt is less obvious (Barclays, 2016).

We are at a turning point, where ESG investing is maturing, through integration across decision-making processes, data standardization, new benchmark indices and more proactive engagement with issuers. In the long run, companies who do not uphold their CSR or sustainability commitments on a day-to-day basis may be excluded from a growing proportion of investment universes, in stock or bond markets. **In other words, our growing appreciation of environmental, social and governance risks is already impacting stock value and will only become more influential.** Such trends are expected to favor the dissemination of responsible business practices across business activities.

That said, damage control is not the same as proactive action: this new understanding needs to be finetuned and calls for the development of new solutions to address pressing global issues.

III.1.3 Social Purpose Companies

The long-lasting debate on the role of business in society rages on. Today, more and more voices have emerged, suggesting a move away from solely shareholders' interests alone, which could have potentially tremendous effects on the interaction between companies and financial players. **A movement towards economic activities that are meaningful as well as more responsible has started**, following the rise of social purpose corporations (SPC) in the US, the B-Corp International network, and the creation of the mission-driven company status in the UK, in the State of California, Italy or France, to name a few. **These developments support business transformations and fuel the creation of companies driven by a purpose and mission** – and who can prove it, as per a legally-binding company status. This is not the deed of a happy few, **business leaders have expressed their support their support as well.** While their voices must now materialize into action, they certainly lend credibility to the movement.

Indeed, the head of BlackRock, the world's largest investor overseeing USD 6tn, Larry Fink, urged CEO in 2018 to make a positive contribution to society and be driven by a purpose to do social good. In 2019, he went on to claim purpose was no longer enough, demanding businesses be leaders in a divided world. Fink argued "**stakeholders are pushing companies to wade into sensitive social and political issues — especially as they see governments failing to do so effectively**". While subject to debate, this position statement is significant enough to shed light on the growing importance of purpose in economic action. This harks back to Milton Friedman and the theories of the Chicago School of Economics – all of which are linked to a broader questioning of the relations between companies and shareholders as well as long-term perspective in business and investment.

III.1.4 Valuing Social Costs & Benefits

Valuing externalities is increasingly front in center – in other words, **measuring socio-environmental costs and benefits, to value them in economic terms**. **Should these externalities be economically valued at their actual or likely cost, business structures as well as economic and financial analyses would likely be thoroughly reorganized.**

DEBATING CORPORATE LEADERSHIP

During summer of 2019, 200 CEO voiced their opinions on the role of business in society via the Business Roundtable, a lobbying organization representing many of America's largest companies. In their letter, they argued companies should no longer cater to shareholders alone but invest in their employees, protect the environment and engage suppliers fairly and ethically.

While they stopped short of a concrete action plan, they pledged to compensate employees fairly and provide "important benefits", as well as training and education, while also "protecting the environment, by embracing sustainable practices across businesses" and "foster diversity and inclusion, dignity and respect" (Business Roundtable, 2019). While these CEO made their intensions clear, by late 2019, only 65 of 500 Fortune 500 companies had approved Science-Based Targets.

The debate quickly moved elsewhere as the Council of Institutional Investors (CII) soon responded to the BRT with a "concern" boards and managers should aim to sustain long-term shareholder value. CII further claimed that "to achieve long-term shareholder value, it is critical to respect stakeholders, but also to have clear accountability to company owners" and disagreeing with BRT's placing "shareholders last… as providers of capital rather than as owners". (Council of Institutional Investors, 2019)

Though some progress has been made, further efforts are essential to broaden scope and impact, particularly with regards to accounting for social issues. An obvious tool to achieve emission reductions lies in allowance-based carbon pricing instruments, such as the European Union's Emissions Trading Scheme (EU ETS). Nations or companies responsible for major GHG emissions are allowed a certain quota in the form of a number of credits. Those who do not use these credits may trade them in an effort to balance global GHG emissions.

That said, less than 5% of all allowances are currently priced at levels consistent with a 2°C global warming trajectory aligned with the Paris Agreement. A key reason lies in nations' persistent over-allocation of free allowances to their top domestic polluters, sometimes in fear they would otherwise relocate to countries with weaker environmental laws. In addition, only around 20% of overall global GHG emissions currently fall under some degree of carbon pricing and the corresponding revenue is rarely used to stimulate green innovations or the green economic transition (World Bank, 2019).

Allowances are exchanged on 5 stock markets worldwide, though multilateral negotiations to launch a common global carbon market failed during the COP25 in Madrid in late 2019 (Climate Change News, 2019). While fully-functional carbon pricing may be the most effective way to reduce GHG emissions, implementing pricing mechanisms can prove difficult. They may indeed give rise to social unrest should all stakeholders not be involved at the earliest opportunity. The goal is to share co-benefits with all and prevent these policies from disproportionately impacting the poorest households. Implicit carbon prices are a viable example, the likes of the aforementioned fuel tax France proposed in 2018. Pricing carbon pollution is a crucial tool to drive investment toward effective climate action. Getting that price right – and doing so now – is essential to achieving the SDG and climate goals. (World Bank, 2019)

Social and environmental accounting standards have also been among key organizations corporations in the last decade, in response to their growing importance for investors and in policy-makers (GHG Protocol, integrated reporting, European directive on sustainable development reporting).

Though focused on environmental more than social impact monitoring, large corporations have made some progress, in the wake of Danone's Carbon Accounting and Accor's organizational Lifecycle Assessment.

The European taxonomy released in December 2019 may also be of major help to compare and manage the environmental impacts of corporate and investment activities (Euractiv, 2019).

Commercial banks are likewise including GHG impacts in their decision-making processes. A prime example, **Natixis included a Green Weighting Factor in 2019, which directly impacts loan granting processes and supports the broader push to decarbonate the bank's balance sheet and effectively align with the Paris Agreement** (Natixis, 2019).

III.1.5 The Monetary Context

Monetary policies are similarly evolving, notably with regards to climate emergency. Central banks are preparing to profoundly modify how value climate action. Most are developing their own analyses and approaches in an effort to live up to their financial stability mandate. They are also coordinating their efforts via International alliances, such as the Network of Central Banks and Supervisors for Greening the Financial System and the Taskforce on Climate-related Financial Disclosures.

Regulatory authorities are bound to impose climate stress-tests to banks and insurance companies shortly, which would profoundly affect the way these financial institutions manage their assets and liabilities. Other like-minded measures are on the table, such as the "Green QE", to limit Quantitative Easing asset-purchasing programs to assets compatible with a global warming trajectory aligned with the Paris Agreement. **These measures should have systemic effects and drive profound changes in the way financial institutions and companies interact.**

Driven by a sharper appreciation of the importance of ESG criteria as well as a series of wake-up call regarding the social role of companies, the current financial context appears increasingly favorable to financial innovations. This is good news, seeing as the global environmental and social priorities described in the SDG framework demand a significant and urgent allocation of private resources. Given negative yields have reached a staggering USD 17tn in November 2019 (up from USD 5.8tn the year before), approximately 30% of investment-grade securities now register sub-zero yields (Bloomberg, 2019). **Such signals may well convince investors to seek out new ways and avenues to redirect their investments.**

Better Finance

III.2 INNOVATIVE FINANCE SOLUTIONS

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III.2 INNOVATIVE FINANCE SOLUTIONS

Corporations largely remain focused on digital disruptions more than financial innovations. **Our research panel observed only a small number of companies have implemented innovative finance solutions to develop their activities**. The implementation of innovative financial solutions in business activities also appears to be driven by investment and funding considerations (equity and debt) rather than developing business activities. While we await further debt instruments, Impact Investing or Blended Finance strategies are systemic in their capacity to drive financial inclusion, opening up new promising avenues for development. Innovative finance solutions are mechanisms and initiatives that:

- Create scalable and effective ways of channeling private resources toward financing global challenges, from companies and global financial markets in particular;

- Identify new grounds to implement novel strategies or open new tracks and increase the impact of business activities from a sustainability perspective (notably using financial instruments and digital technologies).

Innovative finance solutions provide greater access to capital as well as sustainable sources of finance to deliver more efficient development projects. They may achieve this by linking financing and results, redistributing risk, improving the availability of working capital and matching the length or purpose of investments with project needs – through platforms, or by avoiding the cost of using intermediaries thanks to new technologies. In so doing, they integrate and measure development outcomes in impact investment funds or pay-for-performance projects to ensure financial flows meet the desired outcomes. (ILO, 2018)

Mostly thanks to an evolving landscape and new previously mentioned new financial practices as well as disruptive digital technologies, innovative financial solutions are ready to be activated and feed the transformations of business and economy needed to address sustainability issues. Besides, impact investment and novel ways of funding projects could be used to find new angles for investors' decision-making.

III.2.1 New Financing Instruments: ESG Linked Loans and Bonds

New financing schemes first appeared in large corporations. Green bonds, social bonds as well as sustainable bonds (those with both an environmental and social use of proceeds) have consistently risen, proving their increasing popularity since the first green bond was issued in 2007. In 2018, green bonds meeting the CBI criteria amounted to USD 168bn, while other green bonds reached 24bn (Climate Bonds Initiative, 2018).

Given current growth rates, the green bond market could challenge over 15% of the global corporate bond market in just five years and thus go mainstream. Regardless, this would be insufficient in terms of financing a sustainable energy transition. Unclear official definitions, greenwashing and projected additional expenses linked to market growth are just some of the challenges to reaching the full potential of green bonds (Deutsche Bank Research, 2018).

Some of these instruments are dedicated to finance-specific projects, the characteristics of which are usually validated and monitored by independent experts or notation agencies. **While issuance was still going strong in 2019, rising to USD 188bn between January and mid-October, standardizing and aligning analyses remain a challenge in terms of comparability.** The new European Union taxonomy will likely enable a better structuring. Meanwhile, China has already implemented its own taxonomy on green assets. **This will undoubtedly positively affect green bonds; while on the rise, social bonds are set to durably lag behind, with a current valuation sitting at USD 14.2bn.**

These mechanisms are well-known and have already been largely described, but **new types of financing instruments have recently appeared, firstly in loans – and lately, in bonds.** Such instruments demonstrate how **borrower or issuer risk may be directly traced back to positive ESG performance.** Interest rates will indeed be variable and directly impacted by the borrower's or issuer's global ESG performance. Some are contingent on social and/or environmental outcomes, while others are earmarked for SDG financing.

This undoubtedly provides additional avenues for responsible investment. (ICMA Group, 2018).

The bond market has seen a flurry of issuances, with proceeds indexed on SDG completion, including green, social and sustainability-linked bonds, as well as a growing number of issuers embedding the SDG across their strategies. SDG initiatives provide issuers with a way array of opportunities to link the so-called « use of proceeds bonds » to a number of context-dependent sustainability efforts. Some experts believe these new SDG bonds could become the new industry standard in the future, while others argue they betray fundamental principles of accountability and transparency (Reuters, 2019).

An industry-wide group of issuers has also joined the market with sustainability-linked loans, which incentivizes borrowers to achieve sustainability performance objectives. This covers overall practices (such as B-Corp certification and human and labor rights audits), as well as output (e.g. low-carbon products and services) and outcomes (e.g. carbon emission reduction or waste recycling). Increasingly, these objectives are linked to the UN SDG.

THE FIRST SUSTAINABILITY PERFORMANCE-LINKED BOND

Large electricity company Enel has started selling sustainability-linked bonds, following a successful USD 1.5bn placement in September 2019. A previous issuing of green bonds had raised €3.5bn since 2017, but the company opted for direct alignment with the SDGs, explicating how it intended to use the proceeds compared traditional green, social or sustainability bonds earmarked for such projects. (Reuters, 2019)

This sustainability-linked bond at Enel is the first of its kind, as it adopts a behavior-based approach. The pricing mechanism for coupon payment indeed allows this bond to go up and down, based on the issuer's ability to meet predefined sustainability targets. (Bloomberg, 2019)

On the loans side, linking pricing and ESG outcomes has become more common, so that interest rates are tied to measurable key performance indicators such as waste or GHG emission levels, or to independent ESG ratings. **As with bonds, this quick uptake can be explained by a relative lack of restrictions on using proceeds.** Worldwide, companies raised USD 6bn of sustainability-linked loans in the first 9 months of 2019, surpassing 2018 overall numbers (Bloomberg, 2019). Taken in concert, sustainability, SDG, ESG bonds and loans financing green and social projects grossed USD 21bn in 2018 (Climate Bonds Initiative, 2018).

Here are other examples:

- In 2017, **Philips** agreed to a €1bn loan with ING, that is linked with Philip's overall ESG performance, as rated by Sustainalytics. Where ratings improve, interest rates go down, and vice versa. (ING, 2017)

- In late 2019, **Prada** worked with the Crédit Agricole Group to sign the first sustainability-linked loan in the luxury goods industry. This 5-year Sustainable Term Loan (STL) of €50M introduced a annual pricing adjustment based on the achievement of ambitious company targets related to sustainability, including a LEED Gold or Platinum Certification, employee training hours and the general recourse to Prada Re-Nylon (regenerated nylon) to produce company goods.

- Crédit Agricole also set up a €100m sustainable improvement loan with **Gecina** in 2019, with a maturity of 7.5 years. Financial conditions will be indexed against the Gecina's CSR performance along 3 criteria monitored annually: the Global Real Estate Sustainability Benchmark (GRESB) rating, the Group's Energy transition and carbon footprint and the Workplace wellness and occupant productivity, based on the achievement of scoring targets for Gecina's portfolio from their 2020 plan (Gecina, 2018)

- Crédit Agricole also recently set up a SDG-linked 5-year loan of €150M to **CapitaLand**, its **first sustainability-linked loan in the Asia-Pacific real-estate sector** (Crédit Agricole, 2019)

- Independent Green electrician **Voltalia** took up a €100M loan with a bank pool arranged by Natixis and EthiFinance, based on its social (workplace accidents) or ethical (anti-corruption policies) performance (Natixis, 2019).

These developments demonstrate that, as of today, **ESG performance may impact risk appreciation among debtors and issuers, in turn directly impacting the cost of debt.** This is not only derived from specific projects, but also global performance, through a holistic approach of all activities.

Transition Bonds have also emerged as a relatively new type of notation which, rather than focus on the use of the proceeds or issuer profile, prioritizes issuers' behavioral improvement. For instance, **companies seeking to reduce the pollution generated by their plants can ask investors for funds targeting environmental benefits.** It is likely that many green bond investors will nevertheless decline to subscribe to debts issued by fossil fuel companies. (Bloomberg, 2019)

These newly-minted instruments will certainly help reward issuing corporations for deploying responsible business conduct policies, improving their CSR performance and reinforce long-term convergence of interests of all parties, from investors to companies and societies.

SOCIAL AND DEVELOPMENT IMPACT BONDS

Social Impact Bonds emerged in the UK in the early 2010 decade. Also known as pay-for-success financing, they offer an outcome-based contract, where reimbursing investors is contingent on specified social outcomes, for a predefined group of citizens.

Development Impact Bonds follow the same principles and mechanisms but are implemented in low-resource countries. Social Impact Bonds bring different players among governments, foundations, service providers, off-takers (industrial buyers) together with investors or funders. The goal is to accomplish clearly defined outcomes where investors or funders provide the initial capital and governments agree to make payments to the program based on the achievement of proposed outcomes. In other words, governments only pay in the advent of program success.

This type of financing is tricky to bring to scale, as projects are specific to their given context. Finding convergences between different types of players tends to narrow potential for replication of the underpinning investment schemes. It is also unlikely binary investment schemes may be easily be scalable if investors only get reimbursed with return upon reaching targeted outcomes. They are indeed prone to balk at funding such initiatives, except for commitment value (or in other words: communication), or if projected returns are extremely high – potentially rendering them hard to justify from a public policy standpoint.

Partial guarantee mechanisms from public authorities are probably more promising in balancing investors' risk-return ratios, when the projected ROI proves inconsistent. These hurdles have already been identified. For example, through its Zero-Gap initiative, the Rockefeller Foundation aims to favor the creation of large-scale Blended Finance funds to accelerate SDG-compatible investments, by seeding blended capital vehicles via PRI funds. (Rockefeller Foundation, 2019)

Sir Ronald Cohen is also leading an initiative to raise USD 2bn for the creation of two impact bond funds in Africa and the Middle-East and in India respectively, with payouts linked to outcomes.

Launching investment schemes of that scale is essential, given that, until 2018, Social and Development Impact Bonds have mostly been confined to relatively small amounts, usually 20/25 M€ per unit at most. (Financial Times, 2018)

III.2.2 Impact Investing

Impact Investing is a major social innovation, leveraging massive capital markets resources, for a purpose superior to merely maximizing returns to shareholders. Instead, it can drive both return on investment and sustainable and positive impact on societies. The Impact Investment market focusing on addressing the world's social and environmental challenges, is currently valued at USD 502bn and structured around a range of family offices, foundations, institutional investors and pension funds worldwide, with mandatory strategies targeting both economic performance and positive impact. The capital dedicated to impact investing is projected to grow from USD 100bn in 2016 to USD 12.000bn in 2030, while the compounded annual growth rate has remained stable since 2013, at around 17% per year (The GIIN, 2019).

Overall, asset managers account for about 50% of estimated AUM, reflecting how many impact investors chose to channel capital via specialized managers such as those investing in venture capital, private equity, fixed income, real assets, and public equities (The GIIN, 2019). Hence, **asset and fund managers may be entitled to routinely include impact measurement targets certified or validated by independent experts as a complement or instead of more classical performance fees – which is certainly a powerful driver.**

At a time of growing pressure on financial institutions and large corporations to generate positive impact to society and contribute to SDG, there are **major opportunities for investors to explore the field, invest in companies and funds and ensure measurable social and environmental impact, with an appropriate return on investment**. It is furthermore possible social and environmental impacts could be more systematically favored by public policies to drive private resources. Embedding the SDG framework in business strategy is also a way to infuse long-term perspective in the way businesses and investments are conceived and managed. Finally, ensuring social benefits is also an efficient way to stabilize activities, and make them more durable, by rooting them in their ecosystems.

Impact Investing differs from Socially Responsible Investment, a key difference being that attention to Social & Environmental Impact measurement is both a target and a marker for Impact Investment approaches.

ATTRACTING INVESTMENT FOR REFUGEES

Amongst the numerous innovations in impact investment, the Refugee Investment Network combines impact investment and blended finance to address forced migration.

As an investment intermediary, RIN gathers capital from across the continuum, through impact investors and concessional finance such as foundations and donors. It indeed connects capital with refugee investments, refugee entrepreneurs, organizations and enterprises owned by those displaced, in open engagement with host communities.

The development of international standards (Iris+ by GIIN, Impact Management Project, to name a few) will enhance comparability and thus improve impact analysis, but also better understanding of their multidimensional links with other factors. This movement has in part paved the way toward a better understanding of externalities valuation and is consistent with the rise of new financing instruments (see previous section on Social Impact and Development Impact Bonds). Although they cannot - and should not - be systematically implemented to measure all political issues, such approaches certainly offer food for thought on developing social policies efficiency and new leverages to drive private resources. They will also mainstream externalities valuations – social and/or environmental costs and benefits – in business appreciation.

III.2.3 Coalitions & Blended Finance

As mentioned by the SDG, partnerships - and therefore coalitions - are key to addressing complex global issues. **New coalitions are being formed, where different players come together to co-finance new models and share risks, expertise, networks and know-how, effectively banding together for the benefit of all.** In addition, blended finance solutions are increasingly used to channel private financial resources towards issues of general interest, using donors or public authorities' intervention to balance risk and return investment analysis through guarantees or incentive mechanisms.

Coalitions

Coalitions can be formed to co-develop and co-fund projects or initiatives between competitors or players of same nature but acting in different sectors or regions. These could for instance be industrial companies in need of the same commodities but operating on different markets, or between organizations of different kinds, such as corporations, development agencies and local authorities, among others.

Coalitions can also be formed to set in motion or develop market standards. For example, signatories of the **United Nations Principles for Responsible Investment (UN PRI)** form a sort of coalition, defining standards for investor behavior on a large scale (USD 62.000bn of AUM) (UN PRI, 2019). The same mechanisms apply to **Focusing Capital on the Long Term (FCLT) Global**, a coalition formed by asset managers representing over USD 9.000bn of AUM favoring long-term and sustainable investment (FCLT Global, 2019). Although the question remains as to their operational implementation, such coalitions can deeply affect conceptual, analytical, and decision-making behaviors in the long term.

We can expect more coordinated actions from investors, to put pressure on corporations and engage with top management on adopting more responsible and more long-term oriented practices, which also increases the success rate of ESG engagement. (Dirk & Willem, 2018). In that sense, the Shareholders for Change network (SFC) is an inspiring group of European institutional investors involved in the active engagement of corporations, to embrace sustainable development as an essential component of their role as bond- and share-holders. In addition, SFC also engages with institutions, proxy advisors, associations and other public or private organizations to support the development of sustainable financial markets and a global economy aligned with the SDG. **Co-Investment initiatives (such as the Livelihoods Funds) can also gather companies across different industries facing similar challenges in specific contexts, to come together and serve as co-investors in projects answering these challenges, all the while generating positive environmental and social impacts, for instance on decarbonization or sustainable supply chain issues (Livelihoods, 2019). Such initiatives will likely keep multiplying as well.**

In another field, the **Taskforce on Climate Related Financial Disclosure** is a market-driven initiative aimed at developing recommendations for comparable climate-related financial risk disclosures and monitoring (Task Force on Climate-related Financial Disclosures, 2019). These recommendations drive climate reporting through four dimensions namely Governance, Strategy, Risk Management and Metrics and Targets; what is becoming market standard drives profound changes in large corporations practices and boosts consequent climate change impacts (whether in terms of physical risks or the probability of business model transitioning).

Digital Platforms

New initiatives could become game-changers. Platforms provide different actors, project owners and investors alike, with more opportunities to interact, be it through improving information-sharing in an open-source manner, or by linking investors to suitable projects more efficiently. By improving co-investment possibilities and investment matching, they help in the identification of new modes of collaboration.

The Business For Inclusive Growth (B4IG) coalition, powered by OECD, sponsored by French President Emmanuel Macron and chaired by Danone alongside 39 other large corporations, was announced during the G7 Summit in Biarritz, France in August 2019. Multinationals pledged to advance human rights, inclusivity and diversity in their supply chains and promote more inclusive societies at large. Commitments involve their practices but also acceleration of initiatives on-the-ground, through open-source inspired project sharing and co-financing. Within a few months, participants had committed over USD 1bn, through a common B4IG social business projects incubator. (OECD, 2019)

Lastly, yet another initiative was created in December 2019, when the **UN Global Compact** formed its **CFO Taskforce for the SDG**. It vowed to bring together a multi-sector group of corporate finance leaders to develop innovative strategies and gear finance towards sustainable development. (UN Global Compact, 2019)

Blended Finance

Blended Finance projects federate private capital on the one hand, and public policies resources, development finance and philanthropic funds on the other into investment deals that drive social, environmental and economic progress.

Blended Finance projects are also supposed to generate financial returns in line with market expectations, based on real and perceived risks (World Economic Forum, 2015). **It is clear the private and public sectors would reap all the more benefits, should they opt for closer collaboration toward achieving the Sustainable Development Goals.** Blended Finance, a mix between concessional funds provided by development partners and commercial funds provided by the private sector, may provide new opportunities to meet development needs around the world. (Blended Finance Taskforce, 2019) (Frontier Technology Livestreaming, 2019)

In a nutshell, Blended Finance is a deal between investors and public authorities or donors and foundations, either through co-investment, loans from governments to private actors, guarantees mechanisms or social and/or environmental performance incentives. In contexts where costs for early-entrants and projects are particularly high-risk, blended finance can help spread the risk and/or enhance returns via guarantees, pay-for-success mechanisms and public-private partnerships. (Blended Finance Taskforce, 2019)

Through partial or full guarantees on invested funds, additional return in case of success, and different mechanisms in case of failure or success – to agree upon before project launch – blended finance solutions certainly present a strong interest for investors, provided they manage to define balanced terms of agreement – which is far from simple. From that point of view, Blended Finance is one of the most powerful instruments driving private resources toward balanced and sound investment schemes.

That said, **no single financing instrument can provide a viable long-term solution to all development challenges**. Moreover, Blended Finance is neither the only solution to long-term structural issues where permanent subsidies are necessary, nor an answer to inadequate policies and lacking economic reforms. As a result, "Blended Finance should only be used when the public benefit of a given project exceeds returns to private investors, usually because there are externalities, market failures, affordability constraints, or information deficiencies in the market that prevent the dynamic development of the private sector..." (IFC, 2018). Specific blended finance instruments require further tailoring to a given development challenge and context and must be coordinated with the long-term interventions of the private sector underway (OECD, 2019).

Managed correctly, **blended finance could catalyze targeted solutions for a number of development challenges.** For this reason, the very concept is currently gaining traction. As of yet, 23 out of 30 OECD DAC members (Development Assistance Committee, i.e. the forum structuring global donor countries) are now engaged in Blended Finance. Between 2012 and 2017 alone, USD 152.1bn were earmarked from commercial sources for these activities (OECD, 2019). So far, most Blended Finance projects have focused on specific sectors, such as energy infrastructure or banking and financial services – as opposed to education, water and sanitation or agriculture, forestry and fishing. This is a likely result of the higher potential for larger economic returns in these sectors. For Blended Finance to be efficient, companies together with governments must therefore ensure mutually beneficial collaboration, by incorporating and clarifying expectations on both financial returns and developmental impacts from the very start. (IFC, 2018)

MATCHING CORPORATE SDG PROJECTS AND INVESTORS

Founded in Denmark and soon to be launched, Valified is a funding platform for sustainable growth, which uses proprietary investment algorithms to match sustainable companies with relevant investors.

The initiative helps companies build investment proposals, before matching them with core data and insights from investor portfolios. On the other end, it also enables investors to assess risks and conduct industry-wide benchmarks.

The platform is also conducive to SDG profiling, describing all projects against UN targets, classifying them based on their local, regional or global reach. The platform is funded by Ørsted, Carlsberg, Denmark's Green Investment Fund, Kring Group and PKA, Denmark's largest pension fund. (Valified, 2019)

III.2.4 Renewed Shareholder Practices

New techniques are appearing, while older concepts are also being revived to reshape tactics and influence shareholders in both public and private equity towards more sustainable operating models. Here are a few examples.

Steward Ownership, Demand Dividends & Zebras

Steward Ownership is based on 2 core principles. Firstly, it has a purpose, whereby profit is considered a means rather than an end in its own right. Secondly, it serves a form of self-governance for a common purpose, where decisions are reached by stakeholders directly involved in running the company, rather than by investors or any other outside influence. **As these principles are stipulated in the organization's legal status, they are opposable to any party - including shareholders.**

This concept was created during the 19th century and its mechanisms have proved to be very efficient, especially in Northern Europe, strengthening both employee motivation and productivity. Key examples include companies Carl Zeiss, John Lewis & Partners or Bosch. Several studies show such companies to be more solid, thanks to, a six-times higher survival probability after 40 years, on average. Steward Ownership can be based on different legal structures, such as limited partnerships, foundations and trusts. The choice of structure is largely contingent on applicable legislation in its country of origin. For instance, such companies can be co-owned by an industrial foundation with a veto right, which could be used to prevent changes to ownership structure. (Thomsen, Poulsen, Boersting, & Kuhn, 2018)

Transforming ownership structure helps businesses engage with employees, clients and society at large, to plan for the long-term and lead with purpose. By ensuring that the control over the company is not a tradable commodity and effectively taking it off the stock market, this ownership structure avoids absent owners. The so-called stewards are indeed meant to take their rightful place and live up to their managerial responsibilities. Companies may circumvent rampant short-term thinking and focus on creating long-term value and purpose instead.

Steward ownership principles may also be adapted for venture capital.

These investment schemes inherently converge with impact investment approaches and the development of Social Purpose Corporations. For example, the recently-developed Purpose Economy allows entrepreneurs to start new ventures or transform existing companies. To that end, an Ownership Transformation Investment Fund was set up to support the transition or purchase of companies off the stock market and develop Steward Ownership (Purpose Economy, 2018).

This initiative pertains to **a broader movement aimed at redefining the relationships between companies and shareholders and characterized by the following trends**:

- **Permanent Capital Vehicles** open space for the development of sustainable activities by not dictating exit timings.

- **Demand dividends**, an investment vehicle that blends debt and equity, offer periodic payments to investors, based on a percentage of available cashflow, up to an agreed-upon multiple of the amounts invested, upon which investment is considered redeemed.

- **Crowdfunding** or **crowd investing** in purpose-driven companies could be merged to protect the purpose of a company, by granting Veto shares or super-voting shares for entrepreneurs or managers, and/or non-voting shares for other investors (similar in principle to limited partnerships).

The economic reasoning behind traditional venture capital models is based on taking high risks to reach high return on a limited share of the investment portfolio. It also put companies at risk and demands business reinforcement and extended development timeframes. Exit timings also structure corporate life and development with external constraints. Yet, most Social Purpose Companies, if not all, do not necessarily aim for a "Unicorn" club, and certainly do not fit into a "Winner Takes It All" approach. A recent movement has instead favored "Zebra" companies that give priority to developing sustainable businesses benefitting employees, customers and society. Zebras, in comparison to Unicorns, being both black and white, tend to focus on both profit and improving society. Zebras do not sacrifice each other, they are mutualistic, banding together to protect the heard in the real-world economy (Medium, 2017).

Active Ownership

Active ownership entails the use of shareholder rights to advocate for corporate governance, taking into account the interests of a broader range of stakeholders, including employees, customers, and creditors – ultimately improving the long-term value of a company. As such, individual and collective active ownership approaches have multiplied, taking into account the positive impact of corporate activities in terms of ESG issues. Two key ways of achieving this are to vote at shareholder meetings and to engage – that is to nurture active dialogue with investee companies.

- **Active shareholders discuss environmental, social or corporate governance concerns within the company in which they invest, in order to preserve long-term shareholder value and enhance long-term returns.** They can be very effective in influencing corporate behavior, especially when they cooperate with other shareholders. Coalitions such as Shareholders For Change typically organize meetings with Boards or managers of companies, and/or with stakeholders, to dialogue and cooperate around the sustainability of policies.
- **Voting and engagement strengthen each other.** Voting and submitting questions, alone or in coordination with other shareholders, can be strengthened by a long-standing relationship resulting from a multi-year engagement process nurturing rust. Voting then becomes much more than simply casting a vote and evolves into an important element in an ongoing mutual exchange of views.

Although Active Ownership has been around for 20 years, it was only recently recognized as a megatrend, owing to a growing political push and public demand (VP Securities, 2019).

III.2.5 AI, Big Data & Machine Learning

AI, Data mining and Big Data certainly are a game changer for sustainability-related analyses, which combines complex quantitative – economic and not – and qualitative data for ESG-oriented strategies. Studying a business against the 17 UN SDG is for instance particularly difficult given the correlation between any 2 given SDG. One would indeed have to examine a specific issue from 153 different angles.

From that point of view, using Big Data and AI-powered algorithms can help deal with ESG complexity and boost sustainability in business activities – provided pertinent data are available, collectable and processable which is not to be taken for granted for now and human expert assessments can be provided above threshold or sensitive cases.

It is tricky to solely rely on machines for such qualitative & sensitive approaches: combining their advantages with those from humans remains essential in order to reach the best possible outcomes. On that note, the availability and completeness of supplier sustainability data is a critical factor and a key input to sustainable supply chain finance. Changes that we see in the regulatory environments today, as mentioned in chapter 1 such as the U.K. Modern Slavery Act or the French legislation on companies' duty to care ("devoir de vigilance"), encourage ESG due diligence and its critical data collection.
Here, data providers are beginning to integrate artificial intelligence, machine learning, and worker voice technology to improve the reliability of sustainability performance scores, developments which are also made easier with the converging of standards that keeps occurring. (BSR, 2018)

AI FOR PARAMETRIC INSURANCE

On behalf of insurance companies, Descartes Underwriting develops new products to insure companies against adverse weather conditions, such as droughts or hurricanes, of particular concern to all businesses subject to climate change-related risks.

Directly challenging traditional insurers, claims are automatically settled through satellite data and connected objects. The models used to define coverage and estimate risks relies on cutting-edge Big Data, AI, machine learning and image recognition applications. They take advantage of new, exponentially growing data sources, provided by clients or third parties and stemming from the IoT or remote-sensing technologies (e.g. Sentinel data). (Descartes Underwriting, 2019)

III.2.6 Beyond Money?

A large movement around such concepts as Tokenization, Cryptocurrency or Decentralized Finance has developed in the last decade. The goal is to redefine financial services - from savings accounts, lending, payment processing, transaction fulfillment, currency exchange to money transfer - and place them beyond the control of traditional centralized systems structured around Central Banks, banks and other financial institutions. Leveraging the development of blockchain, they aim to extend access to financial mechanisms to any individual or company and empower all to act as lender or borrower on a peer-to-peer basis.

Interesting initiatives – though at times nebulous, if not esoteric – have multiplied and developed new forms of currencies to Initial Coin Offerings (ICO) or Security Token Offering (STO), with the overarching goal of redefining ways for business to raise funds or go public. Some of these new concepts and tactics are promising, in terms of widening the spectrum of potential sustainability impacts across business and investments.

Tokenization

Tokenization is the process of converting rights to real-world assets or services into digital tokens. Blockchain-based solutions are increasingly vying for the creation of trusted systems of scale to store records of value previously entrusted to centralized institutions and States. The theoretical implication is that the automated and distributed ledger system characteristic of blockchains would have everyone take part in safeguarding the privacy of any exchange of values.

Blockchain networks able can be set up by almost anyone to store records of value. They claim to be trustworthy for all involved, without anyone controlling or owning the network, thanks to its underpinning multiple control points. Individuals or organizations can now secure their own assets and have them validated by a cheaper and broader network, no matter how little the asset is worth. This supposedly empowers people to participate in the economy at a larger scale and reduced cost, but also raises questions regarding the governance of this type of co-ownership structure. Centralized institutions in developing countries tend to be overwhelmed, liable to corruption or under-resourced: this generates largely undocumented and informal economies, where people do not have access to financial services, for instance.

The ability for different players to connect while reducing transaction costs would, in that context, have major economic and developmental impacts.

Today, mobile and social networking also track various types of values previously unaccounted for, while also assigning value and creating specific marketplaces. By turning plastic waste into tokens, plastic banks are a prime example, as they support environmental impact programs in locations subjected to endemic poverty and plastic pollution. By enabling the exchange of plastics through blockchain-secured tokens, they also reveal the value of plastic. They indeed empower the development of recycling ecosystems and the fight against oceans pollution insofar as they create markets to connect those who reuse plastics for recycling and those who want to collect it.

AI FOR ASSET MANAGEMENT

Given embedding ESG criteria in valuing risks is fairly widespread among managers, and as environmental, social or governance controversies often lead companies share prices to drop, Ecofi Investissements is attempting to apply AI and machine learning to support asset management.

The company launched a 25 M€ SRI equity fund driven by an AI algorithm able to review scores provided by non-financial rating agencies and corporate management, cross-reference them with traditional market data and derive finer correlations relevant to the company.

The fund's investment decisions are guided by the algorithm, both in terms of choosing stocks and their weighting. It also explicitly lists the ~30 rules governing the decision process, allowing individuals to assess the underpinning methodology. The model aims to outperform traditional equity indexes, while limiting portfolio maximum losses by at least 30%. (Investment Europe, 2019)

There are several types of tokens:

- Currency tokens, or cryptocurrencies – it is important to note that, although this is generally not specified, digital tokens do not always rely on cryptocurrencies;

- Utility tokens lend rights to a specific use and are not designed as a payment instrument;

- Asset or security tokens convey ownership or co-ownership of an asset, so that digital tokens represent a tradeable fraction of the security or asset's value.

For the moment, large corporations have not widely adopted cryptocurrencies, despite the potential market development perspectives they offer. For the most part, the reason lies in ESG-associated risks – particularly in terms of governance, which include currency volatility, regulation issues due to the anonymity inherent to public block chains, and fear of tax avoidance or money laundering. While Microsoft and AT&T do accept Bitcoin payments, mass adoption among corporations has yet to happen.

As long as Central Banks don't step in to issue currency tokens (i.e. cryptocurrencies) - which is something they would consider in the future - and/or while initiatives such as Facebook's Libra or others are brought up to scale, the use of cryptocurrencies will likely remain a dilemma for mainstream business.

Nevertheless, utility tokens systems seem promising, owing to their ability to drive and orient an ecosystem of customers and/or supplier towards sustainable behaviors, improving corporate supply and value chains and/or their products Life Cycle Assessments.

Tokens, being more generic than fiat currencies (i.e. money), could help define a broader set of values that could not typically be translated into monetary value – or with great difficulty. As they are digital, tokens can be programed, so that rules and driving principles may be specified and executed upon exchange, thereby enforcing certain constraints or usage restrictions.
This way, a broader spectrum of values may be fed into market exchanges, which could be a true game-changer (Systems Innovation, 2018) (Systems Innovation, 2017).

For example, one could specify the terms under which certain tokens can be spent and how they can be converted. Tokens could then be designed to be useable for certain services only and lose value if they remain unused after a period of time to avoid thesaurization. It would also be possible for organizations to use tokens to incentivize desirable behavior internally, as an enterprise-token policy could potentially be used by the CFO as a corporate governance tool, in order to track budgets in real-time. (marketsN, 2019)

At this point, it is important to mention that there are distinct differences between private and public blockchains:

- **Public Blockchains are devoid of permission requests**: anyone may join the network and read, write, or participate. Their decentralized nature is fundamental to guaranteeing data security globally.

- Conversely, **a private Blockchain is a permission-only block chain**, which includes network restrictions as to who may join the network and engage in transactions. In other words, it is a distributed ledger, securing a database thanks to cryptography techniques.

One blockchain in particular, Ethereum, and the associated Ether cryptocurrency power smart contracts described hereunder: as such, it is leading the development of private blockchains, with numerous large companies such as Microsoft, Intel, ING or JP Morgan Chase partaking in its Enterprise Ethereum Alliance (EEA) to build technology and decentralized applications. In that regard, tokenization is possibly emerging as a new solution for companies to visualize transactions across a complex supply chain, and create economic incentives for business partners, suppliers or customers to act more responsibly.

By harnessing IoT data-generated by measuring performance in the movement of goods across the supply chain and smart contracts based on blockchain technology, a company can automatically send rewards, or payments in the form of tokens, to suppliers who meet the agreed-upon level of performance agreed upon in their contract. Such tokens can then be exchanged by the supplier for goods or services that benefit from undertaking further sustainable actions - or potentially "stable coins" enabling convertibility to traditional currencies.

The following 3 promising supply chain finance mechanisms may reward, incentivize, and fund sustainable supply chains as well as improve sustainability performance of global buyers:

- **Sustainable finance** works by integrating ESG performance criteria into buyer-led supply chain finance programs, which allows global buyers to reward and provide tangible benefits to select or reward suppliers;

- Providing **sustainable trade loans** to a supplier or seller of goods or services can have proven sustainability attributes in the sourcing, manufacturing, or converting of raw materials into finished goods;

- **Smart contract solutions**, i.e. self-executing digital contracts where the terms of the agreement are directly fed into the code, through a distributed and decentralized blockchain network such as Ethereum. These make transactions traceable, transparent, and irreversible, which are core principles for a sustainable supply chain. To multiple actors in a vertical supply chain striving to advance sustainable change, this solution holds most promise. (BSR, 2017)

Tokens and blockchains can also be successful in addressing issues such as poverty or ecological practice improvement. Regen Network's new blockchain solution for agricultural sector notably allows farmers, ranchers, distributers, companies, non-profits and governments in the agricultural sector to collaborate more directly and closely on ecological improvements and to achieve business objectives.

The Regen Network combines the power of remote sensing, artificial intelligence, and blockchain to enable farmers to track and make verifiable claims regarding ecological improvements to their land. Upon achieving expected results, rewards are triggered and sent back to farmers, by the use of smart contracts in the blockchain, which will come. The Regen Network thus may assign economic value to natural capital, include it in its balance sheets, and offer monetized incentives to farmers to become land stewards, as they will be rewarded for ecological improvements in the short-term. On the other end, it is able to offer food companies with a trusted infrastructure all the while seeking to incentivize suppliers to, for instance, switch to a more water-efficient planting method.

Environmental impacts are no longer considered externalized costs. Instead, leveraging the resulting ecological knowledge, funders and farmers may reach mutually beneficial agreements to promote regenerative agriculture via a token-based system. (Medium, 2019)

Moeda similarly emerged from the UN SDG Hackathon and aims to mainstream micro-lending in order to embed innovation in the traditional model of impact investment. The company uses Blockchain to offer unprecedented transparency to investors, who can support projects pre-selected by Moeda as well as those who benefit from their micro-lending. To achieve this, it leverages cryptocurrency in the form of proprietary digital tokens (MDA). Investors can indeed track capital flows and the progress of all projects financed online and through their app, while entrepreneurs and communities benefit from viable financial records and acquiring the credit needed to develop their activities. Using Blockchain technology, Moeda is also able to ensure the quick transfer of loan funds and increased accessibility through the use of tokens, bearing in mind the rather volatile nature of their cryptocurrency. The platform also supports entrepreneurs in technical areas, business and sustainability, to improve their performance. (Moeda, 2019)

In Africa, Block Commodities is a leading Agri-Tech company which developed Farmer 3.0, a new agricultural ecosystem geared at empowering smallholders by developing smart agriculture. A lack of information, poor transparency, severely limited access to funding and financial incentives, and inefficient trading practices have indeed held back African smallholder productivity, in turn impeding their ability to climb out of poverty. Based on disruptive technologies, the company is building a new ecosystem to enhance agricultural activity and production, by using a blockchain-powered platform that also integrates machine learning, predictive behavioral analytics and data-driven marketing. A Farmer 3.0 pilot project was led in Uganda in September 2018, where 1,000 smallholder farmers were granted cryptocurrency loans to access finance and credit, allowing them to purchase fertilizers, seeds and tools. This helped scale their production to commercial levels, without involving more banks or other institutions. Innovation and agri-equipment, as well as the use of intelligent data, are meant to help farmers better navigate the conditions and resources for production, such as changes in weather, soil fertility and policy-making.

Smart solutions ultimately create an integrated system where farmers can gain better control of their production and rebalance their relations with traders. (Blockchain News, 2018)

III.2.7 FinTech and InsurTech For Good

As described earlier in the present report, digital solutions have profoundly affected banking and insurance in past years. Numerous innovative financial solutions issued by Fintech and InsurTech companies have changed the rulebook and provided many new social and environmental opportunities in the process.

Applied to business life, numerous inventions could come to solve operational issues and/or develop activities, while improving socio-environmental performance. While FinTech and InsurTech for Good are making headway, improving financial inclusion and granting credits to the otherwise underserved holds the most promise. Through mobile access for example, underserved people may access financial and insurance services to durably better their lives. The Gates Foundation indeed supported several of the earliest projects related to the creation of networks connecting people and financial services. Today, services such as M-Pesa in Kenya and mCash in Bangladesh are being run commercially, which means they can be sustained without external contributions. An overwhelming body of evidence shows that providing people with the ability to save and borrow efficiently and securely improves their overall well-being and encourages enterprise, ultimately reducing global poverty and increasing economic growth (World Economic Forum, 2015). With 1.7 billion unbanked people in the world, whereas over 90% possess a simple mobile phone, possibilities are endless.

Demand likewise keeps growing, as different systems start integrating and connecting with traditional financial services organizations and merchants. Here, electricity reach is essential in connecting people, by way of a GSM tower. (Computer Weekly, 2019). Mobile technology is increasingly popular in developing countries and has the ability to improve financial inclusion among communities living below the poverty line like never before. Mobile payment services are also gaining widespread acceptance, especially in emerging countries that leapfrogged past landline-based telephone systems and gone straight to mobile and smartphones. (3-Sided Cube, 2019)

Despite being able to dramatically improve traditional financial services, FinTechs have been moving beyond point solutions and are looking to expand their services across multiple offerings and appealing to wider audiences. While a full range of services is still in the making, FinTechs often have the very technology agility large banks tend to lack, whereas they retain the regulatory awareness and institutional knowledge FinTechs often go without. While banks can move and store money, FinTechs tend to focus on customer experience, front-end services and providing applications to end-users (The Financial Brand, 2019).

For a number of reasons, FinTechs are able to offer a better user experience with regards to typically underserved customers, enabled by the cost-advantages of using digital technologies. Having done so, many FinTechs are now targeting "economically unviable" populations and creating services tailored to their needs. In so doing, they have paid particular attention to ensuring they are audible among populations with typically lower levels of financial literacy, notably through resorting to simpler language as well as symbols.

FINTECH TO REDUCE COSTLY PAYDAY LOANS

The Wagestream system allows employees to withdraw part of their earnings before the appointed payday.

As an employee earns money throughout the month, it is calculated, tracked and stored in the Wagestream app, so that should an unforeseen expense arise, the employee can simply request a transfer of funds to their regular bank account. This way, employees can quickly access funds for a personal emergency, instead of taking a short-term loan with typically high interest rates.

The app includes a built-in safety net, so that employees may only withdraw a portion of their paycheck, ensuring they still have enough to pay their bills at the start of the month.

Wagestream can be directly fed into corporate accounting systems. According to the company, this has been shown to increase retention rates by 10% and productivity by 20%. (Wagestream, 2019)

FinTechs for Good have not only lowered the threshold to becoming a client, they strive to address top societal and environmental challenges through innovation.

Another example lies in American GradJoy, helping the 45 million in-debt students in the U.S. to manage their payment plans (Tech Crunch, 2019). In similar fashion, Mexican Konfio analyzes credit behavior and other data to respond to the loan and proceeds with disbursement requests of Small and Medium Enterprises in as little as 24 hours. In addition, its interest rates are half those offered on the traditional market. Konfio's technology is also able to keep non-performing loans under control, with the company's delinquency rate sitting at 4.8% in 2018, compared to 5.4% in the traditional banking industry (Pymnts, 2019). In comparison, U.S. banks have approached financial inclusion solely in terms of corporate social responsibility.

Serving the underserved — those who lack access to banking products or are only making limited use of mainstream financial services — has long been considered economically unviable. Today, it is clearer that digital tools, from mobile banking to AI, are driving down costs, enabling enlightened players to offer previously untenable products, such as fee-free accounts or credit scoring based on unconventional data.
Owing to pressure from FinTechs, the financial landscape has become more competitive in recent years. In addition, with tech companies like Amazon vying to become leading players in the market, banks are more incentivized and equipped to develop new offers for new clients and seize the resulting opportunities.

Not only are these available close to home – a clear example being the US where 25% of the population is still unbanked or underbanked despite the domestic financial ecosystem being one of the world's most developed – there are also huge opportunities in offering financial services on a truly global basis (Business Insider, 2019). For businesses to grant access to financial services (savings, loans, insurance) also fundamentally impacts and strengthen their value chains. Here, new digital technologies provided by FinTechs deliver flexible solutions to both buyers and suppliers.

As FinTechs provide technology-enabled supply chain finance platforms, to facilitate supplier onboarding and receivables management, they are also able to streamline Know Your Customer (KYC) processes, and in so doing, reduce the cost of due diligence. In addition, all businesses, and perhaps suppliers in cash-poor industries in particular, need capital to meet their everyday expenses. In global supply chains, large buyers have a responsibility to treat suppliers fairly and support their financial sustainability. Access to trade finance and working capital is therefore part of the solution. (BSR, 2018).
n closing, privacy scandals such as Huawei's on the one hand, and being able to strike a balance between pricing and profitability whilst using customer data responsibly on the other, are two essential debates currently on the table (Insurtechnews, 2019) (Cover Magazine, 2019).

AN E-WALLET FOR WATER

Grundfos Lifelink is an UN-rewarded water solution technology for rural areas in developing countries. Often unbanked and lacking access to financial services, these communities often suffer from insufficient access to drinking water, despite this being considered foundational of a good living standard and socio-economic development.

Grundfos Lifelink is an efficient, profitable, reliable and sustainable pay-as-you-go water solution, fully powered by solar energy. The system combines different digital technologies such as AI, to display recommendations on top of the devices, IoT to guide remote maintenance and AR to monitor status. The company is also exploring the potential of an e-wallet mobile credit solution for end-users. Its water kiosks are fully automated, so that no attendant, cash nor bank are needed.

Grundfos Lifelink leverages mobile connectivity to deliver optimal control and reliability for water service companies, NGO and end-users. Designed with a simple and intuitive interface, end-users may load credit onto their water cards through fair and transparent transactions, either via local water credit vendors or mobile credit platforms. When tapping water, credits are deducted in a similarly clear and transparent manner. This way, water service operators are ensured a continuous revenue stream to cover the costs of ongoing operations and maintenance of the water points. The revenue collection system thereby contributes to the elimination of commercial losses in water supply, while providing fair and transparent water prices for end-users.

Through an online water management platform, water service operators can easily monitor the water consumption, credit transactions, technical performance and service needs of each water point. By providing full accountability and reporting on all financial transactions and performance of water points, Grundfos incentivizes water service companies to expand operations and establish a new level of professional and reliable water supply services, for both urban and rural communities. This solution paves the way for new water supply models as the underpinning management platform and potential for scaling up are what makes Lifelink a financially sustainable water supply operation.

The resulting positive social impact extends beyond water security, by empowering young girls to attend school instead of having to collect water for their families. (Grundfos, 2019)

IV. CONCLUSION

Conclusions

THE COUNTDOWN HAS STARTED

The 2020's are the "Delivery Decade". The Countdown has already started. Businesses' resilience, acceptability and long-term value creation are at stake. We anticipate major socio-environmental disruptions, likely to generate high risks. Conversely, there are major opportunities for businesses and investors capable of transforming and adapting to the Delivery Decade market and societal expectations.

SOLUTIONS ARE AVAILABLE

Digital technologies disrupt the way the world works. Innovative finance solutions are emerging, accelerating access to much-needed resources, to change the scale and impact of the necessary transformations to deliver on the global societal priorities contained in Agenda 2030. Businesses need to embrace these digital and innovative finance solutions to stay relevant and thrive.

In this report, **we explore ways to deploy technologies and innovative financing generating return and impact across these sustainability considerations**. We also identify pioneering initiatives, demonstrating **how corporations and finance can work together, harnessing new technology and innovative finance solutions to scale their positive impact**.

The report also highlights the need to consider the cross-cutting nature of many challenges and the linkages between different SDGs. It is for instance obvious that tackling the root causes of poverty, insufficient access to quality education or gender disparities has a significant impact on many environmental challenges, such as quality on earth, climate action or sustainable cities.

CONSTRUCTIVE OPTIMISM, THE ULTIMATE INGREDIENT FOR SUCCESS

We are not naïve nor are we candid. We are very well aware of the energy challenges arising from the scaling up of digital solutions, for instance. We are well aware that a very large part of global finance will not explore extra-financial performance in the years to come. Too big to change for them to undertake.

It's a matter of perspective. Instead of looking at the half empty glass, we prefer to convey a constructively optimistic attitude and look on to a glass half-full! Our world "just" needs to convert 1% of global finance every year (that is, USD 3 to 4 trillion on an annual basis) to make serious progress towards Agenda 2030. There still is a long way to go. This report exists to foster dialogue between stakeholders, inspire decision-makers and encourage everyone to do more and better than any finding hereby provided.

This is a journey and we're just entering the Delivery Decade. Much more is underway. Much more will come and positively surprise us all. A growing sense of urgency will help accelerate change as well.

We are realistic, yet we want to approach the Delivery Decade with a positive mindset. **Optimism is the ultimate ingredient we all need to deliver at the scale needed for the 2020 decade to effectively see to more resilient and inclusive societies.**

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80 companies were cited in this report or part of our research panel

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British American Tobacco
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Ecofi
Enel
Ericsson
Essity
EthiFinance
Facebook
Gap
Gecina
Google
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Konfio
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RB
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Amundi, AXA, Barclays, Danone, Gap, LVMH, Neste, Nordea, Novartis, RB, Rio Tinto, Sanofi, Sodexo, Stora Enso, Telenor, Vinci.

ORGANIZATIONS

100 Percent Sustainability, Alliance for Water Stewardships, B Corp, Business for Inclusive Growth, Bloomberg, Business Roundtable, Cap Gemini, CDP, Centre for Responsible Business, CII, Consumer Goods Forum, ETI, Etico Consultancy, European Water Partnership, FCLT Global, Fortune, Fossil Free Sweden, FSB-TSFD, GRI, Global Resilience Partnership, IRRC, Innovation Forum, Investor Group on Climate Change, Net Balance Foundation, NGFS, OECD-FAO, Plastic Oceans, Rever Consulting, Science Based Targets, SIF, SPC, Stella McCartney Foundation, The Nature Conservancy, The Sustainability Consortium, Tropical Forest Alliance, UN Global Compact, UN Global Compact CFO Taskforce for the SDGs, UNPRI, UNSDSN, We Mean Business, World Resource Institute, WWF.

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Contacting Us

We stand ready to share our expertise and support you in adapting adequately to environmental and social pressures and drive real impact for your organization right from the very start.

With that said, should your unique case require a more thorough attention, we are also prepared to explore our advisory or investing practices and provide relevant counseling to make your business or investments more resilient, inclusive and competitive.

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By Combining Sustainability Consulting, Impact Investing Solutions and Advocacy,
Ksapa Provides Scalable Innovative Solutions for Companies and Investors
to Converge on More Resilient, Inclusive and Competitive Operating Models