



PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

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Editors' Note: *Part 2 of the Spring 2020 issue of Cadmus is a continuation of the Working Group Papers of the UNOG-WAAS Project on Global Leadership in the 21st Century. These papers are intended to provide the basis for the e-conference "Strategies for Transformative Global Leadership", organized by WAAS and UNOG from June 15-19, 2020. Those interested in participating in the e-conference can [register here](#). Part 1 of the conference paper series can be accessed [here](#).*

The challenges confronting humanity today are a compelling call for leadership to transform crises into opportunities. The COVID-19 pandemic calls for global solutions to address global problems, not partial, sectoral approaches based on outdated attitudes, concepts, institutions and policies. We need leadership with a transboundary vision: leadership that can sense the rising social energies and seize the occasion to convert these energies into effective transformative social power; leadership to forge alliances across borders, disciplines and other types of walls; leadership which can learn from the past and creatively apply its poignant lessons to unlock the future; leadership with the individuality and courage to spearhead a global social human-centered movement; leadership to seize this unique planetary moment to unleash the planetary momentum to create the future NOW.

There has been ample time, opportunity and effort to analyze our problems. The broad lines of the remedy are apparent to all those with open-mindedness and courage to see beyond the limitations of self-blinding orthodoxies, entrenched social powers and vested interests so heavily vested in the past that they cannot see it is already dead. Now is the time to pass from analyzing problems to formulating effective solutions and catalytic strategies to fill the vacuum, break the logjam and transform the long, slow meandering pace of subconscious social evolution into rapid, conscious social transformation. The formulation of the SDGs provides a clear consensus on the goals to be achieved. What is needed now is the leadership in thought that leads to effective action.

Social transformation is not a utopian dream but a fact that has been playing out before our very eyes with increasing rapidity and intensity in recent decades. It took several centuries to abolish slavery in the world and nearly as long to establish the idea of gender equality as a fundamental human right. But it took just two decades to virtually abolish colonial empires from the face of the earth after World War II. And barely a few years to tear down the boundaries built during the Cold War to liberate and weld humanity into a single global community. Since then the World Wide Web has connected and unified humanity to an extent unimaginable just three decades ago.

Social transformation is not a myth, but it is a challenge to overcome the inertia, resistance and barriers that retard the process. Throughout history we have witnessed potentialities transformed into actualities. But never before have we been presented with the means and confronted by the urgent necessity to consciously direct and accelerate that process in a race against the consequences of our own past attitudes and actions. We are compelled to step forward with the necessary leadership in values, thoughts, organizational initiatives, catalytic strategies and effective actions. Further reliance on fragmented thinking, piecemeal, compartmentalized, sectoral, unilateral policies and actions that have been the source of

the present problems will only aggravate and accelerate the crises. We need holistic, global approaches that address root causes rather than superficial symptoms. Civil Society and youth groups have already become catalysts and instigators of transformational change.

This issue of *Cadmus* presents work in progress for a project of the United Nations Office in Geneva and the World Academy of Art & Science on [Global Leadership in the 21st Century](#). The issues, questions, and ideas it presents will be discussed at a [UNOG-WAAS e-conference on Catalytic Transformative Strategies](#) on June 15-19, 2020. This event is preparatory to the main conference scheduled to take place at the UN in Geneva on October 27-28, 2020 and to a final report to the UN and educational outreach measures. This issue is a call and challenge to think freshly and an invitation to contribute.

Editors

Multilateralism: Its Past, Present and Future

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Abstract

The narrative ‘sweeps through’ history, starting with the Treaties of Westphalia in 1648, on to the Congress of Vienna of 1814-15, to the current terminology of ‘modern multilateralism’ with its lineage from the Versailles Treaty of 1919 and the League of Nations, to the United Nations Monetary and Financial Conference at Bretton Woods in 1944, the European Coal and Steel Community of 1950, to the Nuclear Non-Proliferation Treaty (NPT) of 1970 and concluding the sweep with the Helsinki Process culminating in 1975. The objective of the ‘sweep through history’ and its main thrust is to analyze how at different times, the world powers of the day turned to multilateralism only after some prolonged, devastating conflict that they had had either blundered, or charged into, left them with no choice, but to sit down and talk, negotiate and take into account a balance of the interests of all parties. All these build up to a point where the narrative explores today’s challenges and ‘attacks’ on multilateralism and the seeming inability of the international community to reengage and work together, to stem, in the words of the United Nations Secretary-General “the wind of madness sweeping the globe.” The article makes the case, essentially, for the obvious: we are on the verge of blundering into something far more devastating than the world has experienced before for a variety of reasons, not least among them, unusually deteriorated relations among the most heavily armed and powerful States, a climate catastrophe that is already at our doorstep, the dark side of the unprecedented, quantum leaps in technological development, the deficit of trust among peoples, countries, communities and societies. Add to that the ‘game-changing’ COVID-19 pandemic and what the world has before it, is a stage set for planetary calamity. We should pull back from the precipice in time. Multilateralism, modern multilateralism, which marks its 100th anniversary this year, is the only way to do this.

In the middle of the seventeenth century, there was no such thing as the International Day of Multilateralism and Diplomacy for Peace, which the international community now celebrates every April. However, diplomacy for peace through multilateralism was precisely what the 109 delegations from all over the tattered European continent were engaging in in 1648, in the cities of Osnabrück and Münster. They had no choice but to come together and talk, albeit without once mentioning the word ‘multilateralism,’ which had not been coined yet. Through their own folly, unbridled egos, avarice, religious and national intolerance and total disregard for any, other than their own economic and political interests, the various states, royal houses, fiefdoms, religious heavyweights and lesser bishoprics of the day, had bled dry their countries and territories and the peoples of the entire European continent as a

result of a combined 110 years of war and devastation. The resulting set of treaties known as the Peace of Westphalia—without going into their enduring importance for international and interstate relations—set the precedent of peace established by means of diplomatic congress. Even though history remembers many other instances of multilateral negotiations when peace, or any other parleys were held by more than two parties, the Peace of Westphalia is considered the prototype and ancestor of modern multilateralism.

With the need to diffuse the effects of the French and American Revolutions and bring order and stability back to their unsettled world following the upheaval of the Napoleonic Wars, the major powers of the day again turned to the multilateral tool at the beginning of the nineteenth century in the context of what has remained in history as the Congress of Vienna. With over double the number of parties considered to have taken part in the Congress, compared to Westphalia,—from formal diplomats of established empires, to those of lesser crowned heads of different shapes and sizes, to representatives of what in today's terminology would be referred to as civil society—the Congress of Vienna established major ground rules for the interaction of the Great Powers in Europe, at the same time as they carved up and re-carved the map of the continent. Multilateralism had again proved its worth and would contribute to keeping the peace in Europe for practically a century, until the time when shots rang out in downtown Sarajevo in the summer of 1914.

The blueprint of the Congress of Vienna and the multilateralism tool were dusted off a century later, after the world realized that it had to tend to the wounds it had inflicted on itself by sleepwalking into the tragedy and carnage of a world war. The Paris Conference and the resulting Versailles Treaty of 1919 have the distinction of marking the birth of modern multilateralism, the hundredth anniversary of which we are currently commemorating. The embodiment of U.S. President Woodrow Wilson's Fourteenth Point, the League of Nations, which tragically for the League, the United States itself chose not to join, has enduring importance not only as the prototype, but in many areas, the precursor to the United Nations. However, due to a multitude of unresolved problems, hurt national feelings, race-based aggressive ideologies born out of economic and political instability and resentment on the part of the vanquished, an altogether dysfunctional financial and monetary system left behind by the collapse of the gold standard in 1914 and myopic, self-centred policies of some major players of the day, not unlike those on the current international landscape, resulted in that world not lasting even a full twenty years and deteriorating into the second, this time, bloodiest conflict in the history of humankind.

Determined not to repeat the mistakes of their predecessors, the leaders of the great powers, leading the nations united by war, worked with foresight, wisdom and determination to create the ultimate multilateral tool, a universal world organization, the United Nations, "to save succeeding generations from the scourge of war" and build a peaceful future for the world. This major undertaking succeeded in achieving this overarching aim for the past 75 years, at least. But the leaders of the day realized that no political organization of the countries of the world could be firm and last if the financial and monetary policies were not redressed in step. In fact, forty-four nations came together already in July 1944 at the United

Nations Monetary and Financial Conference at Bretton Woods, New Hampshire, in order to not only design an entirely new set of monetary rules, but to also ensure that twentieth century multilateralism could endure and work. This cleared the way for the creation of the United Nations itself the following year. This was also a welcome signal that this time, the United States of America was not going to abandon its newborn.

“[We need to] take a step back and reflect on how multilateral diplomacy has developed over the past 100 years from the League’s initial steps to the complex and comprehensive work of the United Nations today.”

Europe, devastated by the war and determined that the age-old enmity between France and Germany should not lead to another conflagration on the continent, took multilateralism to a new, supranational level, through the creation in 1950 of the European Coal and Steel Community. Through a variety of transformations, it has grown from the original six signatories to the most unique and unprecedented concept and reality that is the European Union today.

When the folly of the darkest years of the unregulated arms race of the Cold War culminated in the world coming to the brink of nuclear war between the nuclear superpowers over a small island in the Caribbean Sea in 1962, it was a sobering wake-up call. It made the main adversaries, their respective camps and the entire world turn to multilateral solutions, the most important being the 1970 Treaty on the Non-Proliferation of Nuclear Weapons. The bedrock of the Treaty, intended to prevent the international community from ever finding itself on the nuclear precipice again, is threefold: to prevent the spread of nuclear weapons and weapons technology by securing it within the ‘club’ of established nuclear states; to help induce non-nuclear states to renounce seeking nuclear technology by sharing with them the benefits of the peaceful uses of nuclear energy; and, as the overall ultimate goal, furthering nuclear disarmament and general and complete disarmament.

Multilateralism was not only resorted to when the world found itself in dire straits. Coming on the heels of the successful settlement of the issue of a divided Berlin through the 1971 four-way agreement on Berlin, the multifaceted Final Act of the Conference on Security and Cooperation in Europe signed by 35 European countries and the United States and Canada in Helsinki on 1 August 1975, was conceived as an effort to further reduce tension between the Soviet and Western blocs by securing their common acceptance of the post-World War II status quo in Europe. Regarded at the time by the West as a success for the Soviet Union in solidifying its hold on Eastern Europe, its third main substantive area or ‘basket’ ensured that human rights issues would legally no longer be something that the USSR could refer to as “its domestic affair” and in so doing had a far-reaching effect on U.S.-Soviet relations and the outcome of the Cold War.

Why this jaunt through history, one may well ask.

Primarily because, in the face of today's challenges and 'attacks' on multilateralism and the seeming inability of the international community to reengage and work together, to stem, in the words of the United Nations Secretary-General "the wind of madness sweeping the globe," we need to look back and learn, how our forefathers dealt with critical situations they had gotten themselves into in past centuries.

Last year marked the hundredth anniversary of modern multilateralism, dating from the Versailles Treaty of 1919 which established the League of Nations. And this year marks the 75th birth anniversary of the United Nations. These two important anniversaries, coupled with the very disturbing situation in every aspect of life today, require us to take a step back and reflect on how multilateral diplomacy has developed over the past 100 years from the League's initial steps to the complex and comprehensive work of the United Nations today.

The First World War marked a watershed in many ways, and one of them was the demise of the old idea that balance-of-power politics could be a sustainable and long-term guarantor of peace. An alternative international order was needed and so emerged multilateralism, finding expression in the League of Nations in Geneva and later, in the establishment of the United Nations in 1945. And thus, in the multilateralism of the 20th century, violence and unbridled nationalism were replaced with the rule of law, and conflict with cooperation as the basis for global governance.

There is reason to look back with satisfaction. Extraordinary advancements have been made in peace, rights and well-being over the past century, from conflicts prevented or defused by quiet UN mediation, to the elimination of deadly diseases like smallpox; from the provision of safe drinking water and emergency supplies, to the preservation of historic, cultural, and natural sites the world over.

However, two decades into the twenty-first century, we find ourselves facing increasingly complex challenges: a climate crisis wreaking havoc around the world, armed conflicts threatening millions, dire poverty in large parts of the world, refugee flows at record levels, rampant inequality both between and within countries, escalating disputes over trade, sky-high debt, threats to the rule of law, the methodical and deliberate dismantling of disarmament commitments, attacks on the media and civil society, and much more.

These ills affect people everywhere and they are all connected: climate disasters entrench poverty; poverty breeds conflict; conflict triggers refugee flows, and so on. Together, these threats are deeply corrosive. They generate anxiety and breed mistrust. They polarize societies—politically and socially.

To further complicate this, we no longer live in a bipolar or unipolar world; and not yet in a multipolar one, but, rather, in an unsettled world with multiple actors of different calibre with clashing interests and often isolationist politics of fear and resentment. Much to the detriment of the overall world situation, the crucial relationship between the America-China-Russia triangle has rarely been this dysfunctional. None of them has balanced realistic policies towards each other, just reactions rooted in past instincts and old comfort zones. The overall world security

situation is the worst in decades, maybe ever; the past rigid security standoff of the Cold War had its structure and rules. Today, with no rules, those who are called upon to provide ‘adult supervision’ are themselves in need of it. This sets a bad example for the rest of the world, particularly with respect to the utility of nuclear weapons. The international community is losing one pillar after another of the international disarmament and arms control architecture with no proposition of viable alternatives, and increasing reliance is emphasized on the very nuclear weapons that the established nuclear powers are urging others not to acquire.

Instead of seeing the need for that elusive common purpose in working out a *modus vivendi* among them, the nuclear superpowers still operate with terms such as ‘pushback’, ‘like-minded countries’, ‘hegemon’, “zero-sum game,” etc., perpetuating 20th century failed concepts well into the 21st.

In a worrisome related development, medium-sized powers are increasingly acting autonomously from the major powers and are using force without accountability to any of the bigger players. It is impossible to look at Syria, Libya, or Yemen, for example, and not recognize the role of regional powers outside. And the same is true for other conflicts around the world. Security Council resolutions are being ignored.

We are also seeing increasingly militaristic rhetoric and activities, growth in nationalist and isolationist politics of fear and resentment, and the burgeoning role of technology and the private sector—including social media—in international relations.

Power relations are becoming unclear. Multipolarity without strong and accepted multilateral instruments is inherently unstable, volatile, and dangerous. There is a feeling of growing instability and hair-trigger tensions, which makes everything far more unpredictable and uncontrollable, with a heightened risk of miscalculation. What we have is a world of great asymmetries and fragmentation at all levels—political, economic and social.

To say that the world is in transition, would be a gross understatement. What we are living today is not a routine changing environment. Rather, we are transitioning to a different era, something that only occurs maybe every other century. A new social and economic paradigm is emerging, and we all need to join forces to ensure that these changes have positive impact on all. The dramatic and fast-evolving human, social and economic impact of the COVID-19 pandemic only further strengthens this point.

At the start of 2020, who could have imagined that a disease outbreak could turn the world upside down in such a short time and in such a dramatic way: hundreds of thousands of lives lost all over the world, nationwide lockdowns, economic activity at a standstill in most parts of the world, reintroduced border controls within the Schengen Area and many other unprecedented measures.

The human toll of the pandemic continues to grow by the day, devastating entire families and communities. Its impact on societies and economies is also yet to be fully assessed. The “Global Lockdown” will cost the international economy dearly in the months and years to come and will have devastating consequences on labor markets, affecting to some degree more than 80% of the world’s workforce. The world is about to plunge into a global recession

of record dimensions, far worse than the one that followed the global financial crisis of 2008-2009. Moreover, the pandemic will likely exacerbate extreme poverty and hunger rates in the developing countries for years to come.

The ongoing pandemic is one of the most acute challenges to international cooperation since the end of World War II. We are now facing multiple crises—an ongoing global health emergency, a financial crisis, and a collapse in commodity prices, which compound the existing global threat of climate change, conflicts and poverty, none of which recognize borders, as COVID-19 does not.

Given the magnitude of the unfolding crisis, the already profound mistrust in global governance institutions has deepened further. The past weeks have seen a spate of opinions proclaiming the end of globalization and blaming international institutions for the lack of coordinated and effective response.

Global challenges of such magnitude require concerted, collective responses. Yet, at this very moment, multilateralism itself is being put into question and increasingly ignored as a tool and concept. As Secretary-General Antonio Guterres recently observed, “Multilateralism is under fire, precisely when we need it most!” In this moment of geopolitical flux, against the backdrop of a spike in the number and complexity of global problems, what we are seeing is a decrease in will for common action and no common purpose anymore.

2020 is a watershed moment for humankind. More than ever, the international community needs a working system of common rules and shared foundational principles. Multilateralism is one of the best known and most universally recognized principles of international relations. What we need today is the development of a more modern multilateralism, one that is more inclusive and collaborative.

Similarly, leadership must come from all quarters and all levels; gone is the time for a handful of leaders and small groups of countries. Conveniently, there are no such leaders around, anyway!

Multilateralism is no longer just about states, either. In today’s interconnected and interdependent world, governments and intergovernmental organizations alone cannot effectively address complex global challenges such as climate change, conflicts, development and migration. These challenges require our collective response. It will require efforts from everyone: from the United Nations and governments, to the private sector, civil society, academia and, most importantly, youth. The increasing engagement of youth is essential, given the state of our planet. In the words of Secretary-General António Guterres, “it is not enough to proclaim the virtue of multilateralism; we must prove its added value.” This is the new multilateralism. Countries do not have a monopoly on commitment and good ideas. Global challenges require us all to work together for global solutions. International relations do not have to be a “zero sum game”.

Global challenges are also global opportunities: and they can only be addressed collectively. This reality is reflected in the policy frameworks of 2015. Ironically, the same governments that are drawing further and further apart on the vital security, economic and

social issues today, found it possible to come together in 2015 to reach agreements of truly historic proportions: the Paris Accords, Financing for Development and the 2030 Agenda. This gives a unique chance to shape a new governance landscape and the 2030 Agenda for Sustainable Development is our common roadmap.

The United Nations remains the only truly global, truly neutral, truly legitimate table around which all stakeholders can come together to find solutions. Contrary to those who speak about the crisis or the decline of multilateralism, the reality is that there is no alternative to multilateralism, especially now. However, a myriad of national governments, international organizations, NGOs and humanitarian actors can only be effective if they act in a coordinated manner.

In this fast-changing environment, new diplomatic policies and practices based on the principles of solidarity and inclusiveness are urgently needed, bringing together all relevant actors, from civil society, think tanks, academia to regional development banks. The collective response has an uneven record, with tensions often undermining the effectiveness of multilateral decision-making processes. But the world needs to be optimistic and hopeful.

We are on the verge of blundering into something far more devastating than the world has experienced before for a variety of reasons, not least among them, severely disrupted relations among the most heavily armed and powerful states, a climate catastrophe that is already at our doorstep, the dark side of the unprecedented, quantum leaps in technological development, the deficit of trust among peoples, countries, communities and societies. Add to that the ‘game-changing’ COVID-19 pandemic and what the world has before it is a stage set for planetary calamity.

We should pull back from the precipice before it is too late.

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Global leadership in the 21st Century

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Abstract

This generation has grown in the belief that history has ended before them, that now we live in an era of comfort and stability. Indeed, the post-Cold War context has given birth to beliefs that global solutions could be agreed upon and implemented to tackle global challenges. This proved to be an illusion. Awakening from a happy slumber to face reality was bitter. The COVID-19 crisis shock reminds us that we live in history, that the world is continuously morphing. The pandemic and its aftermath is not so much a turning point but a catalyst and activator that brutally reveals and intensifies tendencies in the transformation of the world that arrived long before the current crisis. Change and leadership are absolutely inseparable. However, it is exactly at this time of rapid change that there is an overall feeling of political leadership deficit. What shall we expect in the post-coronavirus world? Does leadership still matter? And if yes, what kind of leadership? If we want to cure the disease rather than its symptoms, it is time to start thinking in terms of synergies and opportunities, outside the usual multiple-choice box of threats and priorities. Only new “effective multilateralism” can re-establish trust, based not on traditional states’ balance of power and interests but on globally shared risks and concerns of communities. The real transformational leadership required today lies not in enhancing what is, but in advancing toward what will be!

“Management is doing things right; leadership is doing the right things”.

– Peter Drucker

This generation has grown in the belief that history has ended before them. Revolutions, wars... All this was before them. We live in an era of comfort and stability. Everything is calculable, predictive, almost predetermined. Everything is the same: boundaries, lifestyles, growing standards of living. We have not learned the shocks of the 20th century—the orphan of the Belle Epoch as the “sorcerer’s apprentice” summoned the genie, the monster, that it failed to cope with—and as a result, the monster killed it.

Indeed, the post-Cold War context has given birth to firm beliefs that global solutions could be agreed upon and implemented to tackle global challenges. Binding global agreements and international law would be implemented and enforced with the help of strong international institutions. The world moved from MDGs to SDGs, from G7 to yet another G20 session. We have developed a whole set of complicated and elaborate political “newspeak” that screens us from the real-world problems: “underprivileged people”, “overseas contingency operations”, “targeted killings”, “nature-based solutions”, etc. We have done everything to generalise the

problems, thus decoupling ourselves from genuine human suffering—“capacity building”, “rights-based approach”. The future, it seemed, belonged to unbridled globalisation.

“The current crisis will be not so much a turning point but a catalyst and activator that brutally reveals and intensifies those tendencies for the transformation of the world and human behaviour that have already matured and have begun to appear in concrete social and political practices.”

This proved to be an illusion. The institutional architecture of globalisation failed to develop as had been hoped. The World Trade Organization, established in 1995, today finds itself in agony, just 25 years after its creation. Plans for global institutions to oversee investment, competition, or climate and environment are shelved. The whole system of the basic international arms control and security agreements (from NPT to Open Skies and New START treaties) is in limbo. The past five years have seen worsening trends across conflict indicators: more wars, more people killed and civilians increasingly targeted.

- Over 68 million people are now displaced due to conflict and persecution—more than ever in recorded history.
- At least 70 conflicts involve non-state actors, a historic high.
- An estimated 151,887 people were killed in conflicts in 2018.*

Lately we have entered what media calls “a perfect storm”—COVID-19 pandemic and the general failure to coordinate response across the states’ borders is costing lives, creating untold economic damage, and enacting disproportionate harm on locked down individuals, isolated households, and communities. All this is perceived as a shock of unprecedented proportions compared already to the damage caused by the two world wars. This can be justified exclusively by the existing inadequate level of historical knowledge.

However, we live in history. Nothing is guaranteed to anyone. The borders of states are changing before our very eyes. Wars begin and end. Heresies are born. Church schisms erupt. Deep tectonic shifts are taking place in politics. We cannot accommodate this, and we perceive every serious phenomenon apocalyptically.

Not long ago, history used to be determined by leaders. Alexander the Great, Julius Caesar, George Washington, Napoleon, Bismarck, Churchill, Stalin—major world political actors, both heroic and villainous, were thought to drive the world. But then a new trend rose to tell the same stories in terms of deeper structural root causes: geopolitics, power balances, interests, globalisation, ideological conflicts. Leadership came to be seen as just projections of other, more important trends; leaders’ personalities and their characters were essentially

* <https://staging.crisisgroup.org/who-we-are>

instrumental, if not irrelevant. What mattered was not the “titans and tyrants” but megatrends and “formative impacts”.

What shall we expect in the post-coronavirus world? Does leadership still matter? And if yes, what kind of leadership?

I am sceptical regarding the claims that the world will be different after the crisis. The world is continuously morphing and has never changed abruptly. The current crisis will be not so much a turning point but a catalyst and activator that brutally reveals and intensifies those tendencies for the transformation of the world and human behaviour that have already matured and have begun to appear in concrete social and political practices long before the current crisis has had its impact. However, the crisis by all means will dramatically boost the speed of these changes. As a result, the current world will undoubtedly seriously change, and much faster than by a calm evolutionary process.

Change and leadership are absolutely inseparable. However, it is exactly at this time of rapid change that there is an overall feeling of political leadership deficit.

COVID-19 came as a stress test many world leaders have not passed. U.S. President Trump has been gambling with people’s lives in an attempt to “outwit” the virus, China’s leader Xi Jinping willingly or not prevented any collaborative action to contain the pandemic, while President Putin has “self-isolated” politically, leaving all the responsibilities to Russia’s regional authorities.

In fact, politics started lagging behind the transformation process long before the coronavirus crisis. Instead of transformative leadership we have been witnessing isolated efforts to react to the challenges in a “baby-sitter” pattern, when top priority is assigned to where the most noise comes from. The lack of systemic response is the main reason of the multiplying crises we face—not only coronavirus, but equally security, climate, food, water, energy, poverty.

As the days pass by, leadership flaws are turning more and more noticeable internationally. The United Nations Security Council could not agree on a COVID-19 resolution, as the US and China could not concur. Furthermore, the G-20 and the G-7 have been unable to reach even basic decisions on global economic recovery; the G7 was incapable of even issuing a final statement, as the US wanted to “coin” COVID-19 as a ‘Chinese virus’. Instead of real efforts to build up cooperation, we are witnessing an endless blame-game. Lately, it was the UN Security Council and World Trade Organization that were under attack. Presently, the World Health Organization (WHO) is the target, exactly when the world needs it like never before.

The epidemic is essentially a public health crisis with massive economic and social effects. In fact, political decisions that guided governments to keep it at bay facilitated the spread of the virus. Clearly the lack of political leadership has already multiplied the price the world is paying on all counts—life loss, economic and social consequences, departure from democratic norms.

World politics is increasingly defined by countries’ internal problems, and not the challenges of world transformation. Or, rather, responses to these challenges become more

and more the consequence of internal disruptions, exacerbating international contradictions and making them increasingly difficult to untangle. Think about the impact of the upcoming US elections, stability of the ruling regimes in Russia or China and the Brexit agenda of the UK!

“The pandemic has exposed the chronic contradictions between European values and the increasing nationalisation of members’ interests.”

Every day political news continue to exceed the imaginations of absurdist novelists and comedians, amongst others—President Trump plays golf as the US coronavirus death toll approaches 100,000, Hong Kong police uses tear gas and water cannon to disperse protesters against Beijing’s plan to impose national security laws on the city, Russia demands an apology from Bloomberg news agency over a report it published about President Vladimir Putin’s low trust rating among Russians—reminding us of Mark Twain’s words “It’s easier to fool people than to convince them that they have been fooled.”

However, judging by the political response to epidemics and their consequences, we seem to be witnessing again the attempts to reshuffle the core pieces of the post-Cold War international order. A new era of great power competition is unfolding between the United States and China accompanied by a growing leadership vacuum in what has become known as the liberal international order.

Perhaps the most significant of these shifts is the unmistakable demise of Pax-Americana. The COVID-19 outbreak is the first global challenge that has witnessed the complete absence of American and generally Western leadership. It has also thrown into sharp relief the social and governance vulnerabilities of the West more broadly. Even the EU had to struggle to equitably distribute resources between its member states (so far not very successfully). The pandemic has exposed the chronic contradictions between European values and the increasing nationalisation of members’ interests. It turns out that national identities and historical memories do not match across EU. For example, some politicians in Poland argue that the Vatican and the USA brought freedom to the Poles, and the Spaniards remember that it was the Vatican and the USA that extended the dictatorship for forty years, just to prevent the left-wing forces from coming to power. Thus, the gap—between North and South Europe over economics, and Western and Eastern Europe over values—seems likely to widen.

The weakened transatlantic core of the international liberal order is likely to slip further in relevance in the post-coronavirus world. While no one can tell what the future order will look like, it is becoming obvious that new instruments and institutional tools are needed to prevent a situation in which not much may be left for recombination.

Therefore, transformational leadership is required today, which is not about enhancing what is, but advancing toward what will be!

The current systems and institutions of international cooperation were built to address 19th and 20th century problems. But in today's complex and fast-paced digital world, these structures cannot operate at 'internet speed'. Two thousand years ago the entire Pax Romana was doomed like a dinosaur whose brain was too small for such a huge body. Our current world system seems to have similar constraints.

"This is not a crisis of globalisation, but a crisis of financial and economic neoliberal globalisation."

In his Prison Notebooks, the Italian philosopher Antonio Gramsci wrote: "The crisis consists precisely in the fact that the old is dying and the new cannot be born; in this interregnum a great variety of morbid symptoms appear." In a way, this is an apt description of the world order today.

As a result, the current "interregnum" world order is characterised more and more by a general crisis of leadership and decline in governability.

And it is not that the politicians do not realise it. Germany's Chancellor Angela Merkel concedes that "the well-tried and familiar framework of order is under strong pressure at the moment." According to Foreign Affairs Minister Heiko Maas, the situation is even worse: "That world order that we once knew, had become accustomed to, and sometimes felt comfortable in—this world order no longer exists." Many also believe that what is known as the liberal international order has been damaged to such a degree that it is hard to return to the *status quo ante*. As French President Emmanuel Macron puts it, this is not "an interlude in history before things return to normal [...] because we are currently experiencing a crisis of the effectiveness and principles of our contemporary world order, which will not be able to get back on track or return to how it functioned before."*

In fact, our future is already with us, but our past does not let us out of its tenacious paws!

The new actors are already entering politics: the state maintains (so far?) a monopoly on certain policy areas, but non-state actors play an increasingly important role on the stage of defining the problem, analysing the problems' links, and ultimately shaping the political discourse. The Danish government recently decided to establish the post of an Ambassador responsible for relationships not with other foreign states but with... corporations. The "Digital Ambassador" of Denmark will be facilitating relationship between Denmark and (!) Apple, Google and Microsoft. The French followed suit last year.

Big data companies (Google, Facebook, etc.) have already assumed many functions previously associated with the state, from cartography to surveillance. Now they are the primary gatekeepers of social reality. People today engage in social issues mainly through

* <http://cpcml.ca/Tmlw2019/Articles/W4900517.HTM>

civil society and the use of social media as their primary tool. Facebook this year has reached almost 3 billion users. This holds fascinating prospects for de facto global citizenship and social action, but it does undermine the nation-based representative model of democracy.

The role megacities and provinces played in planning and organizing responses to the pandemics, becoming in fact decisive actors across the globe in this struggle, could dramatically redesign the essential services provision in a more resilient fashion in future man-made or natural disasters, defined less by national identity and more by security, services and well-being they provide for the people living within the municipal areas. The contours of this trend have materialised in the recent legal claims against sovereign state—China, filed by the states of Missouri and Mississippi.

The pandemic has seemingly boosted the process of de-globalisation. However, this is not a crisis of globalisation, but a crisis of financial and economic neoliberal globalisation, based on the belief that social benefits and regulations were a burden on the economy that hampered growth, and that “a rising tide lifts all the boats”. However, contrary to expectations, the tidal wave has overturned many boats.

Consequently, regional integration is challenging and has slowly been replacing global integration. Subnational structures (megacities and provinces), empowered by digital technology and capable of responding at faster speeds than states, would inevitably forge their own trade agreements, public health arrangements, and climate change accords with other cities globally, via direct diplomatic relations.

By all means this list is not exhaustive and there might be many more possible stakeholders in the new global governance structures.

Indeed, we are going through what by every measure is a great crisis, so it is natural to assume that it will dramatically accelerate the march of history. The world is on the edge of a systemic reset.

The “perfect storm” we are living through, on the one hand, could further undermine the existing international institutions, reinforce nationalism and spur deglobalisation, the symptoms of which are well visible already.

But on the other side, it could also upgrade multilateralism, a glimpse of which appeared in the G-20’s offer of debt relief to some of the world’s poorest countries; the “Merkron agreement” (Macron and Merkel initiative of the European €500 billion Recovery Fund) that the EU will share a significant amount of joint debt (some even see the initiative as a step toward establishing a single European nation); a joint plea from more than 200 former national leaders for a more coordinated pandemic response; an unprecedented multinational pact to arrest the crash in oil markets and the recent world scientists’ proposal for a strategy to improve the disjointed vaccine development process in which they argue: “To return to a semblance of previous normality, the development of SARS-CoV-2 vaccines is an absolute necessity. To achieve this goal, all the resources in the public, private, and philanthropic sectors need to participate in a strategic manner.”

The pandemics and its consequences have tragically put on display the already tangible process of 20th century political structures drowning in a 21st century ocean of deregulated finance, artificial intelligence, autonomous technology, religious militancy and great power rivalry. For increasing numbers of people, our nations and the system of which they are a part now appear unable to offer a plausible, viable and secure future.

Today's circumstances call for an updated "operating system"—call it "effective multilateralism" or "pluri-lateralism"—that is based not only on a Westphalian sovereign states pattern but which also involves nascent stakeholders of the global international society. The gap between the expanding networked pluri-lateral world and governance, traditionally understood and applied within post-Westphalian concepts, is widening and feeding disorder and disruptiveness of the global system. And this gap will not be bridged by any new iterations of a traditional uni-, bi- or even multi-polar global world order.

Coming back to the current crisis, if we want to cure the disease rather than its symptoms, it is time to start thinking in terms of synergies and opportunities, outside the usual multiple-choice box of threats and priorities. Only new "effective multilateralism" can re-establish trust based not on traditional states' balance of interests but on globally shared risks and concerns of communities.

True transformative leadership is all about "uncorking" the future, rather than trying to rekindle the past.

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Innovative Financial Engineering to Fund the SDGs A WAAS Initiative*

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Abstract

Development needs have primarily been financed through private sector financing, conventional public sector funding and philanthropic commitment. These traditional sources are not sufficient in scale and speed to meet the pressing finance needs. The world community is too busy repairing, stabilizing and refunding the given to maintain the stability of the existing system, relying on a mechanical model. Out-of-the-box approaches which blend in with the given tools, providing new financial engineering are required. The introduction of a parallel electronic currency specifically designed to finance global commons and human-centered economy would provide a systemic non-linear and complex approach to create the necessary resources to achieve the UN SDGs and addressing asymmetric shocks (COVID-19, among others), while stabilizing the existing monetary system. The development of cryptocurrencies based on blockchain distributed ledger technologies has prompted leading central banks and other agencies around the world to study the potential application of this approach to directly inject purchasing power without dependence on the banking system. Proposals are now being studied by an international expert group on how this approach can be utilized to finance the huge multi-trillion-dollar annual investment requirements for achieving the Sustainable Development Goals, with special emphasis on investments in human resources and environmental protection. A first outline is given in this preview. A full report (The Tao of Finance) of the expert group will be published in late 2020.

1. Introduction: The Traditional Way

In 2015, world leaders signed up in NY for a future road map with 17 Sustainable Developments Goals (SDGs) to improve Humanity, the Planet, Wealth, Peace and Partnerships. Most of these SDGs focus on common goods such as clean air, universal access to health care, education and maintaining biodiversity. These goods are not exclusive and should be accessible to and enjoyed by everyone. Each of these goals have enough scientific

* The TAO of Finance-Initiative of WAAS: The current proposal is the result of 4 years of an ongoing interdisciplinary process of over 40 expert hearings, panels, background discussions and multiple conferences among scholars, regulators, executives, politicians and non-profit activists to elaborate the new role of financing the future and the future of finance.

evidence, technological know-how and political consensus to be achieved, and are valid for the entire planet. But these goals are expensive to achieve and require approximately 5 trillion USD/year over the next 15-20 years to finance. Our global Gross Domestic Product (GDP), which includes all goods and services, is approximately 80 trillion USD/year. The conventional way to finance social and ecological projects globally has been by redistributing the money remaining at the end of this pipeline. Historically, the world community has spent 0.7% of global GDP—roughly 500 billion USD/year—to finance common goods. Other than the Scandinavian countries, the vast majority of the world has never attained this 0.7%. But even if all countries attained the 0.7%, this sum is realistically not enough to finance our future. Approximately 8-10 times more funding—equivalent to 5 out of the 80 trillion USD global GDP—is required to meet the social and environmental challenges we face. Withdrawing 5 trillion from the economic process, even in a gradual manner, would lead to a global recession. In fact, it is impossible to finance our future solely through monetary re-distribution. In addition, the stability of the financial system itself is an impediment to sustainable financing.

2. Money is not a Natural Law but a Social Convention

Money is neither a thing nor a natural law. It does not arise naturally in any given society, but is the result of a human invention, backed up by a narrative shared by billions of anonymous humans interacting with each other round the clock in order to improve the welfare of each individual and society as a whole. The more stable, reliable, and trustworthy this social invention is, the more powerful it will become to achieve the purpose each society has set for itself. It is reciprocal trust and mutual tolerance that have the ability to catalyze greater human potential. The opposite is true, too. The weaker, more unstable, more speculative, unreliable and unfair a system is, the less capacity it has to exert its full positive influence on society and its members. Similarly to any social organization and invention such as language, the internet, or the legal system, the monetary system can be used for good or bad. The ultimate purpose of a monetary system should be that of promoting, facilitating and supporting human welfare, security and wellbeing. In this sense the financial system acts like a catalyst, enabling multiple interactions and infinite transactions between humans beyond space and time without becoming altered in the process. However, the more complex and interactive a society becomes, the more carefully the design of this invention needs to be scrutinized.

3. How does Money come into the World?

It is not the production of goods and services, nor the pattern of our consumption, that helps us understand where money comes from, but the underlying values that determine the nature of any monetary system in any society.* Money is a social invention, a legal act

* 97% of the money in circulation is generated through the commercial banking system by a credit creation process. 3% is created by the central banks (base money and/or cash). This 3% also acts as a loan to the commercial banking system. In modern times, central banks generate base or hot money as loans and purchase state or corporate bonds as collateral. This is how money comes into the world. This procedure increases their balance sheets, stabilizing our economy and our society as a whole. Theoretically there is no limit to the amount of central bank loans possible. Grauwe (2019)

and a convention, not a natural law or a thing. Accordingly, we can change it. In this sense, the financial system is one of the most powerful tools facilitating societal achievements that humans have ever invented.* Rather than rejecting the internet, our language, the marketplace, and governmental institutions when they serve less noble or ethical purposes, we try to improve their design or usage and minimize their negative externalities. This should also hold true for the financial system. Because the monetary system affects so many aspects of human activity, its steering power should increase benefits and achievements every time it is used. But money not only enables commercial transactions. It is able to facilitate human welfare from a much larger perspective, converting individual goods or services into almost any other desirable social good. In this sense, the financial system not only catalyzes and multiplies, but also potentially transforms our society, channeling the liquidity towards where it can create the most welfare for most people.

4. Discovering New Territory

Over the last 40 years, the financial system has become more unstable, with over 425 banking, monetary, or currency crises; and with every consecutive event, higher debt load and greater expenses amounting to more than 10% of the GDP. Because of this, the world community spends much effort repairing, stabilizing, and refunding the monetary domain to maintain the status quo. This limitation in our financial system thwarts any improvements in the technological and political field to make the world a better place. Is there a different way to finance our future? Using systems thinking, we propose an outside-the-box solution to generate the funds needed to finance global common goods: (a) Central banks would be given an extended monetary mandate to create and issue the 5 trillion US Dollar-equivalent liquidity using block chain technologies.† Alternatively, (b) properly regulated corporate initiatives (cryptocurrencies) or complementary communal currencies (LETS; Regiomoney) would receive a mandate to issue additional liquidity. These funds would be earmarked and used exclusively to finance SDG-related projects‡. This electronic liquidity would run through monetary channels other than the ones in the conventional system. We would then have a supplementary currency operating in parallel to the conventional monetary system generating the 5 trillion USD-equivalent annually needed for the next 20 years.§

Research on optional parallel digital currency systems has shown a dozen positive effects. For example, this new technology could be used to create and channel targeted financial liquidity to millions of African citizens through their mobile phone network. In India, the existing microcredit banking system could be used to transfer additional liquidity to millions of Indian citizens. Any dollar spent and invested through these green, parallel channels has

* See Jacobs (2016); Jacobs & Slaus (2012).

† Whereas the quantitative finance programs of central bank after the 2008 crisis increased the API (asset price index) and were primarily created to stabilize the banking system, our approach is using different monetary channels and different technology (DLT) to guarantee that the additional liquidity is solving real economic problems (hunger, poverty, global warming and the loss of biodiversity).

‡ A so-called *digital smart contract* implemented into the distributed ledger technology would allow to trace each economic transaction, allowing green investments and consumptions pattern and prohibiting others (buying guns, alcohol, drugs among others).

§ Such a parallel, digital, optional monetary mechanism has a positive impact on the price level (stabilizing the CPI), prohibits fraud and corruption, increases potential green public revenues, and will finally shift our entire society from a war prone state towards a more peace prone state. Technical details are explained in the report (Brunnhuber et al., 2020).

the potential to reduce or even eliminate absolute global poverty substantially. The electronic format would prevent corruption and fraud, as each transaction is transparent and public. Once the currency is eligible to pay taxes, communal offices would have additional liquidity to rebuild public infrastructure such as kindergartens, public parks, communal hospitals and public libraries. And the millions of nongovernmental-organizations globally would finally receive the funding they need to properly do their jobs. This targeted added liquidity would enhance education and access to universal health care that would otherwise never happen. It would reduce resource depletion and clean up air avoiding the negative effects on our planet and common health. We would eventually tap into the untapped potential of millions of unemployed individuals through the creation of new jobs, thereby unleashing the creativity of billions of humans.

“If we are prepared to change our mindset and the underlying narrative about money, unlimited options are possible.”

What would be the effects on the conventional economy? The annual 5 trillion USD-equivalent added liquidity would not hurt or harm the conventional economy. In fact, the opposite would be true. Corporate and state planning, production and price level would become more robust and reliable with a longer-term vision. Furthermore, it would stabilize the cyclical economy of booms and busts. And such a parallel system is far from being inflationary. Applying the right monetary channels, additional liquidity injected to reduce poverty and hunger, increase the access to health care and education and invested in renewable energy will eventually reduce the pressure on the general consumer price (CPI): Reduced costs for damage control, increased productivity of a more healthy and educated population and the economy of scale are some of the components that enable a parallel currency system to operate rather in an anti-inflationary and anti-cyclical manner.*

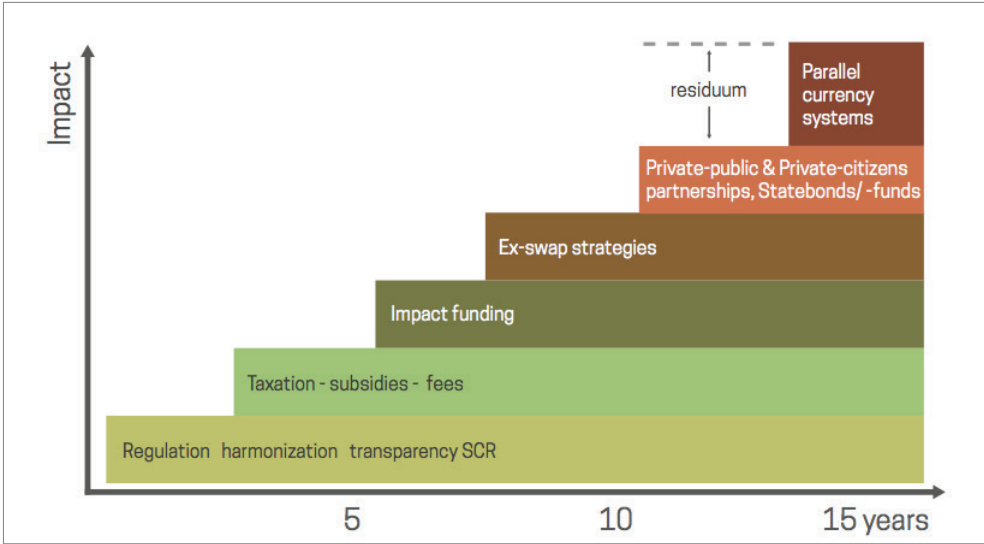
Despite arguments to the contrary, we need much more financialization (Finance/GDP). However, it must be designed in a more democratic and human-centered manner, to protect the planet while increasing wealth for the two thirds of the global population and to cope with ongoing asymmetric shocks (COVID-19, global warming) the world community is facing. If there is a single most important variable beyond technology, governance, behavioral changes and demography to change the world, it is a parallel monetary system. This is the “game changer”. All this can be started in less than 6 months, if the largest Central Banks agree to create a parallel, optional complementary currency and all this could be implemented on a country level in 12-16 months with measurable outcomes. We are aware that a redesign of the financial system does not solve all our problems, but all our problems can more easily be addressed by it. This, or a very similar mechanism, is the missing link to achieving greater Humanity, Wealth, Peace, a greener Planet and better global Partnerships.

* The impact of a parallel currency system on the CPI (Consumer Price index) is further explained in the upcoming report (Brunnhuber et al., 2020).

5. A Blended Six-pack is Required

A mix of policy instruments is necessary to tackle the challenge of financing our future. The six most relevant financial engineering tools to do so and establish a more sustainable common future at the same time are structured like a staircase (see Figure 1). This stepped approach is sensitive to time, to the capacity for collective action, and considers a balance between current and future generations.* It builds upon the wisdom and experiences we have gained in traditional finance in the past (regulatory efforts, taxation, impact funding) and extends that wisdom and those experiences into the future, adapting and enriching the instruments in question according to the challenges ahead. In general it has the following rationale: the more time available and the stronger and denser the multilateral agreements on which global transactions are built, the more likely it is that the lower traditional steps are favored. Conversely, the less time we have and the more multipolar or bilateral our world becomes, the bolder and more unconventional the monetary and financial decisions must be, as embodied in the higher steps. This will finally lead to supplement the residuum left by additional liquidity injected through a parallel financial system.

Figure 1: The Six Pack and the Stepped Approach



6. Some More Concrete Examples

Some examples, where conventional financial tools can be further developed using the parallel mechanism to stabilize and steer our society towards a more sustainable future, are summarized in Table 1.

* Sachs (2015); Orlov (2018); Claringbould et al. (2019), Heine et al. (2019).

Table 1: Concrete Examples of How a Parallel Optional, Digital Monetary System can help Finance our Future and Cope with Asymmetric Shocks

Green Bonds	Catastrophic Bonds (CAT-bonds) Pandemic-emergency facilities (PEF) Forced Migration Facilities (FMF) Harvest Default bonds (HAD)
Green Credit Easing	green TLTRO (Targeted Long Term Repurchasing Organization): Conditioned Lending for SME, Private Households and public sector entities to finance green investment, consumption. Green Repurchasing agreement: (Repos) Green assets are eligible to borrow liquidity from Central banks. They serve as collaterals for financial institutions for short term refinancing and operate as a criterion in case of a haircut.
Green Quantitative Easing	Additional base money issued for Developing banks/ EIB, operating also financial intermediaries for conditioned green lending.
Green Private Public Partnerships (PPP)	Performance Contracting between the private and the public sector, where the public infrastructure remains in public ownerships, the management is running through private companies.

Let us take this argument one step further: catastrophe bonds (CAT bonds), pandemic emergency facilities (PEF), forced migration facilities (FMF) and harvest default bonds (HAD) all operate along a similar principle: a region signals a hazard and asks the World Bank for financial insurance assistance. The World Bank or the IMF then issues bonds with an interest rate and a complex contracting agenda to the private sector, which buys up the bonds. The contract determines when and how the private sector must commit to paying for the hazard or alternatively is reimbursed if the hazard has not occurred. Examining harvest default bonds more closely, we see that two-thirds of global farming are small enterprises operating for self-sufficiency. Once a drought occurs, HADs come into play. However, it is unnecessary to loan money from the private sector and reimburse them with a risk premium. A supplemental digital currency, as explained in this text, operating through a non-profit cooperative banking sector and monitored by the UN, could take over this task with less risk and higher yields for the community. In each case, the World Bank's balance sheets increase in the first place. In the case of a harvest default, the World Bank will need to write the event off and decrease its balance sheets in the second place, but millions of farmers are saved from insolvency and can continue their business.*

* Or take the TLTRO (Targeted Longer-Term Refinancing Operation) programs run by several central banks. In its traditional reading, a TLTRO is a form of conditioned lending to SMEs, private households or public entities. A green TLTRO would then condition additional credit easing towards green investments. Dag Hammarskjöld Foundation, (2019); Breitenfellner et al. (2019); NGFS (2019).

In fact, there are almost unlimited permutations possible, as each of the financial facilities is backed up by Development Banks (like EIB or World Bank), funded by Central Banks,* monitored by the UN and enabled through domestic and national agencies. If we are prepared to change our mindset and the underlying narrative about money, unlimited options are possible.

7. Conclusions

It is an erroneous conclusion to assume that human social systems are inherently physical and the principles of entropy and the laws of mechanics apply to society as well as physical nature. Human beings at higher levels of consciousness are creative and not merely (re-) productive; creativity is capable of creating infinitely more from less and sometimes even from nothing. Humans' perception of money often is like a fish's perception of water. Fish see water as neutral, unchangeable, like a natural law. Similarly, many of us consider money a neutral element that helps us accomplish our individual desires and societal goals. Money is seen to be like a thermometer: we insert it into water and it simply measures the temperature. But money is not neutral. If we want to understand the nature of water, we need to first step out of it, then examine it. The same is true of the monetary system.

There is a subtle but substantial difference:

Acknowledging that there are over 40 trillion USD in assets under management (AuM), a global bond market with outstanding interest bearing loans of over 100 trillion USD and locked-in assets in the fossil energy sector, the so called carbon bubble of over 20 trillion USD, we are not proposing a potential best and ideal typical solution for the financial system (which will remain a theoretical proposition). We are rather advocating for the single practical best next step in the development of our monetary system that maximizes our ability to finance our common future over the next 15 years.

If we consider the current COVID-19 pandemic as one of the first asymmetric shocks the world community is facing in a long series of future shocks to come, we should take this argument two concrete steps further: First; if a governmental body (for example, the EU) is setting an agenda where the leading monetary regulators, financial secretaries and heads of states (all together not more than 50 people) agree to such a parallel monetary mechanism, allowing citizens to pay taxes and to pay wages, this can be implemented technically in less than 18 months; And if, as a second step, the lead investors (not more than 50 people, meeting at the World Economic Forum (WEF), for example) are introduced to this parallel monetary mechanism, allowing to shift their assets into this 'green new market place' by additional new financial tools (partly explained in this text and further explored in the upcoming report, TAO of Finance'), we have a reasonable chance to get out of the incremental way of doing politics and transform our profit, our people and our planet.

From a systems perspective, the well-known ritual of debate between neoliberal and Keynesian arguments (between austerity and stimulus) is relatively unproductive, intellectually exhausting and economically inefficient. Identifying the smallest common denominator will

* China has announced to roll out a state-run, blockchain-associated digital currency by the end of the year 2020. We will have to explore how this will meet the requirements of an open society explained in this text (A. Mukherjee, Bloomberg).

lead to a suboptimal solution. It resembles a “feel-good” exercise or a symbolic gesture with next to no practical use that does not change the game. Instead of repeating the debate over and over, it would be more fruitful to identify the unquestioned commonalities that both parties rely on, of which the monetary monopoly and linear, sequential thinking are undoubtedly two characteristics. Societal change always starts with the minds and hearts of individuals and small groups who are prepared to think, feel and act differently. In contrast to former times, this change has accelerated and gained momentum in recent decades and years. Whereas most changes in history took place unconsciously, we are now in a situation to refer to scientific information and data and apply that knowledge and wisdom in order to take charge of this process intentionally and consciously, steering our society towards higher values, increased wealth and greater sustainability. Consciously we are able to convert the best ideas into power and promote “leadership in thoughts that lead to actions” (WAAS’ motto). Whereas any scientific knowledge remains divided, the reality will always remain an unseparated, integral whole. The financial mechanism described in this text acknowledges the empirical findings of different disciplines, applying new technologies and approving new monetary governance. It should be part of a future social equation that maximizes individual freedom, embedded in a social construct that catalyzes the change required. This “TAO of Finance” should be a main component of such a future.*

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* Catalyzing strategies for socially transformative leadership (WAAS, forthcoming 2020).

The New Growth Model and Economic Policy Platform

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Abstract

Structural crises of the past have had a significant impact on the world economy even before the COVID-19 pandemic emerged in 2020. The ongoing medical crisis exacerbates the double dip recession we have witnessed before. Challenges are consequential. By checking the pulse of the global economy, we see a high level of risk, fragile growth outlook, and increasing tensions between economic scholars and architects of the system over the evident polarization regarding rules concerning new economics. It is undeniable that the global economy has imbalances, like high financialization, income inequality, climate change and economic shutdown. So, it desperately needs a new platform for shaping a better future. Identification of inflection points in the line of reasoning will help reveal the compatibility of emerging conceptual platforms.

1. Issues to be Addressed

Neoliberal capitalism, as the latest version of free-market capitalism, has driven severe social and health problems. It also continued environmental degradation caused by the former version of liberal capitalism. The system places the human economy and society at great risk.

There are many well-known and extensively discussed structural imbalances of neoliberal capitalism, including financialization, income inequality, and anthropogenic climate change. The economic systems operating in many countries produce unsustainable growth, many crises, and inflating and bursting bubbles.

Unregulated negative external effects incentivize companies to cause environmental and social harm. They create a situation in which companies maximize profits by degrading the environment. Government internalization (or monetization) of externalities is essential for creating impact investments that produce environmental and social benefits. Most of the problems addressed by the SDGs can be considered as ‘externalities.’ Under current systems, it is difficult to internalize these costs and problems, and thereby incentivize companies to resolve them.

Current economic systems largely ignore the rules and operating principles of nature. In our highly speculative society, financial risk-takers externalize costs and unintentionally cause many problems. Economic goals (growth) often are in conflict with ecological limits and implied goals (limited growth, balance).¹

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To become sustainable, economic systems must abide by the objective, observable limits and laws of nature. Sustainable and inclusive economic systems should be based on the circular processes of nature. Macro and micro levels should be guided by the precautionary principle or reversibility principle (ability to reverse course if actions or technology are shown to be harmful). Structural imbalances and asymmetric shocks, like climate change and pandemics, cannot be managed exclusively by the ‘invisible hand’ of the market. A new growth model respects the ‘visible hand’ of the state and biosphere laws. New circular economic policies (structural and industrial) are needed. Impact investments and the broader economy emphasize the 3R principle (reduce, reuse, and recycle).

“New systems must overcome the “virus of neoliberalism”, and its major principles of deregulation, liberalization and privatization.”

The structural recession of 2008 illuminated weaknesses of current economic systems. COVID-19 has created further economic, health and other problems, including deflation in commercial markets and value destruction in capital markets. The economy remains on pause.

The pandemic has shown that neoliberal rule and end-to-end privatization are not solutions for network technologies, natural monopolies, industries with unregulated externalities, and social services. For example, in healthcare, market forces do not function well in an environment where all players are private (clinics, medical insurance, pharmaceuticals, medical equipment suppliers, research labs, etc.). Similar situations exist in education, science and related activities.

Economic systems with structural imbalances are unable to effectively react to asymmetric shocks like climate change and pandemics. New systems and strategies for implementing them are needed. People and technology must be mobilized toward implementing more sustainable and inclusive growth and economic systems. This paper discusses principles and rules for achieving this transition.

2. Solutions and Remedies

COVID-19 has compelled governments to implement massive and targeted policies. They did whatever it took to protect citizens and healthcare systems. In the first quarter of 2020, G-20 countries spent about 7 trillion US dollars on relief and stimulus programs.

Today no one is talking about a V-shaped recovery. The essence of recovery should be how to avoid a double-dip recession, L-shaped stagnation, or freefall. Effective crisis management and turnaround strategies are needed. Due to structural imbalances faced in the past, care must be taken to ensure that relief and stimulus programs providing short-term solutions do not create long-lasting problems.

After completion of crisis management programs, the next step in recovery will be turnaround strategies. But implementing a new growth pattern that is sustainable and inclusive for people and nature is not possible without a paradigm change and new economic rules. Current systems, with their long-term ignorance of negative external effects, have produced extensive unmet needs and underutilized, or wrongly utilized, potentials.

“It is necessary to avoid the main legacy of neoliberal capitalism—benefiting a small portion of society, while causing many environmental, social and economic problems. To achieve this, regulation is critical.”

Nearly all economic scholars agree that advanced economies are at the end of a long cycle of neoliberal capitalism supremacy. New models of growth and economic policy platforms must more effectively address the structural imbalances of neoliberalism and asymmetric shocks like climate change and ‘black swan’ events. The UN Sustainable Development Goals provide economic targets and guidelines.² Under sustainable economic systems, businesses will focus on meeting the needs of all stakeholders, not just shareholders.

New systems must overcome the “virus of neoliberalism”, and its major principles of deregulation, liberalization and privatization. We must avoid inertia and a leadership vacuum, which Z. Bauman³ eloquently called the “liquid modernity”.

Sustainable economics would not replace the main pillars of capitalism, such as private property and market mechanisms. Instead, transition would involve eliminating the negative external effects of the previous growth model, expanding impact investments, improving the relationship between capital and labour during the Fourth Industrial Revolution, and making capital available for beneficial start-ups and innovations. Conceptual breakthroughs in economics, for example as in Mazzucato et al.⁴ and Stiglitz⁵, support this line of reasoning.

New systems will not be in some form of an authoritarian capitalism (state capitalism), but more progressive, less conservative and balanced models of stakeholder capitalism. This system is gaining increasing support for addressing social, climate and healthcare crises. The approach positions private and public companies as trustees of society.

Businesses in stakeholder capitalism are not acting philanthropically. They are focused on benefiting all stakeholders and the environment. Instead of short-termism, stakeholder capitalism helps to propel the economy forward, while acting in a more socially responsible way.

The landmark Paris Agreement signals the necessity of transitioning from a linear growth model to a circular one.⁶ Despite high ambitions and ongoing negative consequences of climate change, almost nothing has been done over the past five years.

After successive crashes in capital markets, M. Friedman's⁷ view that a company's purpose is "just creating value for its shareholders" is becoming discredited. Lack of universal mobility, inequality and market concentration creates major problems. The economy must be refocused on benefiting all of society over the long-term.

In the new platform, economic activities will be focused on intentional policies. Government spending will emphasize industrial policies: horizontal, vertical, environmental, and medical. Mitigation of the climate crisis depends on development of renewable carbon-neutral energy technologies. These technologies are disruptive by definition.⁸

The above concepts work in synergy. They have been discussed in more detailed papers that are focused on the growth model⁹ and economic policy platform.¹⁰

3. Interdependencies

Mitigation of the current crisis is focused on protecting people and the healthcare system now, as well as helping the economy to rebound later. A good way to do this is to simultaneously focus on flattening the pandemic curve to prevent overwhelming the healthcare system, while implementing programs that increase economic output and avoid long-term decline.

A key aspect of the Fourth Industrial Revolution is the growing use of ICT. New technologies can accelerate achievement of the SDGs. With new technological opportunities, Industry 4.0 can drive sustainable and inclusive growth of all economies, developed and developing. Only a fraction of this huge potential is being utilized at scale.

A new economic policy platform has a long list of policy targets. These include inflation (low and stable), output gap (low and stable), and ensuring environmental and human health protection.

The coordination between industrial and core policies is crucial. Under a new economic system, we think about core policies in a structural way. For example, effectively addressing the climate crises protects society and generates new business opportunities. Climate related risk adaptation and mitigation are predicted to generate huge investment opportunities of up to \$26 trillion by 2030.¹¹

Automatic stabilizers help to align industrial policies with core policies (monetary and fiscal). This is a very old idea, actually a very Keynesian idea of countercyclical measures related to intertemporal reallocation of fiscal burden. According to O. Blanchard,¹² with the increase in the number of state-owned sectors, automatic stabilizers will play a greater role. Pro-development measures, particularly industrial policies, mean more reliance on fiscal automatic stabilizers (carbon tax, universal profit tax, universal medical tax, universal income, etc.) to prevent excessive build-up of debt and contain inflationary consequences of fiscal stimulus. Also, there is significant progress in implementation of monetary automatic stabilizers (neutral interest rate, loan loss provision, FX rate, etc.).

4. Obstacles and Difficulties

A turnaround regularly needs decisions that benefit humanity but are difficult to implement. It is necessary to avoid the main legacy of neoliberal capitalism—benefiting a small portion of society, while causing many environmental, social and economic problems. To achieve this, regulation is critical.

“At the macro-level, we must focus on social well-being indicators, instead of GDP. At the micro-level, in addition to financial metrics, ESG metrics are needed to drive business improvement. How should this new performance measurement system be defined and established?”

The COVID-19 pandemic policies are likely to produce some of the same problems as past measures. To monetize debt (public and private), central banks granted unlimited expansion of the balance sheet through quantitative easing. Bank bailouts were undertaken with almost no accountability and unprecedented flexibility in the interpretation of regulatory rules. Tax stimulus shows a continuation of low tax policies.

5. Best Practices and Successful Strategies

The amalgam of shareholder capitalism, market fundamentalism and supply side economics cannot be entirely blamed for the free-market economy’s inefficiencies. But, it has helped to clarify the problems of neoliberal capitalism. In free-market economies, there were many propositions that were taken for granted. For example, by giving away natural resources as ‘free goods’ and ignoring negative external effects of their use, economics allowed manufacturers to exploit nature without paying the full cost. Institutions like the Club of Rome used reason, scientific evidence and truth to develop and advocate economic policies that resolved these problems.¹³

An inspiring framework for new economic rules is based on the “managed capitalism” ideas of Raghuram Rajan.¹⁴ Despite export growth, developing economies regularly entered a “middle income trap” due to growing indebtedness. A shift to sustainable growth required an increased state role in technology development and related industrial policies. This was the seed of the framework known as “heterodox”. Interest in new industrial policies grew after the Great Recession of 2008.¹⁵

6. Potential Strategies to be Considered

A Heterodox policy platform in Finland functioned through two different strategies: “verticalization” in fields like science, research and development, education and health care along with “horizontalization” of innovative solutions through the marketplace. When

combinatorial innovations dominate the competitive dynamics, it is not possible to innovate in isolation. Infrastructure and coordination between key players (government, research labs, universities, special purpose financial institutions, businesses, etc.) are necessary, more than ever before.

In other areas, the situation is exactly the same. For example, lifelong learning needs coordination through horizontal industrial policies. The new dimension of competition is competition in the speed of learning. Learning is only part of the job (or learning-by-doing). It also includes unlearning and relearning (or learning-by-learning). There are three types of industrial policies: horizontal, vertical, and environmental. Horizontal (or industry-neutral) policies tackle research and development, education, healthcare, etc. Vertical policies are dedicated to tradable sectors (export expansion and/or import substitution). Environmental policies include global warming mitigation and medical security. Thanks to automatic stabilizers, all policies function based on the reversibility (or feedback loop) principle. The concept of automatic stabilizers helps to harmonize industrial policies with core policies (monetary and fiscal).

Export-driven growth based on high tech is not easy to implement after deindustrialization. A shortage of employees with digital skills is a substantial threat to any industrialization trajectory. According to J. Lorre,¹⁶ 10 million global manufacturing jobs remain unfilled.

One of the key problems is financing of industrial policies. The global financial system is on the verge of fundamental reallocation of capital toward carbon-neutral technologies and medical security. To deal with the climate crisis, development of new asset classes, like “green bonds” and “green credits” is critical. Better quantification of the associated financial risks of climate change led central banks to stress-test commercial banks in relation to climate and medical risks.

Pensions, social security programs and long-life insurance are important, perpetual source of funds for the investment needed to achieve the SDGs. These funds require the backing of their long-term liability side. Long-term bonds with high yields are a perfect match to attract savings.

In today’s world, savings are limited. Environmental and social benefits related to the SDGs are regarded as “positive externalities” of investments. There are many variations of the “shadow prices” concept, such as pollutant gasses emission trading, green bonds, guaranties for green credits, and tax cuts (or increases) that could help to internalize these benefits. “Negative externalities” should also be regulated, for example with “carbon taxes”, universally defined at a global level.

Informed by mistakes of previous crises, current policies must have additional conditions. Relief and stimulus programs should require businesses to increase production, employ people, and reward value creation instead of value release and extraction. New policy measures particularly should encourage investment in sustainable growth, reduced carbon emissions and enhanced medical security.

Switching from private to public sector money creation is another large source of investment and stimulus funds. In theory, there is no limit to money and credit expansion. As a result, supplementary digital money and credit channels for new carbon-free industrialization could be used parallelly with existing channels. Money will be used to fund economic and social development, instead of it being printed to fund real estate and other bubbles.

7. Questions to be Answered

First, should we have dual economic policies—one for good times (neoclassical) and one for bad times (Keynesian)?

Second, a new performance measurement system is needed to achieve the SDGs. These metrics will facilitate implementation of inclusive and sustainable economics. At the macro-level, we must focus on social well-being indicators, instead of GDP. At the micro-level, in addition to financial metrics, ESG metrics are needed to drive business improvement. How should this new performance measurement system be defined and established?

Third, what are the financing and investment mechanisms needed to fund the transition to sustainable economies? How can these be established and expanded?

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Job Creation through Sustainable Investing Using Human-Centered AI: An Integral Approach

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Abstract

The COVID-19 pandemic has vividly demonstrated that humanity is not well prepared to address global challenges, particularly existential threats. This paper shows us how to restart the economy and ensure employment using an integral approach to sustainable investing in early stage start-ups using human-centered AI. As stimulus packages are being made available, the need for fast-tracked, digitized and scalable investment decisions for implementing the UN SDGs within Planetary Boundaries becomes an obligation. Based on three decades of investment track record and four years of AI application data, this paper shows how to identify the black swans of integral sustainability and how to significantly improve the de-risking processes through human-centered AI. This AI has proven that automation of the investment analysis and prediction process using collective intelligence and machine learning results in a successful prediction accuracy that is four times higher than current methods and scalable.

1. Introduction

It is only 2020 and already we are confronting the fourth pandemic of the century: COVID-19 was led by SARS in 2001–2004, H1N1, the swine flu, in 2009, and Ebola in 2014–2016. Although we could have heeded, for example, Bill Gates’s warnings of many years* about our collective vulnerability in the face of a pandemic, we did not, as it is now demonstrated by the general lack of preparation in the face of the COVID-19 outbreak. Unfortunately, the frequency of such infections is likely to increase due to a combination of natural disasters and irresponsible human behaviors inflicting constant damage to wild animals’ habitats and driving animals into urban areas. As both climate change and the global population continue

* <https://www.gatesnotes.com/Health/Pandemic-Innovation> & <https://tinyurl.com/t8lcm6>

to grow, so too do the extent and scope of the crisis.* One related vulnerability is that how we respond nationally and internationally to this and comparable crises could determine the future of democracy.† Governments around the world are taking drastic measures to address the COVID-19 pandemic but seem to be even less well equipped for the subsequent recession, or depression, caused by it. Why? Because current stimulus packages are similar to those issued in 2008 in response to the financial crisis that provided liquidity to an already bankrupted financial system without changing it at its core—such packages were essentially fiscal enablers.‡ The COVID-19 crisis is only reviving the problem and so systemic change becomes inevitable if we want to protect democracy and ensure the future of life on our planet.

Scientific reports¹ are warning about climate emergency with only 10 years left to address it.[§] Led by the European Commission, the political will to respond is also manifesting through the European Green Deal[¶] and its 10-step action plan for implementing sustainable finance,** aimed at transforming the economy to achieve carbon neutrality by 2050. This long-term strategy includes three points of particular importance:

1. *Taxonomy*, a unified green classification system
2. Sustainability-related *disclosures* to ensure that manufacturers and distributors of financial products fully inform investors about the impact of sustainability on decisions and financial returns.
3. Climate *benchmarks* and environmental, social, and governance (ESG) disclosures to help investors adopt climate-related strategies.

While exponentially growing technologies^{2,3} are shifting the world economy,⁴ the massive amounts of capital made available by current stimulus packages must be allocated in line with the requirements of systemic change while enabling accelerated job creation and ensuring the restart of the economy across the board. This transformative action is important because it also addresses the big question on how investors (businesses and entrepreneurs alike) can contribute particularly from an early stage investing (Business Angels and Venture Capital) perspective. Small to medium enterprises (SMEs) are a significant economic force globally—with a contribution of “about 90% of businesses and more than 50% of employment worldwide. Formal SMEs contribute up to 40% of national income (GDP) in emerging economies”^{††} and in developed countries too. For example, in Germany, SMEs’ “contribution towards Germany’s economic strength, [represents] approx. 35% of total corporate turnover... In terms of their contribution to GDP, these companies even account for close to 55%.”^{‡‡}

* <https://tinyurl.com/u2uupjm> and <https://tinyurl.com/uy48874>

† <https://tinyurl.com/rxhpx9>

‡ <https://tinyurl.com/saa7hmv>

§ UN Paris Agreement 2015, <https://tinyurl.com/y9e8fufg>

¶ European Green Deal, 11 December 2019, <https://tinyurl.com/vlplq5l>

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‡‡ German Federal Ministry of Economic Affairs and Energy, 2017, SMEs are driving economic success; Facts and Figures about German SMEs: 2017-A successful year for German SMEs. <https://tinyurl.com/y3cvtbzf>

Therefore, early-stage investing is also undergoing massive transformations as it is adapting to the changed context and must become more efficient, more effective, and scale fast. It can transform and respond quickly, because it relies on human expertise, values, and mindset. However, questions related to screening, de-risking and other due diligence aspects as well as monitoring, and successful exits are tightly intertwined with measurement criteria, taxonomy, disclosures and other benchmarks because they determine the outcome. They depend on the strategy and its implementation, some of which will be briefly addressed next in order to highlight the growing complexity of the matter (including the mind shift). The intention is to identify how human-centric AI can provide significant support moving forward.

“The 17 SDGs are ambitious, transformational goals for the creation of a prosperous humanity on a stable Earth system. However, there are grave contradictory issues within these goals, which increases the risk of one favorite goal being pursued at the expense of the others.”

2. Early Stage Investing and CO₂ Neutrality

We can only achieve what we measure, but it will take time until the new policies on taxonomy, disclosures and benchmarks for the new green deal become available. Early stage investors (and entrepreneurs) are moving fast and need to know now how to contribute toward the implementation of the Paris Agreement. Therefore, it is important to understand the first line of global metrics, namely the 17 Sustainable Development Goals of the UN* and how they can be implemented within the Planetary Boundaries, the safe operation system of the planet starting today.

2.1. The UN SDGs Only within Planetary Boundaries?

The 17 SDGs are ambitious, transformational goals for the creation of a prosperous humanity on a stable Earth system. However, there are grave contradictory issues within these goals, which increases the risk of one favorite goal being pursued at the expense of the others. For example, if we pursue goal #8, *Good jobs and economic growth*, by burning fossil fuels such as coal, it will be impossible to achieve goal #14, *Life below water*, or #13 *Climate Action* because we will continue to emit destructive CO₂ into the atmosphere, literally fueling the existing vicious cycle. These contradictions could be the reason why we have made so little progress since their adoption in 2015. However, according to *Transformation is Feasible*,⁵ if we act now and stay within Planetary Boundaries,⁶ we can still address the climate emergency.

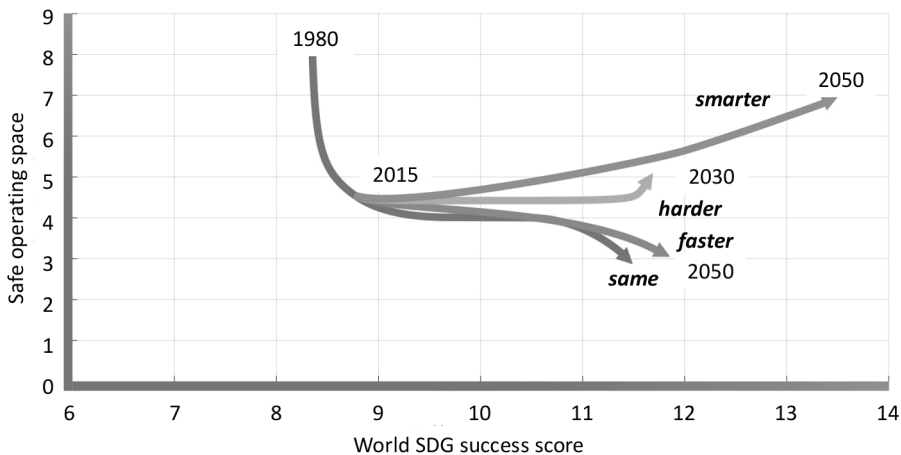
* 2030 Agenda for Sustainable Development, 2015, <https://sustainabledevelopment.un.org/post2015/transformingourworld>

2.2. Transformation is Feasible

Based on a complex System Dynamics Model and data collected over the past decades,⁷ we have tested, built, and simulated 4 future scenarios up to 2050 that are shown in Figure 1. On the vertical axis, there are 9 Planetary Boundaries (PB), the 9 factors that regulate the stability of the earth's operating system. They include, for example, biosphere integrity, freshwater use, ocean acidification, ozone depletion, and climate change. The higher the value on the vertical axis, the higher the harmony level between the PBs (the green area) and the lower the PB-value, the less probable human existence would be possible (the red area).

The horizontal axis represents the number of UN SDGs that would be implemented collectively at any one point in time, with the intention being to realize as many of the 17 as possible, moving consistently toward the higher value, the green zone to the right. In order to successfully implement *all* the SDGs within the Planetary Boundaries, humanity must operate within the green areas on both axes; the higher the values, the better.

Figure 1: Transformation is Feasible: Four scenarios for implementing the UN SDGs within Planetary Boundaries⁸



The four scenarios are the following:

1. *Same*: shows how far *business as usual* will take the world to 2050 while creating severe global warming, costly weather events, social instability with increased political insecurity, rising nationalism, and growing inequality as well as social unrest.
2. *Faster*: shows where accelerated economic growth of 2.8% per annum in 2018 to 3.5% per annum would lead. With slightly less than +1% GDP growth per person per year until 2050, we would risk significantly destabilizing the planet.

3. *Harder*: shows what happens if governments and industry try even harder by increasing our ability to deliver on our promises by 30%–50% across all global sectors of society, from climate to trade agreements. But the results would not be significantly different and would not take us back to safe PB.
4. *Smarter*: could solve the problem by 2050 and shows the transformational path.

“Integral (sustainability) Investing contends that all investment activity must be rooted in the essence of all existence, the mind-set (consciousness) aspects including culture, values, ethics and morals as well as exterior reality, the material world.”

However, in order to implement the *Smarter* scenario, a significant mind shift across all players in the society and the following five transformational actions are required. These could help achieve all 17 SDGs while keeping humanity in the green zone of the Planetary Boundaries:⁹

1. *Energy*: Accelerated renewables growth to halve emissions every decade starting with 2030 and create a global energy democracy.
2. *Differentiated Growth*: Rolling out sustainable development models in developing countries.
3. *Food*: Accelerated shift to sustainable food chains and agriculture to decrease the food production footprint.
4. *Active inequality reduction*: Address extreme unfairness, create jobs despite automation and AI, and redistribute total output and wealth.
5. *Investment in girls' and women's education, gender equality, health, family planning*: to stabilize the world's population.

Only the future will show how humanity will make this transformation feasible particularly since a shift in mindset is the premise for change. However, the outlined strategic direction represents an important guiding post for investors, entrepreneurs, and businesspeople alike because it enables smart action and supports current efforts of already awakened market leaders such as the Global Alliance for Banking on Values (GABV),* UN PRI[†] signatories and GIIN[‡] as well as a myriad of other leading sustainability investors.[§]

From an early stage investing perspective,¹⁰ Integral Investing (Figure 2),¹¹ as an integrative framework for sustainable early stage investing using integral theory, is proposed.¹² Its

* Global Alliance for Banking on Values, 2020 available online: <http://www.gabv.org>

† The UN Principles for Responsible Investment <https://www.unpri.org/signatories/signatory-directory>

‡ Global Impact Investing Network, <https://thegiin.org/>

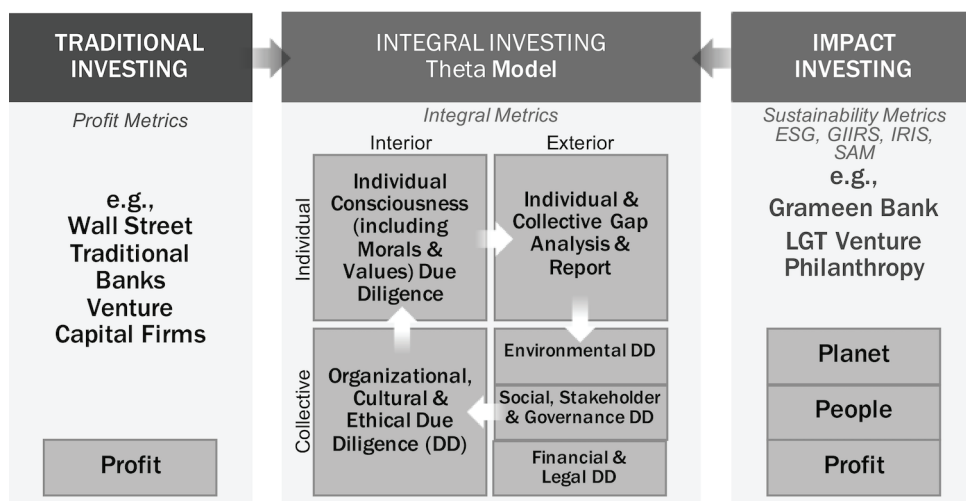
§ Global Steering Group for Impact Investment driving real impact, <https://gsgii.org/>

de-risking process has been developed and tested since 1993, is entitled the Theta Model (Figure 3) and will be introduced briefly.

3. An Integrative Model for Scalable & Sustainable Early Stage Investing

The integral investing framework integrates, transcends and includes both traditional investing and impact investing practice with the intention to build integrally sustainable companies from the very beginning. Integral (sustainability) Investing contends that all investment activity must be rooted in the essence of *all* existence, the mind-set (consciousness) aspects including culture, values, ethics and morals as well as exterior reality, the material world (environment, infrastructure, etc.)

Figure 2: Integral Investing¹³

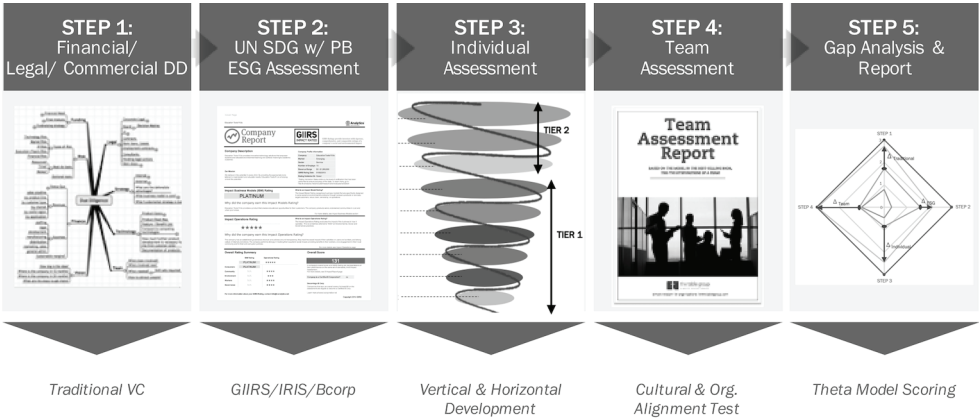


Integral Investing makes it obvious that financial sustainability is inseparable from the environmental, social, cultural, and an ethical impact, as well as individual self-actualization, joy, and personal happiness (in short, the *6Ps*: *Parity of People Planet and Profit with Passion and Purpose*); and provides an integration framework. However, the increased complexity also begs the question how the entire value chain creation from screening to exit can be implemented within the context of the de-risking process. The answer can be found in the Theta Model (Figure 3).

3.1 De-risking with the Theta Model

Being a seed and/or early stage investor often feels like fishing in a muddy pond that is well stocked. However, only very few fishes are worth catching. The probability that a new startup will develop and eventually provide a large, integrally sustainable exit to its investors is rather minuscule.

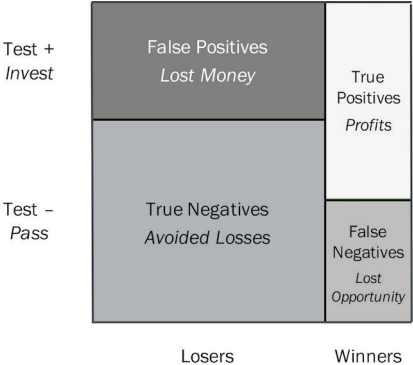
Figure 3: The Theta Model for De-Risking Early Stage Investments¹⁴



For decades, investors have tried hard to beat this average, but, as a rule of thumb, only 10% of startups in a fund portfolio have a chance to become successful exits. The investor, therefore, uses assessment tools to screen investment opportunities that are presented to them and try to predict the “winners” and “losers.” The essence of the Theta Model (Figure 3) is to identify the losers as early as possible by identifying the winners with a high sensitivity and by exposing the losers with a high specificity.

Screening is the process that enables the investment manager to decide either to “invest” or to “pass”. This process can be as short as a few days or take a few months. During screening, the evaluators consider many aspects of the opportunity, using diagnostic tools: pitches, personal interviews, investment exposés, pitch decks, market research, customer references, technology expert interviews, psychological assessments for individuals and team culture, legal and financial opinions, to name a few. The choice of tools and the order of using them is different in each case, based on the experience of the evaluator, the cost, the risk, and the potential diagnostic value of the tool. This is very similar to medical diagnosis. For the purpose of this paper, we are looking at the screening process as a statistical test that is predicting the future success or failure of the opportunity. There are “Winners” and “Losers” (Figure 4).

Figure 4: Investment decision as a statistical test predicting future success



Early stage investing is an art and not a science. This is why there are few performance statistics available. The winners are defined as startup companies that will raise a significantly follow-on round or generate a profitable exit

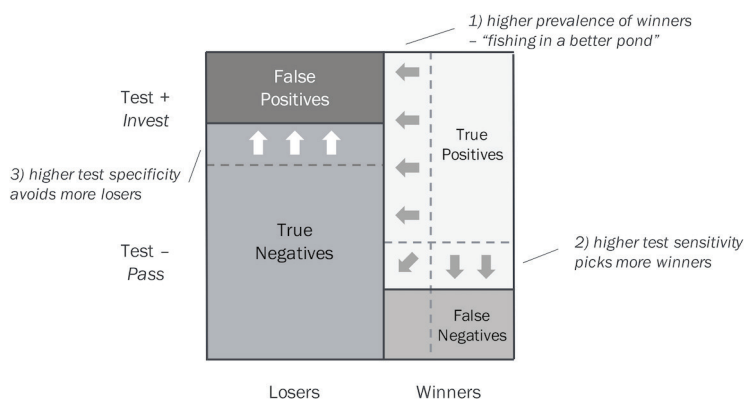
with a positive impact. Experience shows that few VC firms have a long-term positive track record; for at least two reasons: (1) the prevalence of winners in the deal-flow is low, and (2) the industry's average prediction accuracy is rather mediocre. Traditional screening processes are rather volatile, unsystematic, and depend on individuals' "gut feelings." Such tests yield only few successful investments (true positives). Many unsuccessful investments (false positives) lose money and sometimes the winners (false negatives) are missed. In other words, the tests have low sensitivity and low specificity.

The Theta Model creates a "better fishing pond" through the five de-risking steps outlined in Figure 3. In short: STEP 1 deals with the traditional early stage process currently implemented in the VC industry. STEP 2 addresses the UN SDG/ESG and other sustainability factors. STEP 3 deals with individual, consciousness, behavioral, inter-objective, and inter-subjective aspects. STEP 4 deals with collective team assessment, cultural, and leadership development. STEP 5 provides the ultimate decision based on steps 1 to 4. Overall, the process is always addressing *profitability*, *scalability*, and *explainability*.

The overall *profitability* can be increased in the following way (see Figure 5):

1. By focusing on deal-flow with a higher prevalence of winners—"fishing in a better pond" (see 1 in Fig. 5). The Theta Model achieves this by concentrating on opportunities that are driven by exponential technologies *and* address the UN SDGs within Planetary Boundaries.
2. By increasing the test sensitivity to avoid missing the innovative outliers, the "black swans."
3. By increasing the test specificity which leads to screening out more true negatives early. The Theta Model sets the bar higher for founders and teams.

Figure 5: Three Levers to Increase Overall Profitability



The overall *scalability* of the early stage investment process can be increased by (1) enhancing the screening process with AI, and (2) by making the screening and due diligence process more focused and therefore more efficient.

The overall *explainability* of the investment decision can be increased by elucidating it using concepts that human experts understand. For example, “the founder team is missing industry experience, is not complementing each other, and the market opportunity is too small.”

The Theta Model can be significantly enhanced, digitized, and scaled through a human-centric and collective intelligence AI tool that we will introduce next.

4. Human-centered AI

We have developed a specific technical definition for human centered AI that is supported by a technology platform. Symbolic AI systems of the first wave of AI were based on a process of encoding human heuristics into programs based on knowledge representation and reasoning technologies.¹⁵ Using a model of collective intelligence supported by an interactive knowledge acquisition method, we construct a knowledge model that represents the collective prediction of a group of investor/expert contributors. The collective knowledge acquisition system generates as output a Bayesian Belief Network that links propositions and quantitative scores to a predictive score. Given an investable asset (e.g. startup), we create a representation of the collective judgement on whether the asset will create sufficient business results to support future investment and growth.

4.1. Maximizing predictive accuracy through collective intelligence

The collective knowledge acquisition system generates as output a Bayesian Belief Network that links propositions and quantitative scores to a predictive score. Given an investable asset a custom team of investor and expert contributors is constructed based on principles of cognitive diversity. The objective is to optimize collective diversity so that systematic bias is minimized, and perspective views are maximized. The evaluating group is taken through an automated single-blind on-line asynchronous interview process that collects feature scoring information described in the section below. The resulting Bayesian Belief Network is a representation of the collective view of the diverse evaluation group. The model represents the collective judgement of the group as to whether the asset will produce a future positive return for investors. The BBN can infer a distribution of outcomes expected by the group based on the evidence provided.

In parallel, a quantitative model can be constructed from the BBN that is trained with follow-on funding data. The quantitative model is Logistic Regression Binary Classifier that learns from follow-on performance data. The two interoperable modes work in parallel to enable evaluators of investments to learn collectively how to become more accurate in predicting investment outcomes.

4.2. Building Diverse Teams

Teams are initially selected based on declared expertise (e.g. LinkedIn profile). Key

elements are: investment experience, education, gender, ethnicity, and demonstrated expertise. Once on the system behavioral data is used to maximize diversity. The goal is to maximize the prediction diversity term in the following measure:

$$(c - \theta)^2 = \frac{1}{n} \sum_{i=1}^n (s_i - \theta)^2 - \frac{1}{n} \sum_{i=1}^n (s_i - c)^2$$

$$\left(\begin{matrix} \text{Team collective} \\ \text{prediction error} \end{matrix} \right) = \left(\begin{matrix} \text{Average} \\ \text{individual} \\ \text{error} \end{matrix} \right) - \left(\begin{matrix} \text{Prediction} \\ \text{diversity} \end{matrix} \right)$$

Where: c is the mean score of the team. θ is the true value. s_i is the score of each individual.

4.3. The Knowledge Acquisition Process

Each team member has access to a data room that contains a complete set of diligence materials that include: short video, presentation deck, financials, team bios, etc., the typical items provided to any investor. Step 1 in the process is for the team to see a live Q&A session with the startup team.

The process is single blind. Startup founders do not know the identities of the evaluating team and evaluating team members do not know the identities of their fellow evaluating team members. The first step for an evaluating team member is to provide their inputs of specific questions to the system. The areas of assessment include for example business opportunity, team etc. Each area of assessment is to be scored on a scale of 1 to 10. For each score the team member is asked to give all the reasons for the score.

Once a team member has entered their reasons for a score, they are given a sample. The sample generated is based on a learning process attempting to learn points of alignment among evaluators.

4.4. Learning Areas of Alignment

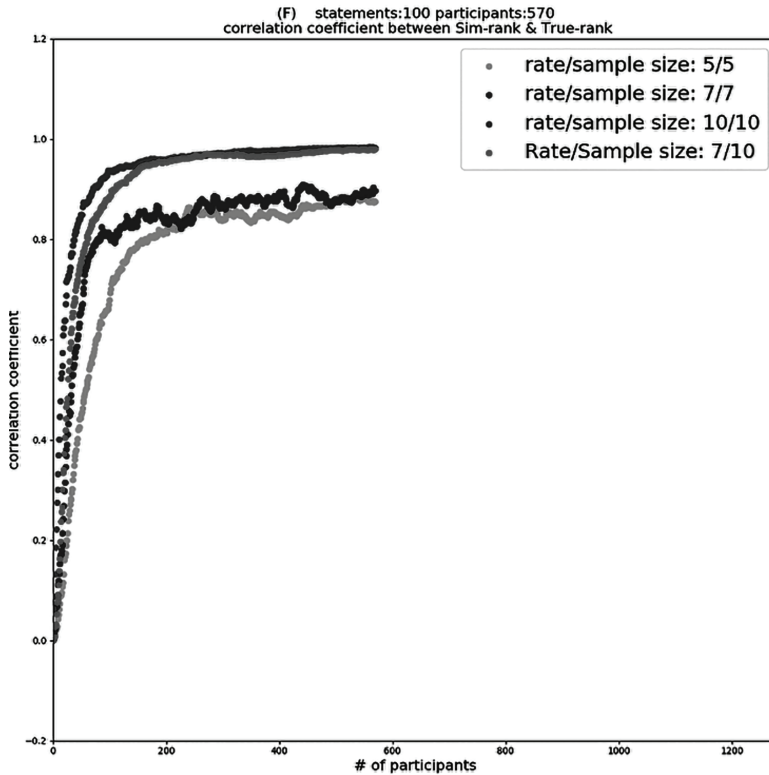
Given a collection of submitted propositions (reasons for a score), a sample is drawn of size n from the collection. The evaluator is asked to rank in priority order those propositions where they agree with their own views. If they do not see points of agreement, they can request another sample. Sampled propositions are given a score and the collection of propositions is updated. Each sample drawn is dependent only on the current state of the system (the process used is a Markov process). The algorithm convergence characteristics are shown in Figure 6.

As participants submit their reasons and rate others, the system rapidly converges to a ranking of propositions based on relevance with an increasing confidence level in the value of the ranking.

Several items to note about the process. One: the participants are encouraged to submit new comments based on their interactions with others supporting the notion of “idea evolution”

based on brainstorming. Second, the process is open to startup/evaluator interaction. Thus a startup can respond to a high-ranking proposition, in essence responding to a comment that is representative of a group opinion. Third, the system operates on a peer review concept. Comments not relevant to the group discussion effectively go out of circulation.

Figure 6: Algorithm Convergence



The resulting set of propositions ranked based on relevance is then analyzed into a trained set of themes or topics using an NLP model based on NER and bi-directional LSTM in Keras.

The system allows learning topical areas of relevance to the group of evaluators providing the basis for a Bayesian Belief Network. The BBN links these propositions to topics and quantitative scoring distributions.

4.5 Early Experience Applying Human-centered AI to Seed Investing

Over the period of approximately four years the process described above was used to evaluate seed stage companies that were raising \$1 million to \$4 million in seed financing. Companies were scored using the methodology above. Companies with scores greater than a given threshold received an investment. All scored companies were tracked for follow-on performance.

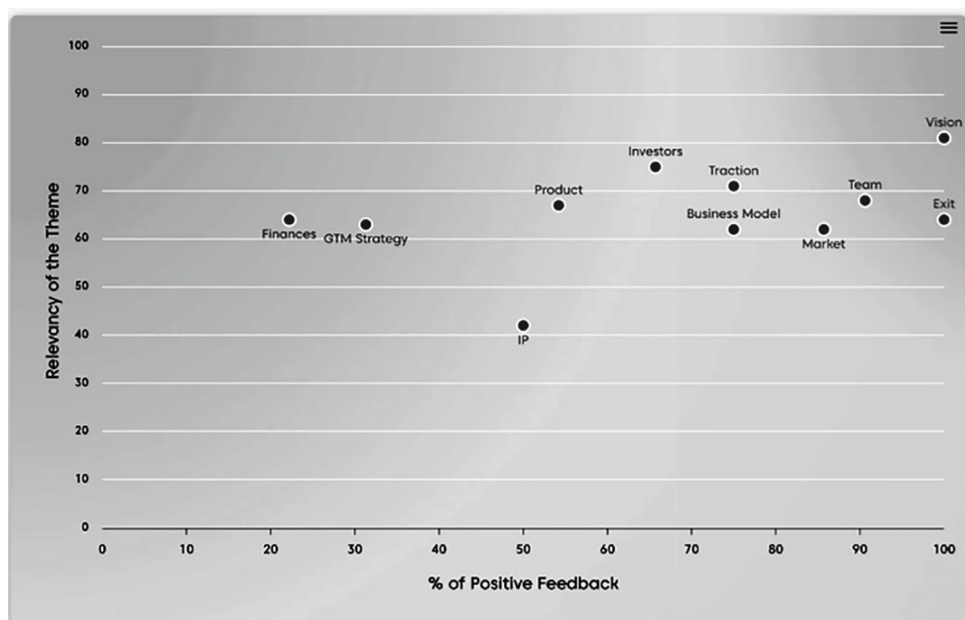
Startups' deal sourcing was typically from top ranking accelerators. Each startup had an evaluation team of 20 to 25 evaluators. The evaluation process was conducted over a period of approximately 3 weeks (done asynchronously on-line). Startups and evaluators could exchange information (identity was masked for evaluators). Evaluators were encouraged to rescore and share information as they learned more through interaction with each other and with the startup. Both evaluating team and startup have access to the data as it is evolving.

Each company yielded about 200 to 300 quantitative data points and on the order of 10,000 words of text. The total data set size was ~60 companies with 25 investments. The overall accuracy of the model was >80% in predicting that a company would raise follow-on funding within 12 to 18 months after scoring. This compares very favorably to general results which indicate that around 10% of seed companies transition to follow on growth rounds.

The process is scalable. The process appears to do substantially better at inclusion. Over 40% of the founding teams are led by females for example. This is in stark contrast to traditional methods of venture investing which has very low participation of female founders.

Each startup receives a probability of being in the "invest" class along with an explanation in the form of reports on the natural language data. For example, the following company scored 92% which is well in the invest zone. An example explanation chart is shown in Figure 7.

Figure 7: Explanation Chart



The y axis plots the relevancy score which is a measure of the likelihood of a comment in a theme (e.g. vision which has a high relevance to the review team) to be ranked in top priority by evaluators. With each theme there is an underlying associated quantitative scoring distribution from which we can infer valence. Thus, the upper right-hand corner indicates a highly relevant and highly positive theme. Vision and potential exit were big drivers for investors, and they believed that financial management and go-to market strategies were manageable issues. They turned out to be correct. In the two years that followed the above company raised a Series A and B from top tier VC firms. In addition, it recently won a top innovation award.

5. Digitizing Early Stage Investing with AI 3.0

Early stage investing is characterized by closely held heuristics. Conventional wisdom is that VC investing can only be learned through many years of experience based on pattern matching experience and mentoring. This experience results in heuristics that define investment practices that are tested against reality as measured by portfolio performance.

While best practices have led to high performing portfolios, they are not scalable. In order to scale, the best practices must be turned into a set of evaluation heuristics that create a set of reference frames for knowledge acquisition.

The process used in section 4.3 follows such a pattern. The seed investing process used was based on thousands of interviews.¹⁶ The heuristic derived pointed to four key factors: 1. Market and Business Opportunity, 2. Founding Team, 3. Network Impact of Early Advisors and Investors and 4. Level of Commitment of Investors. The associated heuristic is a startup that scores high on those four factors will be successful. The knowledge acquisition process was defined based on using this heuristic.

The Theta Model for de-risking investments has a 25+ year history of practice and performance and is deeper than traditional VC de-risking processes. It extends the business' focus on a specific problem, i.e. addressing investments that impact sustainability. It focuses on technologies that have an exponential growth rate with the intention to implement for example the UN SDGs within Planetary Boundaries (Step 2).

Moreover, one of the more interesting aspects of the Theta model is the deep attention to the founding team and management leadership (Step 3 and 4). For many investors, team is a highly influential reason for them to invest or not. In most cases, the team's focus is on their external performance only. For example, one simple heuristic often used to evaluate a founding team CEO is their speed and accuracy in answering a question during a Q&A session.

The knowledge acquisition system discussed above discovered attributes like team experience and adaptability as external attributes that are associated with high team scores. Assessment of external characteristics falls short however when it comes to retrospective analysis of startup failures. Under pressure teams can develop destructive behavioral modes. For this reason, the Theta Model looks closely at psychological profiling and pays

close attention to the underlying motives supporting vertical growth and mind shifts. The combination of the Theta Model, the knowledge acquisition system described above and extension of the prediction model to turn for investments specifically aimed at sustainability exemplifies how human-centered AI can be mobilized to address a major global problem.

6. Conclusions

In conclusion, early stage investing is the ideal application for human-centered AI because (1) there is too little historical data available to train a deep learning algorithm, (2) there is too little data per test case, and (3) the know-how is with the human experts and cannot yet be extracted and formalized efficiently. Through its nature, the investment process is looking for innovative solutions, “black swans” that can hardly be predicted by an AI system that would have to have been trained by historical data. Therefore, the evaluators must be a diverse group of industry experts, with “skin in the game” particularly in the face of current existential threats. Therefore, using both *internal* and *external* de-risking aspects when evaluating founders, team culture, and product/services helps implement the “parity of people, planet and profit—with passion and purpose.” The deal must address social and ecological needs *and* must grow profitably. There is no “impact first” or “profit first.” Both are equally important. “Passion and purpose” reflect the intrinsic motivation of all participants and must come from a world-centric, not an ego-centric, perspective if we want to implement the UN SDGs within Planetary Boundaries, avoid depression and create jobs and prosperity for all of us in a post COVID-19 world.

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The New Economy: A Financial Climate for Climate Finance

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Abstract

In these past two centuries, capitalism has driven substantial economic growth. However, this growth has not been responsible for the “thrivability” of our planet in terms of society and the environment. This economic model now threatens the continuation of the human species on planet Earth. In 2015, The United Nations created a paradigm shift. All the countries committed to reach 17 Sustainable Development Goals (SDGs) by 2030. Trillions of dollars are going to be invested annually in these goals. But a question remains as to how we can obtain the necessary funds. Long-term pension and insurance funds (including social security) are the perfect candidates: they need long-term investments to back up their commitments. A perfect match! Alas, each dollar invested in the SDGs will not bring high yields, because of “externalities” that are not taken into account. The prospective investor only receives economic profits, while others (government or the public) get the environmental and social benefits. The SDGs represent more than just economic goals, therefore, a dialogue with the capitalist model cannot happen. It will only work if there is an approximation, or new factors/metrics, incorporated into that model that can translate social and environmental benefits into monetary terms. If the SDGs become the business of governments, then they could facilitate an approximate solution. Governments must do this, as they manage the SDGs, and the regulation. If each country issues a special long-term bond which can cover SDG investments with a high yield, it may suffice to return a pension or a social security to the entire population. The cost of the plan is the difference between the rate of the bond yield and the return to the owner of said bond. National accountants know how to make this happen. This way, we finance the SDGs, and create a pension and jobs for millennials and future generations.

“There is no way to solve the environmental and social threats within the capitalist framework.”

1. The New Economy

We are not just living in an era of change, but rather through a change of an era!* Capitalism has been driving substantial economic growth during the last two centuries. But it has caused severe damage to social and environmental frameworks, to a level that now

* Some of the critical issues that distinguish the new economy from the old one are listed in Appendix A.

threatens the continuation of the human species on Planet Earth.* There is no way to solve the environmental and social threats within the capitalist framework.

“There is an urgent need to add non-economic dimensions to the dashboard. This is the way to move from an industrial world to a post-industrial world. We must replace the current focus on the “maximization of economic values” with a multidimensional framework that includes consideration of Economic, Societal, Environmental, and Consciousness factors (ESEC).”

The outbreak of COVID-19 has forced countries to take critical economic steps like the stopping of most of the airlines, tourism, sports events, cultural events, restaurants, etc. This makes the current period the best time to start correcting past mistakes and start off on the right foot in the new economy. But the reason to do it had been there for quite some time, probably for the last 40-50 years, before COVID-19 was discovered.

The basic assumption of capitalism is that all players strive to maximize their wealth. This automatically generates, through what is known as ‘the invisible hand’, a set of equilibrium prices that lead to the automatic allocation (without the interference of a central planner) of all resources, products and services. The theoretical beauty of capitalism is that the process is not just automatic, but it is predicted to lead to the (Pareto) *optimal* allocation of all resources, products and services.

In practice, various prerequisites are not fulfilled:

- Natural and cultural resources (the “commons”) are not represented properly by price-determining mechanisms,
- “Perfect competition” is not real. In the markets there are noticeable concentrations of powers.
- There are many cases where players encounter different prices due to the existence of “externalities.”

Such violations of the principles of capitalism have led Joseph Stiglitz (2012), a Nobel Prize laureate, to argue that the invisible hand is invisible because it is not always there! These are especially true with regard to the environmental and social threats. All the above conditions are violated with regard to these areas. Especially, all the prices are unknown—the “commons” are not subject to supply or demand.

* There are other derogatory changes in the environmental and social parameters (that are developing at an exponential rate): The world population was close to 1 billion around 1800. Currently it is 7.8 billion, and the level of per capita consumption now is much higher. The Global Footprint Network shows an over-drawing of global resources. We are losing the limit of climate control (1.5° C), and are moving towards the 2° constraint. A whole different game! The land, air, and water pollution seem to be sky rocketing. The level of sea pollution, and the acidity and opaqueness of the sea are endangering the oxygen in the atmosphere. Storms are stronger, draughts are stronger, flora and fauna are disappearing at an alarming rate. The same case with the effect of dealing with healthcare, unemployment, education, and social security.

2. Multidimensional Metrics

One cannot solve a problem by following the same principles that created it. Changes are occurring in ways of thinking. People are beginning to believe that they should not serve the economy, but rather that the economy should support their basic values. In such an economy, “doing good” (socially, environmentally and ethically) should support, rather than stand in contradiction to, “doing well” (economically).

Metrics do not merely serve as tools for measuring results. They actually act collectively as compasses or a dashboard, leading us on our way. Using inappropriate metrics leads us in the wrong direction. There is an urgent need to add non-economic dimensions to the dashboard. This is the way to move from an industrial world to a post-industrial world.* We must replace the current focus on the “maximization of economic values” with a multidimensional framework that includes consideration of **Economic, Societal, Environmental, and Consciousness factors (ESEC)**.†

3. Sustainable Development Goals (SDGs) – Total Change in the Economic Model!

In December 2015, The United Nations achieved a remarkable agreement whereby all its members committed to reaching the 17 Sustainable Development Goals (SDGs) by 2030.‡ These SDGs include the aforementioned ESEC parameters. And since all the countries in the world adopt the SDGs, this should become the rule.

Alignment on targets is difficult in a world where each individual, company, organization, and state use their own private compass. To truly measure and report their non-economic impacts, there needs to be an authority to build guidelines, preferably multinational guidelines. It seems that the social, environmental and the consciousness factors should enter the model at first by approximation (rather than assuming zero price). And later with economic metrics, according to classical capitalist models. This will create a new model. The addition of the social, environmental and consciousness factors would drastically change the economic factors, and the overall result could be quite different!

In a paradigm shift there is a need for a large shift, a transformation, a game changer. So the story of a change, a gradual shift, is irreverent. To create a paradigm shift there needs to be an educational challenge: at this stage we must train leaders, managers, accountants, engineers, designers, planners and strategic departments. To make a rapid global impact we must train the leading consulting firms and large accounting firms and create a “top-down” approach in preparing leaders and executives.§

* The OECD countries, for example, have developed what they call “Well-being Indicators,” while others such as the Kingdom of Bhutan have suggested a “Gross National Happiness” index. In addition, many corporations around the world have developed and used the GRI rules (Global Reporting Initiative) to try to measure and report their non-economic impacts, in addition to issuing regular financial statements based on traditional accounting.

† I believe that adding the component of Consciousness (ethical values, civil consciousness, consumer consciousness, etc.) to the earlier “triple bottom line” approach is essential.

‡ One obstacle to reaching a practical international consensus about environmental and social issues has been the conflict between developed and developing countries. In moving from poor to rich, a country does not have to go through the “dirty” stage (Von Weizsacker et al., 2005). They can be “rich and clean” by using circular models like the well-known “Cradle-to-Cradle” (Braungart and McDonough 2008) or K.H. Robert’s “The Natural Step”.

§ At The YK Center, we have gathered international teams of senior business mentors and experts and developed tools for what we call “Trans-Form-Nation”. This is a method of preparing governments and large organizations to deal with these challenges effectively and with urgency.

4. “\$B to \$T by 2020” Target

Before the signing of the Paris Agreement and a couple of months prior to the announcement of the SDGs, at the Sustainable Brands Conference on Metrics (Boston), we introduced the concept “From \$B to \$T by 2020”. This message of financing the ecosystem towards the SDGs received much traction and we saw that the first part of the slogan had already been absorbed by institutions like the World Bank, UNDP, UNGC and the OECD. But if we do not accomplish interim goals by the end of 2020, there is no chance of reaching the required outcomes by 2030, as they involve big infrastructure projects that typically require long periods of planning, preparing and building. Reaching the defined goals by 2030 is quite ambitious, and any delay will mean having less time to reach them, implying the need for greater effort.

The relevant planning horizon for most leaders and executives is quite short due to regulation that drives short-termism and egocentric forms of motivation (limited terms for positions, elections, etc.). Moreover, the former typically think in terms of hundreds, millions or billions, but seldom in terms of trillions of dollars.

Leaders and executives should learn to operate with the new metrics on a completely unrecognized scale (multiplied by thousands), in order to achieve the SDGs. However, there is a need to meet some interim goals in the near future, to change the scale of thinking from billions of dollars to trillions, and to create the needed managerial skills and tools for stimulating reform.

5. How can we get the Capital that is needed?*

The insurance industry could be a world leader by focusing on sustainable wealth in the long run. However, they can do more than that: Insurers and pension funds are the only ones that still have the money to invest and they are interested in the long run. All the environmental projects need long-term investments.

This paradigm shift requires an immense investment: trillions of dollars per annum in impact investments (mainly in infrastructure). The only source of long-term financing is retirement-related money. In the public sector (social security programs) and in the private pension plans (retirement and savings programs and long-term life insurance). All these bodies require the backing of their long-term liabilities towards their savers. The ideal investment for them is the long-term bond of 25-40 years plus a hefty interest rate. High yields are a necessary condition for attracting more savings, and for raising the large amounts of money that are required for impact investment. Interest rates play a key role in creating attractive retirement plans.

The financial institutions of the private sector currently manage for their customers an immense portfolio of approximately 80 trillion dollars (prior to COVID-19)! That seems like enough to achieve a major part of the SDGs, but the entire sum is invested elsewhere. There is little chance to start negotiations between so many countries and so many institutions. Only regulation can do it.

* See Appendix B.

There are, however, two other things to consider:

First, for quite some time, we have lived in a world of very low (near-zero) interest rates. There is little incentive to save money, and little appetite for financing impact investments. Financial experts turn to short-term profit (by the use of trenches and finance combinations), and it is enabling them to give a positive yield. In a system like this, every few years there must be a crash (that takes the system below zero) and then a climb up again, with a positive yield, during the following years.* One can think back to the .com crisis, the mortgage crisis in 2008, and now the COVID-19 crisis of 2020, to see the process. This is essentially the reason for the instability of world financial markets.

Second, social and environmental benefits (such as a reduction in carbon emissions, a positive impact on population health, job creation, etc.) are regarded as “externalities” i.e., others such as the government or the public, but not the investors, get the benefits.

There are ways of revealing the implicit yields on impact investment, or in economic terms, ways of “internalizing” (endogenizing) these externalities so that they can be added to the yield of the investor. Public investors such as governments, and especially funded social security plans, could easily consider these externalities as contributions to the yield on their investments, but they have to adjust their accounting methods to measure and reflect these benefits. Most of the SDGs can be considered as “externalities”. Unfortunately, the government lets volunteers and non-profit organizations do their job for them. The SDGs and the endogenizing of externalities must become the job of government.

More sophisticated tools are needed to transmit the benefits of these externalities to private investors. It is possible, for example, to use certain market mechanisms (such as emissions trading), and to include these in investment yields. Other mechanisms (such as tax incentives or other subsidies, public guarantees on minimum yields, etc.) can also be used depending on local circumstances and on ideological differences.

The Israeli example of public financing is especially relevant in this case.† Soon after the state of Israel was established, government coffers were empty due to the cost of the War of Independence, and the unusual challenges that stemmed from the need to absorb a large number of Jewish refugees from Europe and Arab countries. The population was very young and there were no jobs. There was an urgent need to invest in infrastructure, factories, housing and job creation, and to deal with “melting pot” educational challenges. The government encouraged the creation of insurance and pension arrangements and also established a social security system to take care of the population that was due to retire several decades later.

The government issued to retirement institutions long-term bonds bearing high yields, and created tax arrangements that enabled these institutions to offer very attractive retirement plans with high yields to savers. This created a very high rate of savings in the country.‡ In

* One of the things that brought up these phenomena happened some 30-40 years ago. The insurance and the pension industries were worrying about the deficits of their funds (which was basically a defined benefit—DB - program). The risk of the fund had been distributed between the employee, employer, government and the fund. It changed to be a defined contribution – DC. This turns the risk to the shoulders of the employee himself, and the self-employed people with no savings (as is being seen during the current COVID-19 phase).

† The system had been used under a different version in Marshall Plan, and as a more recent plan in Estonia, Poland and Sweden.

‡ In this accumulation of savings, the government saves a lot of money in investment fees.

addition, the government introduced a funded social security plan that invested its funds in quite similar government bonds. The funds raised through these special long-term bonds fed a “development budget” (but it later took the form of the general budget). It was used to activate a number of specialized sectoral-level development banks that undertook impact investments. This was a major tool for financing the country’s growth during its first four decades.

6. Importance of Governments in the Process

I do not know who came up with the idea of financing the SDGs with private capital. The SDGs have been adopted by all the 193 Governments. The 17 goals have to focus on social and environmental tasks and lots of externalities. That is the business of the governments! In addition, governments have to do a lot of regulations. Governments must help pay for the achievement of the SDGs.

This can be done through long-term investments in the pension and social security funds. Many countries, especially developing countries, can learn from this example of public-private collaboration and can adapt it to their needs. A government can help achieve the goals through its social security funds. This is also an opportunity for countries with no social security to create such infrastructure. In countries where there are existing pension and social security systems, they may expand their funds for the whole of the labor market, including, the self-employed.

Such ideas may face ideological criticism from people that resist governmental intervention in the economy and prefer privatization at any cost, as well as those that mistrust the willingness and ability of government to honor long-term goals. On top of this, there are whole industries such as oil and gas that may lose their subsidization due to these shifting of funds. Opponents of any government intervention typically emphasize the potential inefficiency and even the corruption of government systems.

Such initiatives were often discovered to be a means of transferring important and valuable public properties at low prices into a few private hands. In the case of Israel, there have also been complaints about problems with capital allocation, inefficiency, and even corruption, despite efforts to run a very “clean” system. A certain degree of disorder seems to exist in both government and private-led systems around the world and can be reduced and mitigated through education, regulation, and efficient controls.

The ability to offer a high yield on impact investment will create a self-perpetuating cycle: higher returns on retirement plan portfolios will increase the attractiveness of retirement schemes. This, in turn, will motivate larger long-term savings and thereby enable financial institutions to finance impact investments more. As long as these investments continue to yield high returns, this cycle of positive feedback will continue.

7. Conclusion

All the countries in the world have agreed towards achieving the SDGs, thereby agreeing to add social, environmental, and consciousness factors to economic considerations. That means a paradigm shift, which belongs to a special education process.

A country can do what an individual cannot: Shift itself off the ground by pulling its own bootstraps! These mechanisms can be established and activated within a short period. We can simultaneously deal with three major and pressing global challenges: The mitigation of major social and environmental threats through appropriate impact investments, the creation of jobs and reduction of job insecurity for millennials, and the re-establishment of retirement security for millennials and future generations.

In this paper we show that there is a relatively simple way to reach the solution for these pressing problems:

1. The inclusion of Social, Environmental and Conscious metrics alongside economic metrics (such as the SDGs).
2. The acceleration of the SDGs by investing in infrastructural change to basic economic activity (“B to T by 2020”).
3. Governmental investments should be made through long-term bonds (with a minimum 5% indexed yield) as in the Israeli example.
4. Helping the customer to get reasonable constant yield at retirement (and on through the pension period), and saving a major commission.
5. Investment in social aspects may stop fluctuations in capital markets (Social security, private pensions and insurance).

In short, we have the chance to hit several ambitious and extremely urgent targets with a single arrow!

“A capitalistic economy does not know how to deal with things with no price!”

Appendix A: The “Old” and the “New” Economy

Some of the key differences between the old model and the new economy:

- Traditionally, we have assumed that three major resources are involved in production: land, labor, and capital, each of which is limited. Accordingly, the economy was based on the principle of scarcity. In the modern economy, we have new “unlimited” and fast-growing resources: data, information and knowledge, and sophisticated computers and robots that can do many things more efficiently than human beings.
- Rapid urbanization and significant demographic changes are affecting birth, mortality, longevity, and populations’ age structure. The ease of transferring disease.
- The rapid increase in population triggers an “exponential storm”: the depletion of minerals, oil, wood, water, animals... and the horrifying degree of polluting air, land, water.
- Climate change. The loss of a variety of animals and flora.

- Many services can be supplied electronically, and this process is rapidly replacing traditional transaction methods (e.g., digital currencies and digital banking, artificial intelligence and blockchain-based contracts and legal services, and intermediation activities, autonomous cars, personalized medicine, etc.).
- There have been rapid and significant scientific and technological discoveries in a variety of areas: space, medicine, biology, agriculture, materials, etc.
- For the first time in human history, people today can live simultaneously in both physical reality and virtual reality.
- The global disparity between ecological means and the demand for food.
- We have sophisticated communication and transportation systems that enable us to move large quantities of products, as well as people and ideas, rapidly and at relatively low cost (rapid trains, ships and aircraft, delivery by drones, autonomous cars, etc.).
- We do not need huge factories to manufacture things in mass quantities. The internet of things already enables us to manufacture many things at practically near-zero marginal cost, in small amounts.
- The ability to obtain the rights to services (rather than ownership of assets) has paved the way to rapid growth in the “sharing economy” (Airbnb rooms, shared bicycles and cars, etc.).

Appendix B: How to Finance the SDGs

All the countries of the world have committed to support the SDGs. Therefore, all training, financing, and administration of achieving the SDGs rely on countries.

The SDGs bring to light some factors that are not incorporated in our capitalist economy: environmental, social, and general budget, consciousness issues, that have no prices on them. A capitalistic economy does not know how to deal with things with no price! If there were price tags, they would be distorted by the very system.

The SDGs, that are fully agreed upon by all countries, give us no possibility to go back to the old capitalist model. We must calculate the price for things such as combatting unemployment, education, clean and safe water, waste management, ocean and air pollution, land use lost to desertification, land degradation and loss due to sea-level rise, forest and agricultural depletion, growing urbanism, etc. Doing it, it will take too much time, something that we are not getting in the time of crises. So it is time to get an approximated approach.

The major idea is like this: the government is going to establish a retirement plan to the entire population. The retirement is going to be financed by a premium, which is going to be invested in the governmental bond. The entire sum is going to be invested in the SDGs. The deficit between the real profit from the SDGs and the real investment yield that has been promised to the bond holders, has to come from the implicit gains from the social,

environmental and consciousness approach (that may take a while to be seen in the national account)*. In principle the deal could be taken by the pension and insurance companies.

Having such approximated metrics will surely be better than doing nothing. This should be done by Governments. Private money will join after the new rules are set and made mandatory. Due to the urgency of the problems, instead of solving them one by one, let us talk about “Saving the World” with all the SDGs. By doing that, I suggest that governments make long-term bond issuings to the public. The yield on these bonds should be high enough in terms of current yield, which is around zero, when we take away purchasing power risk (Say, 5% plus linking to purchasing power or foreign exchange rates). The plan can allow governments to use public retirement programs, according to a set of rules. The terms can be determined by each country.

I think that this is a relatively small price to pay in the long run for the SDGs to save the world. I suggest investing only in projects that are aligned with the SDGs. This can be extended to the current needs such as COVID-19, scientific development, and moving industries to sustainable models such as Cradle-to-Cradle and The Natural Step. We must stop investments in projects that are literally destroying the planet (such as fossil fuels, unsustainable urban planning, etc). This must be a global effort of combined forces.

Some key considerations:

- The plan must not be amended or harmed retroactively.
- The loan can be collected by some governmental agencies: social security, the central bank, the national development bank, general budget, development budget, etc. On the other hand, it is possible to manage it through private funds that will be based on slightly different rules.
- In terms of regulation, there are states that a whole parliament can make a decision, and there are states where a single ministry may make the decision. The regulator must be held responsible for cashing the savings in and out (the accumulation, the pension). The regulator is responsible for a lot of money, and hence a lot of backing in the long term. The regulator must be supervised by professionals (and not by politicians).
- The citizen can deposit money in government bonds with 5% interest rates, index-linked bonds or exchange-rate-linked bonds. This rate has been selected because it allows for a good pension plan, given that there is a good saving period. These must be long-term bonds (highly recommended until death, or alternatively, until the retirement age of 67). I suggest no more than 25% of the average monthly wage. It should be impossible to get the savings out before maturity.
- The fund must be managed locally. That means that there will be no exchange risk, and all the money will be spent locally.
- If a person reaches retirement age, there is a summary of the savings and the yield. At that time the conversion factor comes into the picture. The total amount of the

* We must take into consideration the ability to stop investments in projects that are literally destroying the planet.

savings divided into the conversion factor should determine the monthly pension. This coefficient can change as actuarial circumstances change. It should be simple to manage, and with no management fees. That is better than all kinds of pension plans today where the interest rate is above what is known currently, and there is no interest risk.

- The terms of the program would be determined by a committee. There should be rules in place: If a person becomes sick, or has an accident (permanently or temporarily), or if a person becomes unemployed (permanently or temporarily), or if a person leaves the state (permanently or temporarily), etc.
- The details of the retirement program may change according to the specific country. The plan must be able to change by nationality or residency. People's moving patterns (from country to country) must be taken into account.

A country can do what an individual cannot: Lift itself off the ground by pulling its own bootstraps! These mechanisms can be established and activated within a short period. We can simultaneously deal with three major and pressing global challenges: The mitigation of major social and environmental threats through appropriate impact investments, the creation of jobs and reduction of job insecurity for millennials, and the re-establishment of retirement security for millennials and future generations.

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Transformation into a New Education Paradigm and the Role of Ecosystemic Leadership

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Abstract

The Education subgroup of the GL-21 project recognizes that education plays a triple role in regard to the new model of leadership. First, we need education to serve leadership, to help educate leaders of the 21st century. In order to do so, education itself needs to be transformed so it can deliver new curricula and new pedagogies and thus it needs new models of leadership to carry it forward. Finally, as the educational sector itself transforms, it can evolve into a space for transformational leadership. In other words, it can lead the change for society, as a venue where new knowledge and skills can be developed or even created, and where the future can be prototyped. Accordingly, education must model the change that society needs. It has to respond to new challenges to become the change we want to see in the world. In this paper, we will focus on the necessary changes to education and its leadership to accomplish such a mission.

1. The Rationale for Change of Educational Systems[†]

The existing “industrial” model of education has been criticized by many forward-looking educators for at least half a century, and the texts of some of its formidable critics such as Paolo Freire or Ivan Illich read astonishingly. However, what is different today is that momentum has accumulated, and many new forces that demand transformation of education for the needs of the 21st century have emerged in a very wide spectrum of global civilization.

On one side of this spectrum are pragmatists: those who suggest that the main task of education is to come to terms with existing demands of the economy and the society. They indicate a significant skill gap exists between what recent graduates know and what employers demand and both graduates[‡] and businesses[§] acknowledge that the education system is not adequately doing its job of preparing students for the real world. Furthermore,

* Substantial parts of this publication use materials from reports by Global Education Futures on the future of learning and leadership in education, and represented texts are coauthored with Joshua Cubista, Alexander Laszlo, Mila Popovich, Jessica Spencer-Keyse, Ivan Ninenko, and Pim van Geest.

† This section is excerpted from *Educational Ecosystems for Societal Transformation*, Ch.4.1 (Luksha et. al. 2018)

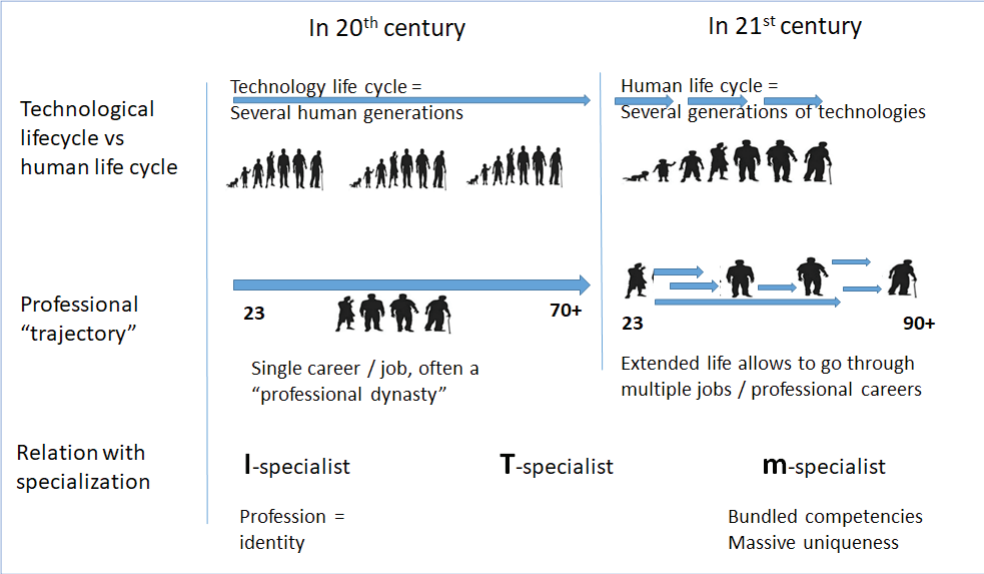
‡ <https://rda.worldskills.ru/project/voice-of-youth>

§ <https://www.hays-index.com/>

they indicate that many regions of the world do not even have access to basic education,* and that university education, even in its more traditional form, remains in high demand.

More radical demands come from innovative economic sectors, social change agents, and political leaders. They indicate that our society is on the move. It is becoming reshaped by hyperconnectivity and digitalization, increased automation of work, introduction of network-based governance models, the rise of many impactful and potentially disruptive technologies that can shut down many industries and influence our ways of living—nanotechnologies, genetic engineering, flying autonomous drones, and more.† Rapid technological change and resultant societal transformation demand new skills and new models of learning that will be fast, flexible, and increasingly personalized. Our civilization, especially the urban one, should be reinvented, and so should our educational system.

Figure 1: Learning and Contributing in Two Different Paradigms



Driven by technological and societal changes, the world of jobs transforms accordingly. One of the key manifestations of this is the transition from a single job career towards multiple careers. Educating for one profession in a lifetime was feasible when knowledge doubling happened in hundreds of years, and now, the doubling is happening in the span of months, or even days. Also, the shortening of the knowledge half-life time has been occurring rapidly. Existing systems cannot accommodate it, and a shift to life-long learning is required. Still

* <http://www.unesco.org/new/en/education/themes/education-building-blocks/literacy/resources/statistics>

† <https://rda.worldskills.ru/project/future-skills>

another pragmatic reason for a change is the system is open in the sense that the experience gained through our activities is not fed back into the less-experienced generation. Closing the loop is not trivial.

Figure 1 illustrates how a person could develop and contribute in the old industrially-situated system of the 20th century and the emerging new system of the 21st century. These systems are fundamentally different.

Finally, a growingly impactful community of leaders and changemakers sees a totally different role for education. Movements such as Fridays for the Future or Extinction Rebellion highlight the ultimate irrelevance of existing education in the light of existential threats that humanity is facing. Yet it is possible that education can become more than a service to existing elites and their outdated agenda. It is a sector that shapes worldviews, mindsets and skill sets of young people and adults alike, that essentially “programs” the way our society works. It is also a sector of safe experimenting and prototyping, a space of collective learning. And so, rather than reproducing the existing civilizational paradigm, education could embark on producing a paradigm shift for humanity: it could model, test, establish and scale up the practices of the civilization of responsibility, of sustainability, of peace, of open-heartedness and compassion, of mindfulness, of thriving. It can become a cradle, or a sandbox, for the civilization that emerges to evade existential challenges to humanity and fulfil our collective potential.*

Figure 2: Three framings of the demand for transformation (from GEF, 2018)

<p>‘Civilizational transit’: focusing on emerging social practices that help us recognize ourselves as a truly planetary species (e.g. Macy’s Great Turning, Eisenstein’s More Beautiful World etc.)</p>	<p><u>Key discussions:</u> how can education help us reinvent our relationship between ourselves, with our ancestors / descendants, and with our planet</p>
<p>‘Rebuilding urban civilization’: focusing on life quality & social impact (e.g. Sharing Economy, Scharmer’s Capitalism 4.0, Florida’s ‘Reinventing Cities’ etc.)</p>	<p><u>Key discussions:</u> new models of education that should complement existing ones (e.g. urban learning communities)</p>
<p>‘More of the same’: increasing economic efficiency / productivity / competitiveness in 21 century</p>	<p><u>Key discussions:</u> education is broken but could be fixed by introducing better pedagogies / ed tech & new curriculum</p>

* <https://futuref.org/educationfutures>

“A shift towards a new paradigm in education is required. The new paradigm must involve a renaissance of both human values and vision in action, transforming human learning and encouraging leadership that fosters lifelong learning and “right livelihood” for a healthy world. Our greatest challenges may be our greatest inspiration: to learn how to create a thriving future for ourselves and the planet together.”

Most notably, these three framings of the need for change are not mutually exclusive, but more likely nested within one another. We need to make education more inclusive, accessible, and relevant to the needs of our current societies. We need to make it more flexible, learner-focused, and increasingly life-long. And we need it to become future-prone, future-fit, and future-shaping, focusing on the learners and social relevance. Consequently, a shift towards a new paradigm is required. The new paradigm must involve a renaissance of both human values and vision in action, transforming human learning and encouraging leadership that fosters lifelong learning and “right livelihood” for a healthy world. Our greatest challenges may be our greatest inspiration to learn how to create a thriving future for ourselves and the planet together.

2. Multiple Avenues of Necessary Changes*

Existing educational institutions and systems, more often than not, tend to invest in conventional industrial processes and models that continue to reproduce outdated “ways of knowing”. While both digitalization of education and increased connectivity help the transition to a new model of education that may be of greater relevance to the demands of learners and other stakeholders, they cannot be seen as a “magic bullet”. Educational technologies are important but not indispensable for the transition needed, as they are the means but not the goals. What is needed is a true human renaissance of values, purposes and ways of being that embody learning for life and with life. The emerging paradigm that is called into being assumes the need for a holistic, rather than fragmentary change to the content of education, its methods, its organization and governance, and more.

2.1. Content & Learning Methodology

- Skills for Adaptation & Mastery: as we are moving towards the age of massive uniqueness in our work and industries, professional competences have become increasingly granulated, calling for personalized ways of developing them. Also, our ability to succeed in different contexts depends on a set of ‘21st century’ skills, including

* This section is excerpted from *Learning Ecosystems: An Emerging Praxis*, Ch.2.2 (Luksha, Spencer-Keyse, Cubista, 2020)

some “soft” skills that help us adapt to various contexts, and “existential” skills that help us live our lives in the best way possible.*

- **Learning for Complexity & Strategic Uncertainty:** as our society becomes more complex, we must learn how to make socio-technical systems “antifragile” and should be able to cope with uncertainty and diversity, and that calls for cultivating system thinking, and applying evolutionary frameworks of system action. Also, recognizing the interconnectedness of systems (ecological, cultural, economic, political and technological) requires a shift in perspective, seeing things through the eyes of others, and engaging in empathic communication that enables system sensing. This approach could lead to systems that are not only evolving, but also resilient; i.e., capable of recovering quickly in the presence of major and unexpected disruptions and attacks.
- **Sustainability and Regeneration-Oriented Education:** in order to implement sustainability, education needs to move towards action-based learning and model sustainable / regenerative relations, engagements with communities, etc.
- **Holistic Education:** as each person finds identity, meaning, and purpose in life through connections to the community, to the natural world, and to humanitarian values such as compassion and peace, holistic education aims to call forth an intrinsic reverence for life and a passionate love for learning.
- **Self-Guided Lifelong Learning:** self-guided learners are able to set goals, define pace and needs, attract and create necessary learning resources, and immerse themselves in a variety of learning experiences.
- **Joy and Play:** play as both the experience supporting learning and joy as one of the purposes of our being become important facets of education, through different formats of gamification and playification.
- **Diversity and Active Inclusion:** cultivating the ability to have conversations that bridge differences and which lead to peaceful negotiations and allow creation of safe spaces and empower people of different race and ethnicity, belief systems and gender identity, as well as people that have been underprivileged in different ways.

2.2. Learning Approaches & Frameworks

- **Knowledge at Our Fingertips:** an ever increasingly distributed model of learning via the Internet, in various forms such as online libraries, games, online newspapers and encyclopedias, webinars and courses, and other structured learning environments. Coupled with more traditional face-to-face ways of learning, it enables all forms of *blended* learning that combine online and physical activity.
- **Project-Based Pathways:** project-based learning prepares students to solve real world problems, encouraging them to gain knowledge and skills by investigating and

* See *Future Skills* report by Global Education Futures & WorldSkills <https://futuref.org/futureskills>

responding to a question, problem or challenge through learning by doing and authentic experiences.

- *Experiential Learning*: Many professions and trades require physical laboratories related to projects. Laboratory kits must be developed so that they could be delivered to students situated far away from a learning distribution centre. New methodologies must be developed to include virtual reality (VR), augmented reality (AR), mixed reality (MR), and other digital reality (DR) environments to facilitate effective development of the intended experience. Co-laboratories should also be developed to share the delivery burden and increase the diversity of experience gained. Since the rate of developing impactful experience varies from one person to another, personalized teaching and learning must accompany this approach.
- *Collective Learning Processes and Journeys*: enabling people to collectively explore, co-create and co-evolve across disciplines in interesting and stimulating ways allows us to experience “belonging to something bigger.” This can generate and maintain meaningful collective purposes, identities, and actions that stimulate co-creation, collaboration and collective learning. Collective processes can engage peer-to-peer learning and generative conversations, among other approaches.
- *New Roles of Teachers*: changing the learning environment and moving towards value-based, trust-based interactions require teachers, leaders and other educational change makers to obtain new skills such as facilitation, moderation, group dynamics management and situational leadership.
- *Digitally enhance pedagogies*. Modelling of learning and cognitive processes must also enter a new era, not in isolation from, but in symbiotic relation with human-compatible machines.*†‡ New ways of measuring learner achievements and learning processes (including biometric measurements) open avenues for a finer, more personalized and timely feedback to learners that can greatly enhance their capacity to learn.

2.3. Organization & Governance of Learning Processes

- *Evolving Assessment*: evaluation and assessment can be given as valuable and encouraging feedback, and in order to do so it needs to take into account social and emotional intelligence, creativity, ability to cooperate and co-create, as well as other critical skills needed for the future. Measurements need to be done in new and dynamic ways, as “creative profiles” describing a range of multi-modal abilities, and assessed

* Yingxu Wang, Sam Kwong, Henry Leung, Jianhua Lu, Michael H. Smith, Ljiljana Trajkovic, Edward Tunstel, Konstantinos N. Plataniotis, Gary Yen, and Witold Kinsner, “Brain-inspired systems: A transdisciplinary exploration on cognitive cybernetics, humanity, and systems science: Towards autonomous AI,” IEEE SMC Magazine, vol. 6, no. 1, pp. 6 - 13, Jan 2020

† Mason Dambrot, Derrick de Kerchove, Francesco Flammini, Witold Kinsner, Linda MacDonald Glenn, and Roberto Saracco, Symbiotic Autonomous Systems. White Paper II. Piscataway, NJ: IEEE Future Directions, Oct 2018, 227 pages. <https://digitalreality.ieee.org/images/files/pdf/SAS-WP-II-2018-Finalv3.2.pdf>, <https://symbiotic-autonomous-systems.ieee.org/white-paper/white-paper-ii>

‡ Witold Kinsner and Roberto Saracco, “Towards evolving symbiotic cognitive education based on digital twins,” in Proc. 18th IEEE International Conference on Cognitive Informatics & Cognitive Computing, ICCI*CC18 (Polytechnic University of Milan, Milan, Italy; July 23-25, 2019) pp. 13-21, Jul 2019.

in ways that do not destroy curiosity, creativity, and cooperation, and allow people to learn by mistakes.

- *Rise of New Providers*: the variety of places and ways to organize education grows due to the development of online technologies, and equally due to expansion of face-to-face formats that form a completely new learning landscape (e.g. education clubs, live libraries, and flying universities). They are based on the diversity and interaction of different approaches and methodologies, making it possible to choose from a range of what suits one's personal learning style and worldview best.
- *Networks & Platforms for Learning*: network-based education weaves learners and providers into a web of interconnected learning spaces and processes, creating flows of information that allow such systems to become increasingly flexible and adaptive, while at the same time becoming increasingly global. In addition, digital platforms and tools such as badging systems help integrate providers and connect learning experiences with larger learning journeys.
- *New Role of Cities & Regions*: learning processes move outside of specialized institutions into distributed networks of learning opportunities that exist at the city or regional level, so that whole territories become “spaces for learning for life”.
- *Support-oriented and Shared Governance and Leadership*: national and local governments and other major stakeholders recognize the increasing variety of learner types and needs, and learning models to support them, and engage a wider set of leaders representing grassroots civic governance and teacher / learner driven initiatives.

3. The Awakening Through COVID-19

In January 2020, a new virus started to spread across the planet, quickly reaching out to all continents but Antarctica, sufficiently contagious and deadly to be recognized as the worst pandemic in 100 years. Coronavirus, or COVID-19, was hardly a surprise to epidemiologists and futurists who have been forecasting “the threat of new and reemerging diseases and immune microorganisms,”^{*} among the largest risks for years. However, governments and businesses around the globe were largely unprepared to deal with the situation, and a worldwide cascade of lockdowns of cities and regions came as a shock to the economy and society. The lockdown has forced societies to go into self-isolation—and to move all activities online whenever possible.

The educational sector, obviously, was among the first victims of this decision. As a result, it faced perhaps the largest disruption in its whole history: within a month and a half, literally the whole world stopped going to schools and universities. As of April 2020, over 1.7 billion learners of all levels are currently staying at home, 90% of all enrolled learners in the world.[†] The majority of schools and students were forced into different forms of online learning through online learning platforms and specialized apps.

^{*} http://107.22.164.43/millennium/Global_Challenges/chall-08.html

[†] <https://en.unesco.org/covid19/educationresponse>

Massive online learning was frequently touted as the future of education, and many futurists anticipated that it could possibly replace face-to-face education completely one day. However, the actual transition in the first few weeks demonstrated negative effects* such as:

- Mass-scale use of untested methodologies of teaching and student assessment, and also interruption to the normal flow of teaching and assessment that can influence anticipated long-term learning outcomes.
- Decline in the socio-emotional and physical wellbeing of students (due to increased screen time and lack of activities that complement cognitive learning, such as peer-to-peer interaction and physical exercises), and equally of teachers (due to significant changes in the way of teaching and the amount of adaptation it requires).
- Intensified pressure on parents and families who now have to take responsibility for organizing learning processes and rhythms to make sure students are engaged and focused on learning, as well as to support students' acquisition of skills necessary for online learning.

Most importantly, much like governments and businesses, education systems were not prepared for the transition, and hundreds of thousands of schools and millions of teachers were thrown into the deep water and had to learn on the go how to build their online curriculum and use new teaching tools. The ongoing quarantine has caused a massive learning process for the education sector, and after the COVID pandemic schools will face a “new normal”. We can suggest some recurrent statements regarding possible future scenarios†:

- *Online & EdTech are here to stay.* EdTech has played a critical part in establishing continuity of education systems all over the world, and despite all hurdles, school systems are quickly adapting online teaching methodologies. It also becomes evident that some assumptions around EdTech are faulty: it has to enhance human-to-human interaction rather than replace teachers and students with robots and simulated environments. Online pedagogies will continue to evolve, and further investment in the digital field and the creation of network-based learning models are inevitable. Being online invites teachers to use the tremendous resources of the internet to make knowledge both accessible and facilitate the acquisition of skills, implying a new role for teachers as curators and facilitators of learning journeys.‡
- *New curriculum for changing realities.* COVID-19 is anticipated to become a major disruptor for existing models of economy, calling for increasingly “physically disjointed” value chains, digitally enhanced, automated and unmanned solutions§. As a result, a transition to “future skills” demand will likely occur very fast, and

* As it is still early to provide a comprehensive assessment of the situation, the evidence is still more anecdotal, e.g. <https://voxeu.org/article/impact-covid-19-education> or <https://blogs.worldbank.org/education/educational-challenges-and-opportunities-covid-19-pandemic>

† Derived from a number of online conventions on “education after COVID”, including WISE & Salzburg Seminar online conference, Mifras & Nomada roundtable, Weaving Lab discussion series, Learning Planet meetings, etc.

‡ <https://www.weforum.org/agenda/2020/03/4-ways-covid-19-education-future-generations/>

§ <https://www.project-syndicate.org/commentary/covid19-great-economic-mismatch-by-dennis-j-snowder-2020-04>

the relevance of traditional curriculum and pedagogies will be challenged at scale. However, what is required from schools is not focus on some kind of new employability skills, but an increase in general adaptability of students by helping them become open-minded, creative, emotionally intelligent, and collaborative. This requires a new set of methodologies for experiential learning, both in schools and at a distance.

- *Nurture the human dimension.* Human connections are essential for the wellbeing of teachers and students, and the efficacy of learning processes. Socio-emotional learning and experiential learning should become the foundation for the curriculum and pedagogies.
- *Rising role of multi-stakeholder partnerships.* The current crisis has highlighted the need for efficient partnerships between teachers, administrations, learners, and families, all of which ought to be supportive of each other and striving towards shared goals. Other important partners that stepped in to support education are technological companies, media, trade unions, local and religious communities, and many other players. The resilience of educational systems will only be established if these partnerships continue to be cultivated, and if hierarchy-based “industrial” education systems give way to decentralized local learning ecosystems.
- *Future anticipation capability.* Even if futures are increasingly uncertain, it does not mean they cannot be anticipated, and as the Corona Crisis shows, with better anticipation capacity, many negative consequences can be reversed.

Education systems, teachers and students **have to become future fit** (Smitsman, Laszlo, Luksha, 2020). For school systems, this implies the need to place mechanisms that would pivot when disasters strike. Many analysts agree that the COVID-19 pandemic is probably an outstanding event, but we can anticipate other “black swan” events of a similar magnitude and impact to happen in the coming decades. Many other risks are brewing in our increasingly complex and strategically unpredictable civilization—climate crisis’ impact on the biosphere and human systems, risks of global political, social, and economic turmoil, novel risks of disruptions to vital technological and economic system (Internet, energy, transportation etc.), possibility of a new world war, and more. **The current crisis is an invitation to relearn by ourselves and reimagine education.**

4. Are we facing a New Sputnik Moment?

Education is becoming not only necessary, essential and quintessential, but also existential. It is apparent that with COVID-19 crisis, we have entered another Sputnik moment.

4.1. The Sputnik Moment

Humanity has experienced many paradigm-changing events. Just over 60 years ago, a small satellite, Sputnik 1, was placed in the Earth’s orbit by the Soviet Union, and we realized how great an accomplishment that event was. Many teachers use the recorded beep sounds from Sputnik 1 to open their lectures and tell the students what happened on October 4, 1957

(the Sputnik moment) and how we wanted to learn more, and how that inspiration led to dreams about the Moon and more.*

4.2. China's Sputnik Moment 2

Almost 60 years later in May 2017, a 19-year old Ke Jie, the best player of the ancient 2.5 thousand-year-old game of Go, lost the game to Google's AlphaGo. Not once, but three times. This was the Sputnik moment for Zhongguancun [jong-guan-soon], the Silicon Valley of China.† The event started a fire in the Chinese AI community. Actually, they seemed to be ready for that moment, after 280 million Chinese watched the previous March 2016 five-game Go series with the Korean player Lee Sedol. In July 2017, China announced a plan to become the centre for global innovation in AI theory, technology, and applications by 2030.

When IBM's Deep Blue defeated Garry Kasparov in 1997, the Sputnik moment did not occur. It was not because the chess board had only 8 by 8 squares, while Go had 19 by 19. The core reason was that AlphaGo used AI algorithms that were much superior to the Deep Blue algorithms. These algorithms are becoming very disruptive not only to industries but also to people. Job losses in the range of billions may occur in all types of professions. Profound inequality could also result from the winner-take-all economy‡. The advantages of "cheap labour" may also vanish.

China's Sputnik moment has not only altered the course of AI development, but also sparked something very transcendental to human life. When the game progressed and Ke Jie realized around 2 hours and 51 minutes that all his talent, knowledge, diverse strategies and experience could not overcome the machine, he removed his glasses and wiped his tears.

All those who saw this, supported him in the fight. The machine won, but he became a champion to many. Sympathy. Solidarity. Understanding.

4.3. Sputnik Moment 3

We are now experiencing another Sputnik moment due to the COVID-19 pandemic, which has revealed how inadequate our scientific, engineering and technical capabilities and education are.

We must change at the roots of education with the clear objective of reducing the rampant one-dimensional profit-oriented economic paradigm with its consequences of self-serving greed and complacency. We must remind both ourselves and human-compatible machines§

* Alex Joffe, "Coronavirus: A Sputnik Moment for Science Education," Begin Sadat (BESA) Venter for Strategic Studies, Paper No. 1,536, April 20, 2020. <https://besacenter.org/perspectives-papers/coronavirus-a-sputnik-moment-for-science-education/>
<https://besacenter.org/wp-content/uploads/2020/04/1536-Coronavirus-as-Sputnik-Moment-Joffe-final.pdf>

† Kai-Fu Lee, *AI Superpowers: China, Silicon Valley, and the New World Order*. Boston, MA: Houghton Mifflin Harcourt, 2018, 272 pages. {ISBN-13: 978-1328546395, hbk}

https://www.amazon.ca/AI-Superpowers-China-Silicon-Valley/dp/132854639X/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=&sr=

‡ Amy Webb, *The Big Nine: How the Tech Titans and Their Thinking Machines Could Warp Humanity*. PublicAffairs, 2019.

https://www.amazon.ca/Big-Nine-Thinking-Machines-Humanity/dp/1541773756/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=&sr=

§ Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control*. 2019.

https://www.amazon.ca/Stuart-Russell/dp/0525558616/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=&sr=

about effective altruism* interwoven with the value of life.^{†,‡,§} We must teach that life is much more than a dispensable commodity. We must also realize that to achieve that level of engagement in the process of creating a better world, one has to intertwine Isiah Berlin's fundamental "freedom from" with "freedom to".[¶]

COVID-19 has a considerable chance to accelerate the transition from the old industrially-situated system towards a new paradigm, an ecosystemic-situated system.

5. New Leadership for the Paradigm Shift**

The last decade saw a remarkable evolution of paradigms and approaches in governance all over the world, a transition from a centralized, hierarchy-driven governance towards a polycentric, distributed, and network-driven one. As the gathering by Global Education Leaders Partnership & Global Education Futures acknowledged in 2017,^{††} new types of governance are currently emerging in education, including:

1. Transition from hierarchy to "networked" governance, implying that development of education occurs not by promoting new "educational reforms" by a centralized top-down approach, but by cultivating suitable approaches bottom-up.
2. Design of new tools that support this bottom-up development: "scanning" and "pulling" educational innovation competitions and acceleration programs, grants provided to schools and teachers, maps and professional networks of innovators, and creating incentives and promotions for innovators.
3. Cultivation of communities of practice for new education paradigm practitioners that can creatively search for opportunities for design and implementation of innovations (having sufficient time and resources to reflect, discuss, and experiment)
4. Taking into consideration the diversity of various regions and schools (economy, resource availability etc.).
5. Using education as a key vehicle for socio-economic development at the regional and national scale.
6. Changing role of governments that become facilitators of "fair-game" opportunities and equity while maintaining growth of diversity.

* Peter Singer, *The Life You Can Save: How to Do Your Part to End World Poverty*. Random House, 2009.

<https://www.thelifeyoucansave.org/the-book/>

† Yuval Noah Harari, *21 Lessons for the 21st Century*. New York, NY: Singal, 2018

https://www.amazon.ca/Lessons-21st-Century-Yuval-Harari/dp/0771048858/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=1589176072&sr=1-2

‡ Max Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence*. New York, NY: Random House, Vintage, Knopf, 2017.

https://www.amazon.ca/Life-3-0-Being-Artificial-Intelligence/dp/1101946598/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=&sr=1-2

§ Steven Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress*. New York, NY: Viking, 2018.

https://www.amazon.ca/Enlightenment-Now-Science-Humanism-Progress/dp/0525427570/ref=tmm_hrd_swatch_0?encoding=UTF8&qid=&sr=1-2

¶ https://en.wikipedia.org/wiki/Two_Concepts_of_Liberty and

http://cactus.dixie.edu/green/B_Readings1_Berlin%20Two%20Concepts%20of%20Liberty.pdf

** Major part of this chapter is excerpted from *Learning Ecosystems: An Emerging Praxis*, coauthored by Pavel Luksha, Jessica Spencer-Keyse, and Joshua Cubista (2020).

†† https://www.globaledufutures.org/images/people/GEF_GELP2017_TransformingEducationforComplexity_report.pdf

These shifts can be seen as numerous symptoms of a paradigm shift that currently occurs in governance and leadership approaches. There is a potential for cultivating a new way of thinking and action in education and beyond, which is more organic, natural and organism based, closer to how our biological systems seem to operate, rather than machine-based mechanistic premises that the industrial civilization operated upon. This unleashes the power of different ways of organising ourselves, our minds and our relationships that create the potential of moving into a new stage of civilization development. The emerging format of a learning ecosystem is often touted as a new paradigm of education, contrasted with the existing educational system.

The essence of what it means to learn “ecosystemically” is multifaceted. Ecosystemic “ways of being” are interconnected and seek to form patterns and rhythms that synchronize related parts of society. Learning ecosystems are not isolated “responses” to challenges that the educational system faces, rather they support the integration of other sectors towards collective learning, e.g. integrating various types of innovation, entrepreneurial, and innovation ecosystems in hi-tech clusters. Learning across multi-stakeholder groups fosters opportunities for uncommon collaborations and, when partnered with intergenerational and lifelong learning opportunities, set the stage for a radical shift in how education systems are organized. There is no standardized “one-size-fits-all” approach to a new paradigm of learning in our complex times, and learning ecosystems, by their nature, are locally-attuned systems that respond to local learner and stakeholder needs.

A working definition of learning ecosystems suggested in the 2020 GEF report on *Learning Ecosystems: An Emerging Praxis* proposes that:

- Learning ecosystems are webs of interconnected relationships organising lifelong learning.
- They are diverse, dynamic and evolving, connecting learners and community to foster individual and collective capacity.
- They are dedicated to co-creating thriving futures for people, places and our planet.

Around the world we see a wide spectrum of emerging approaches to leadership that share a common ground as it relates to affecting local and global positive change. This kind of leadership reflects the shift that is required to shift from the industrial education system approach towards the ecosystemic approach. Literature in the business field has already begun to explore the requirements of “ecosystem CEOs” who need to learn how to work differently as they are expected to handle multiple, often emerging, elements which require new practices, dynamics, and relationships. The focus then moves to collaboration in this distinctively new approach.* Below are the differences we have identified as emerging in leadership for learning ecosystem leaders.

* https://www.russellreynolds.com/en/Insights/thought-leadership/Documents/Beyond%20the%20Corner%20Office%20_Leadership%20in%20a%20Multi-Company%20Ecosystem.pdf

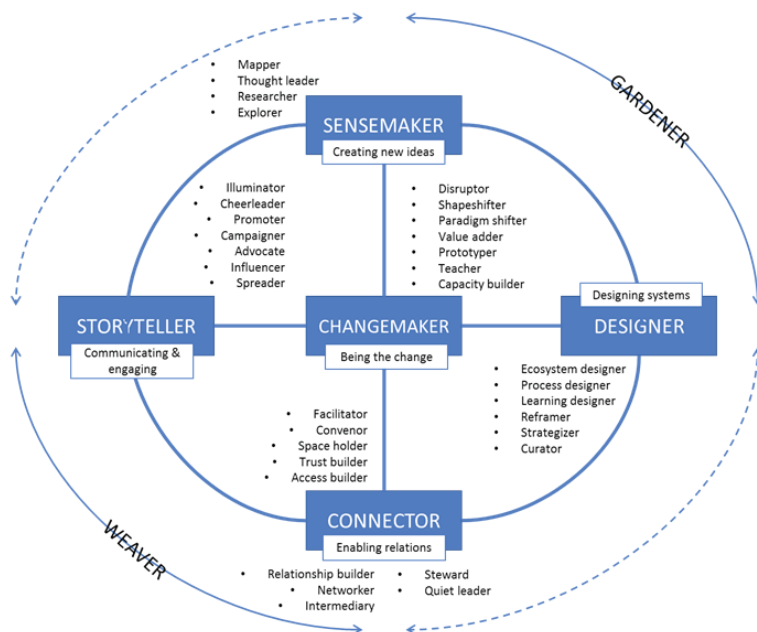
Table 1. Contrasting Industrial and Ecosystemic Leadership Models

Industrial Leadership	Ecosystem Leadership
Hierarchical, top down power structure and flow. Focus on people being a means to an end. People rely on the structure which is linear and logical. Communication is one-way and mainly involves transmitting data.	Horizontal/flat networks and communities structure working in the flow of all directions. People are recognised and valued at the individual and collective level as interdependent, complex beings leaning into ambiguity. Communication is typically active and involves deep listening, enabling vulnerability with questions and storytelling.
Command and control with an authoritative approach to relationships. They might use fear, manipulation of charism as tactics and reward, threat, & demand compliance. The goal is to cultivate a work culture that encourages separation, segregation, & self-centeredness.	In service to others, fluid authority and transparent, authentic relationships. They are collaborative and might use facilitation, enabling, wisdom and humor as tactics. The goal is to cultivate a work culture of integration, empathy, & compassion for others.
Closed and guarded around information using routine processes. You either succeed or fail and should be afraid of the latter with a tendency to focus on short-term goals.	Shared, co-created across boundaries, fostering creative innovation using lifelong learning and regenerative processes. You are encouraged to experiment, take risks and learn with a prioritised long-term view. Feedback loops are used.
Representation of the workplace is often homogeneous.	Representation of the workplace is diverse.
Competitive mission, with an intention to win and drive others out.	A collaborative mission which they align internally and externally, paying attention to the webs of the system to work with others who share their values.

How do ecosystem leaders identify their roles in relation to this new paradigm and how do they see different kinds of roles begin to emerge across the ecosystem? When asked to identify and share, there were five major categories that presented themselves within a spectrum of what we call gardening and weaving in evolving learning ecosystems (Figure 3):

- Connector;
- Storyteller;
- Sensemaker;
- Designer; and
- Changemaker.

Figure 3: The Proposed Model of the Ecosystemic Paradigm Leadership



As shown in Figure 3, the **changemaker** is at the heart of transforming learning and education. This is at the centre of their aspiration and aim: to be the change they want to see in the world, as well as to create the change locally, sometimes just for people and/or the planet. This role ranges quite widely and showcases the multifaceted aspect, as well as the multitude of ways we can operate from a space of identifying as a changemaker. Some focus predominantly on the sensemaking aspect as their contribution to the ecosystem, which might be in the form of generating new ideas. This could also look like a social entrepreneur who has a great shapeshifting ability as they are often on the ‘frontline’ developing relationships and figuring out the best way to add value to the entire ecosystem.

The emerging role of ecosystem **storytellers** is particularly significant at this time, as the myths we tell ourselves play a huge role in how we perceive, act and behave in the world. Joseph Campbell, in *The Power of Myth*, defines the function of a mythology as “the provision of a cultural framework for a society or people to educate their young, and to provide them with a means of coping with their passage through the different stages of life from birth to death.”* A myth then is ultimately bound to the society and time in which it occurs, interconnected with culture and its environment. We are living in the myth that science, which connects us together, solves everything, but in the 70s the same idea was brought into organisational studies as a uniting myth. It is a story we tell one another

* <https://www.amazon.co.uk/Power-Myth-Joseph-Campbell/dp/0385247745>

to figure out what is meaningful and what is not. Storytellers in the ecosystem now play the role of showing the way of what is possible; this could be at the micro level up to the meshwork level.

These various roles are bound by the two overarching elements of **gardening** and **weaving**:

- *Weaving* is a process of nurturing trust and creating relations between people through curating circles, hosting conversations, and empowering others to step forward and take the lead. It works as “weaving” the tapestry of social relationships within an ecosystem, whereby its many participants align in vision, values, goals, and strategies. Here, an ecosystem leader works with what is *available*, strengthening communities and relations within an ecosystem.
- *Gardening* is the process of creating circumstances for systemic change, and more actively bringing this change forward through the cultivation of new opportunities and the facilitation of the existing ones, and even mitigation or “pruning” of certain opportunities and processes less desired. Here, an ecosystem leader works with what is *possible*, guiding the evolution of an ecosystem towards more desirable outcomes.

Ecosystem leaders do not constitute a special new position, but a new model of leadership that can be exhibited by literally any type of a player or stakeholder within education, such as:

- *Teachers, Educators, and Innovators* can launch and facilitate their own communities of practice to connect learning to local places, opportunities for personalisation and passion, rhythms and rituals, development towards emerging new facilitation styles.
- *Organizational Leaders* can cultivate conversations within their organization and with other leaders in their sector on how to become more ecosystemically oriented, and prototype the development of their own ecosystem by nurturing the capacity of their teams to organize ecosystems.
- *Young Professionals and Women Professionals* can develop entrepreneurial environments to ease their transitions from the learning environments to creative environments, and establish the transfer of experience from themselves and from seasoned professionals.
- *Young People, Parents, and Families* can organize peer-to-peer learning events, and also support transformations of their learning institutions, as well as help to map their local learning ecosystem and its resources.
- *Funders* can develop new models of funding and new metrics of impact that can help cultivate synergies within the project portfolio as well as projects supported by other funders, to help connect them to ecosystems.
- *Policymakers* can engage grassroots leaders and embrace multi-stakeholder-oriented approaches to policymaking, build authentic relationships, and cultivate long-term purpose-oriented communities of practice that can stand behind policies we institutionalize, etc.

The journey of creating learning ecosystems is not an easy one. It requires personal courage and stamina, it asks for a lot from the team members and the community, and it invites work that can span generations. But this may be one of the most meaningful ways to spend the time and the energy of a leader in education and beyond. In this time of transition and upheavals, we need new islands of stability and thriving to emerge, and leaders that will carry forward the evolutionary transition of our civilization in a peaceful, non-violent, yet powerful and self-evident way of becoming.

6. Our Proposal as a GL-21 Working Group

As a working group, we recognize the need to model “the change we want to see in the world”. We, therefore, believe that the group’s exploration and initiatives should already manifest some principles of the 21st century leadership in education, including ecosystemic leadership.

The following suggestions from our group will be the focus of our work between May and December 2020 (during the main stages of the project):

1. Use the GL-21 related e-conferences in June 2020, as well as in Geneva & Toronto (October 2020) to hold conversations, panels and workshops on new models in education and of leadership for education. These activities could address issues, opportunities and challenges within the formal system and beyond. The results should be published in the most impactful fora.
2. In partnership with Global Education Futures, WorldSkills, IEEE, ACM Societies, Global Education Leaders Partnership, Learning Planet, Weaving Lab, University for the Planet, and others, conduct a series of global sessions on the future of skills, learning and education leadership in the post-COVID-19 world. The sessions should engage industry experts and educational professionals from the existing & emerging sectors of the global economy.
3. Launch a series of conversations with learners on the future of learning and new models of leadership, beginning with communities in Canada, US, Russia, Western Europe, South Africa, Mexico, Brazil, Colombia, Argentina, and other countries engaged in the development of such new models.
4. Similarly, engage in a series of conversations with groups of female learners, e.g. IEEE Women in Engineering.
5. Develop methods of collecting data related to the new models in education with emphasis on cognitive development of learners.
6. Develop new approaches to identifying and measuring an individual’s
 - (i) current level of knowledge,
 - (ii) gaps in the required knowledge;
 - (iii) kind and level of skills,

- (iv) gaps in the skills that will be needed in the near and long-term future;
 - (v) the level and rate of cognitive development; and
 - (vi) the gaps in cognitive development.
7. Identify best collections of data on educational processes, and finding the best repositories of such data (e.g., the IEEE DataPort has been developed to be much more than a repository of data, and a source to reproduce research results).
 8. Formulating possible implementations of the cognitive digital twins and symbions.

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The World Health Crisis: A Historic Chance for a New Global Political Project

With a special emphasis on the responsibility of the academic milieu*

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Abstract

In order to understand “What the world will look like after the pandemic”, we must first understand the present we inhabit and learn from the lessons of the recent past. The COVID-19 pandemic is merely the latest—if, unfortunately, greatest—of the various crises that have continuously eroded the foundations of our global representative democratic system since its creation in 1956. Yet unlike its predecessors, it striking athwart the various sectors of society serves to highlight their respective shortcomings and occasions an objective, ruthless and thorough examination of the economic, political, social and moral implications and consequences inherent to their revival. We are thus afforded a historic opportunity to fundamentally recalibrate the essential pillars of global society along fairer, more sustainable, more inclusive and more transparent lines. This Herculean task will require the collaboration of countless specialists, scholars and leaders across all sectors of society, whose sage input – based on collective millennia of accumulated expertise and wisdom in a “society of knowledge”—will prove invaluable to elaborating new societal guiding principles appropriate to the realities of the new millennium. This new cultural model must not only countervail the oncoming societal, cultural and economic shocks of rapid technologization, globalization and worldwide development, but also safeguard a vision of hope and confidence in mankind’s chosen path forward—while allowing for ad-hoc recalibrations of its constituent parts when proven ineffectual. The existing global networks of power, capital, knowledge and wealth can thus be reshaped into a new framework within which each of the world’s countless citizens can not only be, but also become.

In order to understand “what the world will look like after the pandemic”, we must first understand the present we inhabit and learn from the lessons of the recent past.

The past months have highlighted two major positive aspects: the personal responsibility of individuals who, irrespective of particular political regimes, or the quality of administration, or of the varying degrees of economic and social development, have shown a high civic responsibility; and the degree to which advancements in communication technology could prove useful in the event of a pandemic.

* This article is the author’s keynote opening speech for the video conference on *How will the world look like after the pandemic?* organized in May 2020 by the Institute for Advanced Studies in Levant Culture and Civilization and the Black Sea Universities Network.

At the same time, the current global situation is highlighting the mediocrity of political leaders, the inefficiency of economic and financial systems based on maximizing profits in solving matters of public health, the limitations of current medical science and of science in general, as well as the risks associated with technology's unbridled progress. Two tales from our childhood, the Emperor's new clothes and the Sorcerer's Apprentice, seem transposed into modern-day reality.

In hindsight, in the first two decades of the 21st century, mankind experienced two crises: the crisis of globalized terrorism, beginning with September 11, 2001 and the financial crisis between 2004-2009. After each of these crises, we were told—as we are again being told in the present crisis—that “the world will not be the same”. However, our post-crisis experience has shown that the world did in fact remain the same; and that, in time, things even got worse. The repressive actions that followed 9/11 did not end terrorism; on the contrary, terrorist acts became more frequent, because the solutions were limited to foreign military interventions and intensifying internal security measures, instead of pursuing broad international efforts to create a culture of peace.

The disastrous effects of the economic crisis of 2004-2009, brought on by reckless fiscal policies, were primarily felt neither by the banks, nor by the banking system itself, which played an essential role in its propagation. Neither were ratings agencies blamed or their credibility questioned, so the existing system continued unhindered, laying the groundwork for similar crises in the future. Betrayed by the administration, it was the citizens themselves who had to suffer and pay the price for the crisis.

The military-industrial complex, the political leadership and the banking system proved incapable of dealing with these crises back then. We cannot expect them to do so now.

When the Great Depression hit in 1929, Albert Einstein stated that a crisis cannot be solved by those who produced it. This is why I believe that, as long as political leadership is dominated by mediocrity and populism and the economic milieu focuses solely on maximizing profit, the responsibility falls on the academic milieu to elaborate a strategy that can protect mankind, citizens and democracy alike, and to control the ways in which technological progress and biomedical research can ensure the common good and limit their negative effects. Current governments obsessed with adherence to regulations preventing the virus' further spread on the one hand and with budgetary restrictions on the other, may well see the trees, but lose sight of the forest. It is high time that the academic and research community got involved in a debate on the future of the human society. In a globalised world, where the main social actors are only interested in achieving aims concurrent to their own interests, the only critical voice can come from the academic milieu, which can underpin an analysis capable of tackling interconnected economic, social, cultural, educational and moral issues.

Today, we have a responsibility to work together for the common good, owing to our immediate social responsibility to prevent the abuses of power that could occur as a result

“Intellectual solidarity can constitute a foundation for creating a new global political architecture.”

of the state of emergency under which most of the world is placed. Let me be clear. I am not referring to a direct involvement in politics. The period of 1989-1990, when the intellectual elite of Eastern Europe successfully mobilised millions of people to end the dictatorial regimes and the Cold War, remained unique in history. In my opinion, the phenomenon of liberated populations who elected university rectors, writers, philosophers and scholars as the first democratic heads of government cannot be replicated in the current century.

“The academic and university establishment must be cleansed of the virus of populism and science’s fundamental mission must be reaffirmed: the search for truth.”

In the current context of financial interest groups either overtly or covertly manipulating public opinion, coupled with a degradation of our social climate, the top representatives of the current academic milieu cannot engage in, but are called upon to arbitrate and coach the political game.

There can be a positive collaboration between the academic and political spheres. In order to answer the challenges inherent to times of rapid change, politics can draw inspiration from science in order to reorganise itself along shared values: an authentic and balanced dialogue that favours an exchange of ideas, and respect for the truth. The academic milieu can be viewed as a precursor and a model for cooperation without exclusion or liminality. Intellectual solidarity can constitute a foundation for creating a new global political architecture.

Does the academic milieu have anything to learn from politics? Certainly. It can learn from the successes, and moreover from the failures of the political environment in order to become more prudent in crafting economic, political and social projects for which thorough impact assessment surveys have yet to be carried out, and whose implementation is outsourced to third parties. From statesmen’s experience, academics and scholars can learn what it means to be responsible for decisions that dictate the lives, freedom and sometimes the death of millions, and which can lead to the collapse, emergence and progress of entire countries. Let us not forget that statesmen can pay for these decisions with their careers, with their liberty, or even with their life.

The academic and university establishment must be cleansed of the virus of populism and science’s fundamental mission must be reaffirmed: the search for truth. Academic research does not hinge on political correctness, and scientific truth is not certified by the number of likes, shares or upvotes it receives. Yet in order to restore the academic environment to its previous capacity as an intellectual and moral model, we must rectify the compromises which academic research and higher education have made in pursuit of financing interest or enhanced visibility. To use scientific discoveries for the common good and in respect of universal values is a moral responsibility to society in its entirety, especially so in an age of digital discoveries that threaten to nullify the human component, leading to the automation of society.

In my opinion, this debate must follow two main avenues of inquiry. The first must focus on the responsibility of the academic milieu and scientific researchers to develop a sustainable strategy capable of capitalising upon scientific and technological progress.

“The essential differences between political systems stem from the ways they manage uncertainty.”

The second line of inquiry must tackle progress from a moral and ethical perspective. It is in this vein that pressing topics such as artificial intelligence and medical engineering need to be debated. It is my belief that such a debate is of the utmost importance, especially so in times of crises, when the fundamental values of mankind need to be defended.

The current world health crisis must be examined in all its guises: economic, political, social, and moral. The meaning the mass media almost exclusively confer is that of a cataclysm, or a disaster. In ancient Chinese culture, however, the ideogram for “crisis” signified both “danger” and “opportunity” at the same time.

Which opportunity? The opportunity for a change. Whose change? The change of the system. Which system? Of the current economic and political system. How attainable is this? For now, we understand that we cannot do without the current financial system in the absence of a functional alternative concept, but we can nevertheless limit the banks’ greed; we cannot dismiss the current internal and international security arrangements, but we can limit their abuse. This does not mean that a change must not be prepared in advance, as the recent health crisis has highlighted something even more profound: the dissonance between the current globalised political and economic system, and the cultural model that served to define it upon its conception.

One major issue lies in the fact that the dissonance between the real and the speculative economy on the one hand, and that between bureaucratic administrations and their citizens on the other, have negatively affected an element essential to both democracy and the market economy: **citizens’ trust**. There is the risk that public discontent, put on hold during the crisis, might feed into movements bereft of ideology or leadership, channeled by personas without an identity and mobilised along social networks, which, taking advantage of the anonymity created, could then generate a protestocracy that threatens representative democracy and creates the premises for a drift towards authoritarian regimes.

In order to regain the trust of our citizens, merely restarting the social dialogue is not enough. It is necessary to create a new **cultural model**, as no new political project can be successful if not preceded by and founded upon a cultural model, one relying on moral values. These are the only values capable of linking together the positive energies of society.

The 21st century requires a new cultural model, one that is not only able to counteract the economic and social shocks of globalization, but also capable of creating a vision of hope in a future characterized by chaotic developments and uncertainty. We now have a historic opportunity to put forward such a project.

Political and economic solutions imperatively required at present might be expedient in addressing the problem in the short term, but in the long run will not prove efficient unless paired with the use of available intellectual resources to craft a new cultural model for the world to come. To create long-term strategies starting from existing policies, and to later craft a vision of the future based on these long-term strategies—no matter how sustainable they were—are the only means moving towards the future facing backwards. Conversely, should we start from an inspired vision of the future in the present, we can advance facing forward, noticing both forthcoming obstacles and impending dangers at the same time.

The current global health crisis is distracting our attention from one obvious observation, obscured by our obsession with globalisation. We are transitioning from a unipolar world which, by the end of the Cold War, replaced the bipolar world of the East-West divide, to a world of multiple polarities. This multipolar world opens up several new avenues, and today, no model can claim to provide the only solution anymore. Therefore, a critical examination of the globalization project (which cannot now be prevented from coming to pass) is always necessary and welcome, especially now when it appears to have been abandoned by the very states that initiated it, having become uncontrollable; and there is the temptation to use the ongoing pandemic in order to justify this abandonment.

If we continue to shape projects without taking into account the inevitable anxieties involved in a political construct affecting the lives of over seven billion people, then we leave ourselves few opportunities to develop a robust and democratic world. That is why I believe that the long road towards global solidarity should begin within every nation, local community or even family. Here, we often find manifested many of the contradictions typical to the global North/South or East/West divides; yet here we also find the bonding agent of a common ethos. Thus, we can better understand the world we inhabit.

The ongoing pandemic has occasioned an unprecedented situation in the history of mankind: billions of people communally agreeing to self-isolate for extended periods of time. Such a feat cannot but have psychological consequences. On the other hand, our confrontation with the virus and its economic and social consequences have jarred the feeling of security inoculated by authoritarian regimes and postwar “welfare state” democracies alike. **This sentiment of uncertainty**, which today tends towards becoming a new normal, has older roots.

In the evolution of human society, acclimation crises are nothing new; yet at present, they occur much more rapidly and reach much further, a general process that feeds individual uncertainty throughout the global village. The accelerated development of the relationship between technological advancement and the economy has shaken the final decade of the 20th century, at the same time announcing two major breakthroughs: globalization, twinned with an explosion of knowledge. These have both drastically heightened uncertainty. In my opinion, politics, as conceived and practiced today, is not yet prepared to manage the great challenges we face in the new century and new millennium—and a recourse to scientific experience might aid in this endeavour.

Over the past century, science, as an outpost of knowledge, has faced similar challenges through veritable revolutions in mathematics and physics brought about by the transition from Euclidean to non-Euclidean geometry and from Newtonian to quantum mechanics respectively. Science has continuously and consistently pressed forward, updating and modifying both its logic and its language.

The crisis of scientific language was overcome through the semantic theory of information. The “fuzzy set” theory gave rise to so-called “fuzzy logic”, kick-starting the study of incomplete information systems which, with the aid of stochastic models, can also analyze real-world processes, whose evolution takes place according to the random rules of chance.

Its applications extended to biology (population dynamics), to economics (fluid exchange rates), to pedagogy (learning processes and algorithms). Chaos theory allows us to analyze the unstable behavior of non-linear dynamic systems, wherein a minute disturbance of the initial conditions can well lead to completely different trajectories. Science has thus proven that uncertainty itself can be described, represented and thoroughly understood.

Politics—in its noblest sense of serving the public interest—must embrace the uncertainty of the future, overcoming the populist drift that is deteriorating and exhausting the limited resources available for long-term projects and counteracting it through a superior political project. It is not about moving politics onto uncertain ground, but rather about regarding individual freedom as the core element of society. The essential differences between political systems stem from the ways they manage uncertainty. Do they embrace uncertainty, and attempt to reach solutions through dialogue? Or do they try to eliminate uncertainty altogether, through the diktat of ideology, religion or wealth?

The efficient management of uncertainty can only take place in a truly open society. Facing high stakes can give rise to behaviors which answer the challenges of reality through adherence to underlying principles. Where we cannot act motivated by the certainty of success, we can then act out of a consciousness of our duty.

Politics in the society of knowledge, and in the globalized world of tomorrow, must be crafted as a complex vision of the future, based on a new dialogue centred on fundamental human values. The current global health crisis, which has brought not our wealth, but our lives to the fore, forcibly imposes upon us a choice between **to have** or **to be**. It is therefore necessary to create a new system of arbitration between power and knowledge capable of reshaping a framework wherein every individual can not only *be*, but also *become*.

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Leadership, Human Needs, and Values: The Importance of World Constitutionalism

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Abstract

This article introduces the twin themes of leadership and global constitutionalism. Today, we have a global constitution: the UN Charter. It has evolved into a weak instrument of global governance, and it needs to be strengthened by wise and brave leadership. The article provides a short overview of the historic emergence of constitutionalism, stressing the importance of the Atlantic Charter and the Four Freedoms. The article explores the complexities of leadership in a global social process context, and suggests a few modest changes to the structure and function of the UN system that may boost the power of the UN Charter as a juridical instrument. The article explores the emergence of human needs and values from the global social process and the challenges that these problems pose for global leadership. The article then provides a summary of the keynote precepts and challenges that require vigorous promotion and defense by leadership. It next provides a map of value needs and institutions on a global level and ties these issues in, with essential value needs in the UN Charter and the International Bill of Rights. This is to underscore the importance of these challenges for human survival. The article concludes with a careful analysis of the crisis of global climate change and the importance of this challenge for global leadership. The challenges in the UN Charter, the International Bill of Rights, as well as those arriving from the current pandemic and climate change, will all influence the survival of humanity as a whole. The urgency of brave and courageous leadership is now imperative.

1. Leadership and Global Constitutionalism in the UN

Leadership is an important and necessary part of the growth and development of humanity. Our understanding of leadership, as well as how we distinguish between good and bad leaders, remains nebulous. Leaders emerge from human social processes which involve the complexity of personality orientation, cultural context, class background, and the capacity to handle human crises. The essence of the political personality is still controverted. The nature of the political leader is essentially understood as involving private motives, displaced on public objects, and rationalized in the public interest. Hitler, Stalin, Churchill, and Roosevelt had leadership qualities that included all of these factors, and yet two were autocrats, and the other two were constitutional democrats. The central element to be understood is the essence

of the “private motives” and predicting or anticipating the nature of the inner personality of the leader or potential leader. This is important and difficult. The unconstrained personality may not be limited by the importance of public objects or public interest. These are largely matters, historically, of how governance is managed, and this includes an understanding of the history of political and legal culture. The problem of limiting the height of power has been subject to the idea that in general the powers of governance should be separated. However, this proved historically to be a weak form of constraint and monarchs needed greater limitations. The most famous of these limitations was the imposition of the Magna Carta, with specific written limitations on the king. This set in motion the idea that governance must be limited by a written compact or constitution. In this sense, the idea of governance restraint went from customary understanding to an objective statement of governing limitations. This represented a contestation about leadership as well as restraint or the lack of it. This tension took a significant turn with the American Revolution and the adoption of a written constitution and bill of rights. This development made explicit the importance of the separation of powers and the rights of the individual. The American example inspired the French Revolution and the Declaration of the Rights of Man and of the Citizen. The adoption of the American Constitution did not fully limit the contestation for power, and it barely survived a massive civil war.

The problem of governance and power was not only confined to local power contestations. It also concerned the governing politics of making war between nations without restraint. The problem of governance emerged with the idea that local authority was managed by sovereigns. A powerful theory of sovereignty maintained that it was constitutionally unlimited. Global politics evolved, and the idea of unlimited sovereignty provided no clear sense of leadership restraint at the global level. The world was soon plunged into a global war. The consolidation of sovereignty in governance at the national level unleashed a monumental problem of how to constrain sovereignty at the global level. The American intervention in the Great War produced President Wilson’s 14 Point Proposal. These principles included an effort to generate a form of global constitutional governance. This emerged as the Covenant of the League of Nations. Although this was a U.S. initiative, the U.S. did not enter the League of Nations because some leaders saw the Covenant of the League as a restraint on American sovereignty. In fact, the other sovereigns conditioned the League of Nations with a major sovereignty loophole. This was the League’s unanimity rule: any sovereign could stop the League from acting to establish any important international objective. This led to, essentially, a sovereignty repudiation of the League of Nations and led to the worst global war in human history.

The success of the totalitarian powers who launched the war was matched by leadership from the constitutional democracy. The war aims of democratic constitutional leaders was publicly stated in the Atlantic Charter. The Charter included the four freedoms. These values were the war aims of the Allies. These freedoms provided a value-based motive for the Allied cause. These freedoms were: freedom of speech and expression, freedom of conscience and belief, freedom from fear, and freedom from want. The Atlantic Charter was, in effect, a multi-national effort to establish a global constitutional basis for the war effort. The power of this initiative was driven by the two constitutional democratic leaders, Roosevelt and

Churchill. This Charter became the founding idea for the concept of a United Nations. After the war, the UN was established. The UN Charter and the global Bill of Rights were the first real constitutional system for global governance. The Charter was founded by a leadership rooted in constitutional democratic values. The UN Charter is the world's constitution. Yet, as the UN system evolves, the power of the Charter as a binding juridical instrument of global governance has become eroded. There is today a great need for leadership to proclaim the vital importance of the juridical character of the UN Charter. This requires some changes in the structure and the organization of the UN itself. The Charter depends on its global constituency: we, the people. However, the delegates are essentially nominated by sovereign states, and thus owe their first loyalty to the sovereigns. For a start, it would be useful for the UN to consider whether half the delegations coming from sovereign states should be nominated, and the other half directly elected by the people and citizens of those states. Such an innovation would provide flexibility on the part of the UN leadership, and by being directly elected, the delegates would involve the people themselves in the fundamental principles of global constitutionalism and the global Bill of rights.

A second important issue that has weakened the UN is the structure and functioning of the UN Security Council. The Security Council provides 5 permanent members with veto power. This means that on important issues affecting the community as a whole, one sovereign can stop the UN in its tracks. This means that the most important issue of global salience—global peace—can be undermined by a single sovereign. It would seem to be necessary that the Security Council's process be revised so that at least two or three members have to be in agreement before the veto can be used. Similarly, the number of permanent members on the Security Council could be increased.

In the next part of this essay, we evaluate in greater specificity the components of the efforts to improve the role of leadership in the context of the UN. This of course includes the centrality of the constitutional system itself, but also requires that we reach a deeper understanding of the social process that comprises the global community. The social process itself generates values and institutions at every level which are critical to responsible functioning of UN leadership. This article seeks to clarify the social process background to constitutionalism and global power, the fundamental values behind the UN system, the fundamentals of the UN charter itself, and concludes with the challenge for leadership against global climate change.

2. Leadership and World Society

The anthropological literature has given us a key to understanding life in a very elementary community. Life revolves around human beings energized to satisfy human needs. Anthropologists also identify the structures that emerge from society which are specialized in whatever degree of efficacy to facilitate securing those needs. When we map needs onto institutions, we emerge with a social process* that is based on the interaction of energies directed at securing needs through institutions. These institutions direct human energies, in some degree, to the satisfaction of those needs. We can now begin to

* Winston P. Nagan, *Contextual - Configurative Jurisprudence The Law, Science and Policies of Human Dignity* (vanderplas publishing) 2013

identify basic human needs as the goods, services, honors, and gratifications that people in society desire or need. Moreover, we can classify these desires/needs in terms of the basic values that the individual social participant acts on to secure for himself and those dependent on him. Thus, we may emerge with a model of social process in which human beings pursue values through institutions based on resources. Now, this is a purely descriptive inquiry, but it is possible to observe that the needs/values and the institutions specialized to secure them are, generally speaking, identifiable. What are these values and what are the institutions specialized to secure them in any social process?

“It is the human perspective that gives meaning and life to the values and institutions in society.”

3. Human Perspective and Consciousness* in the Evolution and Interdetermination of Values in the Human Social Process

Table: Values, Institutions, Situations, and Outcomes of Society

Value	Institution	Situation	Outcome
Power	Government/Political Party	Arena	Decision
Enlightenment	University/WAAS	Forum	Knowledge
Wealth	Corporation	Market	Transaction
Well-being	Hospital/Clinic	Habitat	Vitality
Skill	Labor Union/Professional	Shop	Performance
Affection	Micro-Social Unit (Family)/ Macro-Social Unit (Loyalty)	Circle	Positive Sentiment/Patriotism
Respect	Social Class	Stage	Prestige
Rectitude	Church/Temple	Court	Rightness
Aesthetics	Museum/Monument	Culture	Creative Orientation/ Symbols of Cultural Beauty/ Aspiration

In this representation, values and institutions are represented descriptively in order to describe the system of community order as it is. It should, however, be understood that the social process of the community is a dynamic process, in which there is an energy flow between the participators, the values, the institutions, and the results. Some of the results generate conflict. Other results generate the success of institutions functioning optimally. What is important is that social process is a generator of problems, and these problems are about the acquisition and distribution of values. This means that the dynamism of society requires a decision process[†] that is frequently challenged to produce a solution to the problems

* Philip Perry, *Harvard researchers have found the source of human consciousness*, <http://bigthink.com/philip-perry/harvard-researchers-have-found-the-source-of-human-consciousness>

† McDougal, Myres S., Harold D. Lasswell, and W. Michael Reisman. “The world constitutive process of authoritative decision.” *J. Legal Educ.* 19 (1966): 253.

of value conflict, value deprivation, or value over-indulgence. Thus, the community response to the problems that values pose for community order invariably must implicate a normative dimension about the optimal allocation of values in society. Indeed, some political scientists describe political science as concerned with the authoritative allocation of values in society. The intimate link between the politics of power and the political economy of wealth is this: power may serve as a base of power to get more power. It may serve as a base to get more of all the other values extant in social process. Even more importantly, every value may serve as a base of power to get and keep power. Wealth may serve as a base of power to acquire power and keep it. It may serve as a base to get more wealth. It may serve as a base to get a lion's share of all the values extant in social process. Thus, political leaders are in an intimate association influencing the production and distribution of value needs in social process.

In reviewing this map of values and institutions of social process, it is important to keep in mind that it is the human perspective that gives meaning and life to the values and institutions in society. The human leadership perspective comes with the perspective of identity, ego-demands, and the value ideals of expectation. These perspectives are driven by deep drives for self-actualization, self-realization, and psycho-social fulfillment. In this sense, the private motives of leadership personality, even when displaced on public objects and rationalized in the public interests, still represent an underlying force that moves the personality and leadership in all social relations. This underlying force may be the force of self-affirmation for self-determination and is the most foundational energizer of the demand for human rights and dignity. The relationship between personality and value achievement may itself generate a sense of inner-fulfillment, which, in turn, becomes the driver of still greater levels of value creation and achievement.

4. Leadership in the Identification and Allocation of Values in Society

The problem of the allocation of values implicates the idea that there may be different standards which justify one form of allocation over another. Historically, at least in law, there has been an assumption that legal interventions are meant to discriminate between the claims for values that are just and those that are unjust. It is this challenge that has given rise to the great traditions of jurisprudence and, most importantly, the jurisprudence of natural law.* Natural law, however, could only generate procedures, not substantive rules, to facilitate the use of right reason in the resolution of value conflicts. Two of the most enduring of these natural law-based rules have survived and are essentially matters of procedural justice: *audi alteram partem*† [the obligation to hear both sides] and *nemo iudex in causa sua*‡ [no one should be a judge in his own cause]. However, we had to await the aftermath of the tragedy of the Second World War before we got a kind of official code of natural law in the form of the Universal Declaration of Human Rights.§ Although couched in the form of rights, the Declaration may be reduced to nine fundamental value-needs categories. The adoption of a

* Winston P. Nagan, Contextual – *Configurative Jurisprudence The Law, Science and Policies of Human Dignity* (vanderplas publishing) 2013

† “audi alteram partem” James Edelman, *Why Do We Have Rules of Procedural Fairness?* <http://www.fedcourt.gov.au/digital-law-library/judges-speeches/speeches-former-judges/justice-edelman/edelman-j-20150904>

‡ “nemo iudex in causa sua”, James Edelman, *Why Do We Have Rules of Procedural Fairness?* <http://www.fedcourt.gov.au/digital-law-library/judges-speeches/speeches-former-judges/justice-edelman/edelman-j-20150904>

§ UN General Assembly. *Declaration of Human Rights* <http://www.un.org/en/universal-declaration-human-rights/>

code of moral priority, intended to bind all participants in the international system limited the speculation about the role of values in the social process. Although most intellectual and scholastic speculation stresses the notion that values are somewhat opaque, difficult to distill, and even more difficult to clarify, the adoption of the United Nations Charter has served as a political impetus for the development and clarification of human values. As a starting point, therefore, we may reduce the Charter [a legally binding instrument of global salience*] into several comprehensible and clearly articulated keynote precepts. We list them as follows:

Global Values, the UN Charter:[†] the Normative Value Guidance for Leadership in Science and Society

1. The Charter's authority is rooted in the perspectives of all members of the global community, i.e. the peoples. This is indicated by the words, '[w]e, the peoples of the United Nations.' Thus, the authority for the international rule of law, and its power to review and supervise important global matters, is an authority not rooted in abstractions like 'sovereignty,' 'elite,' or 'ruling class' but in the actual perspectives of the people of the world community. This means that the peoples' goals, expressed through appropriate forum (including the United Nations, governments and public opinion), are critical indicators of the principle of international authority and the dictates of public conscience.
2. The Charter embraces the high purpose of saving succeeding generations from the scourge of war. When this precept is seen in the light of organized crime syndicates' involvement in the illicit shipment of arms, the possibility that they might have access to nuclear weapons technologies, and chemical and biological weapons, the reference to 'war' in this precept must be construed to enhance the principle of international security for all in the broadest sense.
3. The Charter references the 'dignity and worth of the human person.' The eradication of millions of human beings with a single nuclear weapon, policies or practices of ethnic cleansing, genocide and mass murder hardly values the dignity or worth of the human person. What is of cardinal legal, political, and moral import is the idea that international law based on the law of the charter be interpreted to enhance the dignity and worth of all peoples and individuals, rather than be complicit in the destruction of the core values of human dignity.
4. The Preamble is emphatically anti-imperialist. It holds that the equal rights of all nations must be respected. Principles such as non-intervention, respect for sovereignty, including political independence and territorial integrity are also issues that remain under constant threat of penetration by alienated terrorists or organized crime cartels.
5. The Preamble refers to the obligation to respect international law (this effectually means the rule of law) based not only on treaty commitments but also on 'other sources of international law'. These other sources of law include values, which complement

* Winston P. Nagan, *Contextual – Configurative Jurisprudence The Law, Science and Policies of Human Dignity* (vanderplas publishing) 2013, 262

† UN General Assembly, *the UN Charter*, <http://www.un.org/en/charter-united-nations/>

efforts to promote ethical precepts built into expectations of the universal ideals of morality.

6. The Preamble contains a deeply rooted expectation of progress, improved standards of living, and enhanced domains of freedom and equality for all human beings on the planet.

Based on the keynote precepts in the UN Charter, the world community also adopted an International Bill of Rights. The central challenge to a scholastic understanding of the International Bill of Rights is the need to clarify and distill its basic, underlying values. It may now be with confidence stated that we can distill at least nine functional values that underlie the entire international bill of rights. In a general sense, these rights, when considered collectively, represent the integrated, supreme universal value of human dignity. The central challenge then, is that those charged with decision-making responsibility must prescribe and apply a multitude of values in concrete instances and hope that their choices contribute to the enhancement of human dignity and do not, in fact, disparage it. At an abstract philosophical level, distinguished philosophers such as Sir Isaiah Berlin have maintained that it is futile to attempt to integrate these values with the abstract principle of human dignity because fundamentally, these values are incommensurable.* Not everyone agrees with this. Specialists in decision- and policymaking acknowledge that human dignity based on universal respect represents a cluster of complex values and value-processes.† Therefore, the challenge requires that ostensibly conflicting values be subject to a deeper level of contextualized social insight and a complete sensitivity to interdisciplinary knowledge, procedures, and insights. Thus, decisions in these contexts are challenged with the task of broader methods of cognition and a better understanding of abstract formulations of value judgments. Disciplined intellectual procedures have been developed to provide better guidance: in particular, instances of choice to approximate the application and integration of values in terms of the human dignity postulate. Does the ethic of universal respect and human dignity demand absolute, universal compliance at the expense of other universally accepted values? Ensuring that the values of respect, democratic entitlement, and humanitarian law standards are honored requires fine-tuned analysis and great subtlety in the structure and process of decisional interventions. Rules of construction and ‘interpretation’ are painfully worked out, which hold, for example, that even if a peremptory principle (*ius cogens*‡) of international law embodies an obligation *erga omnes*.§ It should be evaluated, appraised, and construed to enhance rather than disparage similar rights, which may also have to be accommodated. The currency behind the universal ethic of essential dignity and respect is that it provides practical decision-makers with goals, objectives, and working standards that permit the transformation of law and practice into a greater and more explicit approximation of the basic goals and standards built into the UN Charter system itself. This prescribes a public order committed to universal peace and dignity for the people of the entire earth-space community.

* Winston P. Nagan, Samantha R. Manausa, *The Context and Values Inherent in Human Capital as Core Principles for New Economic Theory*, Cadmus, 2018

† Winston P. Nagan, Garry Jacobs, *New Paradigm for Global Rule of Law*, Cadmus Vol. 1 No.4, April 2012

‡ “Jus cogens” Bassiouni, M. Cherif, ed. *International Criminal Law, Volume 2: Multilateral and Bilateral Enforcement Mechanisms*. Brill, 2008.

§ “erga omnes” Bassiouni, M. Cherif, ed. *International Criminal Law, Volume 2: Multilateral and Bilateral Enforcement Mechanisms*. Brill, 2008.

The most important thing to keep in mind here is that from a global perspective, politics and economics are intimately connected to the critical questions of the nature of global governance. In short, they are critical to an understanding of the allocation of basic value needs in the planetary social process as it is and the challenges concerning the allocation of values for an improvement of the human prospect. This requires a challenge to scientific consciousness as well as a challenge to the consciousness of political leadership.

5. Leadership, Values and Public Order

It is useful to approach the questions of value in terms of the nature of the public order that the rule of law system seeks to promote and defend. The system of public order secures the complex values that it is committed to defend by making an essential distinction between the minimum-order aspects and the optimum-order aspects of the system of public order.

6. Leadership, Values and the Minimum Order

The problem of scientific responsibility, values and the prospect of at least realizing a system of minimum order in the global governance of humanity now represents a critical challenge for scientific consciousness. We may understand the relationship between community, minimum order, and values by imagining a society without an expectation that agreements and exchanges made in good faith and according to law will be honored; that wrongs (delicts) inflicted upon innocent parties will be compensated; that basic interests and expectations of entitlement [as in fundamental norms of right and wrong] shall be sanctioned by a collective community response; or that basic structures of governance and administration will respect the rules of natural justice such as *nemo judex in sua causa* or *audi alteram partem*, and will in general constrain the abuse of power and thus the prospect of caprice and arbitrariness in governance. The necessity of minimum order in a comparative, cross-cultural, historic reality is that human beings interact within and without community lines. In doing so, they commit wrongs intentionally or unintentionally, they require some security over their possessions and entitlements, and their systems of governance aspire invariably to constrain the impulse for abusing power. These are the minimum values of social coexistence. It is in this sense that law as minimum order confronts the idea of justice and potentiality. It is commonly thought that minimum order is a critical, but not absolute condition of a more just, more decent, more optimistic human prospect. The rule of law precept is uncontroversial in the sense of minimum order and its 'boundaries'. Peace, security, and minimal standards of human rights are reflections of these values in international, constitutional, and municipal law. Fundamentally, the quest for the maintenance of a minimum order in society would appear to be an essential condition for the individual or aggregate of individuals to evolve toward a social process that maximizes value production and distribution. It is possible to see in this an evolutionary idea of progressive change relating to the production and distribution, optimally for all social participants. It is imperative that in the education of scientists and technology innovators, their sense of social responsibility is at least minimally influenced by the global values of a minimum sustainable system of world order.

7. Leadership, Values and the Optimum Order

This challenge to the public order raises the question of the production and the distribution of values beyond the minimum for social coexistence. This is an insight that is more challenging to the question of scientific responsibility and the values that ought to guide it. Clearly, a great deal of science will have an imprint that goes beyond minimum order and will be let loose in the domain of optimal possibilities and prospects. Here, it is critically important that value clarification be a component of the definition of scientific social responsibility. This is the challenge of the unequal distribution of opportunities or results. Human beings exist not only spatially, but also in terms of the duration of time and events. There is hopefully a tomorrow, a next week, next month, next year, and next century. Human beings, such as scientists, are also transformative agents who make things happen, and in doing so underline the question embedded in the nature of law and community that we can change things for better or worse, for the common good or the special interests, for the sense of expanding human dignity or the prospect of a negative utopia, the rule of human indignity. This is a critical challenge for scientific consciousness.* The central challenge for values posed by the optimum order precept is the problem of the procedures and methods for producing values as well as the procedures, methods and normative ideas about the fair distribution of the values that are produced in society. At the back of the concern for human values is the belief in human capacity for the essential, energized generation of value at every level of the social process and the human resource as a producer of ideas, insights, and values of exponential salience. At the back of the human dignity idea is the belief that widespread human dignity flourishes when the dignity of the individual flourishes and reproduces values of exponential importance for the common interest of all.

Fellows of the World Academy of Art and Science have suggested that the nine values embedded in the International Bill of Rights [power, wealth, respect, rectitude, enlightenment, skill, affection, health and well-being, and aesthetics] are the key to the notion of a public order of human dignity.† They postulate that the maximal production and distribution of these values on a universal basis is the key to improving the human prospect and approximating a public order of human dignity. This means that the prescription, application, and enforcement‡ of the fundamental values behind human rights remain a major professional challenge to leadership and its focus on the importance of global governance remains a threat for the global processes of governance charged with the defense of global public order. We may conclude that value needs are a condition and a consequence of focusing and directing the energy of the human perspective into concrete operations that establish institutions concentrated and specialized to value realization.

In this sense, values and needs are incentives that generate a self-directed force, which ultimately evolves into institutions of effective power crucial to the allocation of values. It is possible to see these generalizations in the evolution of the sovereign authority of the

* Winston P. Nagan and Megan Weeren, *Homoeconomico-politicus, Scientific Consciousness, and the Defense of Fundamental Values in the Context of the Climate Change Crisis: The Challenge of Scientific Responsibility for the Future of Economic and Political Science*, *Cadmus* Vol. 2, May 2016

† Winston P. Nagan, *Contextual – Configurative Jurisprudence The Law, Science and Policies of Human Dignity* (vanderplas publishing) 2013, 553

‡ Harold D. Lasswell, *The Decision Process: Seven Categories of Functional Analysis* (College Park, Maryland: University of Maryland Press, 1956)

nation-state and its own evolution from state absolutism to sovereignty rooted in people's expectations. Another insight of this model is found in the notion that the power process^{*} itself is energized by human expectations, especially expectations of demand. Without demanding or claiming an aspect of social power, society would be static. Thus, we see in the power process, the social activist. In the United States, Rosa Parks resented segregation in public transportation, so she staked a claim to repudiate racial discrimination in public transportation. Gandhi was thrown off a train in South Africa because he was not white. He initiated a claim to challenge the power of the state to impose unjust discriminatory laws. His challenges to the power process[†] brought him to India as a leader of the Indian Independence Movement. Nelson Mandela challenged apartheid and indicated in open court that he was committed to human dignity and democracy and that these ideals were ones that he was prepared to die for. Therefore, it is important that we have a clear understanding of the process of effective power, and what the limits and strategies are of mobilizing bases of power, to effect meaningful social change. It is quite obvious that scientific consciousness, driven by a commitment to scientific social responsibility, will have to carry a significant level of commitment in utilizing social power so that the results of technology serve human purposes that are constructive and avoid those that are destructive. As Einstein suggested, the development of science and technology should be a blessing and not a curse on human kind.

"The problem with regulating science is the problem that it will be regulated by a politically ignorant constituency, who may seek to appropriate technology with selfish special interests. Leadership has a critical role to play in the transmission of shared enlightenment."

From the perspective of an enlightened leader concerned with science, consciousness, and values, the following framework is provided as value-conditioned guidance for the technological innovators of our time and the immediate future.

Value Frameworks to Guide Leadership Scientific Consciousness and The Social Responsibility of Dynamic Leaders

1. The value of life: This is a centrally valued human subjectivity. It is referred to not in the "pro-life" sense (that a pregnant woman must bear a child), but in the Bill of Rights sense (that a person has right to personhood and autonomy). The value of life, therefore, includes the respect and deference given to the individual in the global community.
2. The status of the value of power and security: Should it be narrowly or widely shared? Is the common interest of all honored in a system that seeks to secure the widest

^{*} Winston P. Nagan, Contextual – *Configurative Jurisprudence The Law, Science and Policies of Human Dignity* (vanderplas publishing) 2013, 93

[†] Lasswell, Harold D. *Power and personality*. Routledge, 2017.

possible participation in all key areas of the power process? One of the central values identified in the Atlantic Charter was the freedom from fear. This concern for freedom has evolved so that today no one denies that there is a critical interdependence between the concept of peace as a human right and all the other values in the UDHR. Peace and security might well be included under the functional category of power. However, peace is recognized as a complex preemptory component of the human rights value system. It is of value to again recognize that there are complex ways in which all human rights values have an influence on peace and security, recognizing as well that peace and security at all levels are critical conditions for the effective mobilization of human rights values. A central aspect of the values of peace and security relates to the connection between the mobilizing force of strategy for the realization of human rights goals and the realization of these goals themselves. For example, is it appropriate to deploy violent strategies of action to achieve human rights objectives? Is it appropriate to disengage the value discourse involving strategy and struggle on the one hand and idealistic value objectives on the other hand? Gandhi, for one, insisted that the morality of struggle was even more important than the morality of distant idealistic objectives.* Indeed, he also insisted that a disconnect between struggle, strategy, and goals was morally indefensible.

3. The status and value of economic and wealth processes: Is the common interest of all better secured by optimizing the capacity to produce and distribute wealth or the opposite?
4. The status and value of respect and equalitarian values: Should invidious discrimination be fully prohibited (covering all areas of race, gender, alienage, etc.)? Can equality be meaningful if it is only a formal, juridical idea without regard to the legacy of exploitation, repression, and discrimination? The repression of equal opportunity is also an invidious denial of liberty.
5. The status and value of educational and enlightened values: Should these values be widely produced and distributed or narrowly experienced? In the context of science, the critical value that secures scientific innovation and the liberation of scientific consciousness is the freedom of inquiry. The challenge posed by dramatic technological innovation is that further scientific consciousness will generate an internal process focused on scientific responsibility and a deeper sense of the value implications and consequences of technological innovation. The problem with regulating science is the problem that it will be regulated by a politically ignorant constituency, who may seek to appropriate technology with selfish special interests. Leadership has a critical role to play in the transmission of shared enlightenment.
6. The status and value of skill and labor values: The centrality of labor and skills values to the human condition indicates that these are central and fundamental values implicated in the rights and expectations of those who seek to create and sustain these rights

* Nagan, Winston P., John AC Cartner, and Robert J. Munro. *Human rights and dynamic humanism*. Brill, 2016. 140

and labor values. Should these rights and expectations be widely shaped or narrowly shared? The global crisis of massive unemployment would seem to impose a special responsibility for leadership.

7. The status and value of health and well-being values: The delivery of reasonably formulated and accessible healthcare and social services to all is now widely regarded as a crucial entitlement, if the most basic standards of decency in politics and society are valued. Today, unemployment aid, social security, Medicare, and other social services are considered crucial to a society that cares for its people.
8. The status and value of the family and other affective values: Because the family is the basis of collective existence and is central to the human rights of children, the public policies of a society that destroys family (and other affective ties) pose a problem for a wide generation of affective values including the loyalty values of patriotic deference.
9. The status and value of moral experience and rectitude: A system that endorses the centrality of moral experience to the legal and political culture and seeks to maximize the spiritual freedom of all is yet another central theme of human rights. Rectitude should never be a foundation for sectarian and ethnic conflict.
10. The status and value of cultural and aesthetic experience: The term cultural includes the concept of the aesthetic. In fact, the word "cultural" could encompass all the value preferences that we might extract from the UDHR. There is, however, a narrower meaning that the term 'culture' might carry. That meaning ties in with the notion of human rights as also emblematic of the diversity of human experience, experience that reflects the cultural richness of humanity as a global community. There is great controversy about the issue of culture and tradition, culture and creativity of the present, culture and the elaboration of the aesthetic, which may capture and nurture the cultural narrative of creativity and beauty which may in fact be the critical psychological view of how the glue of social solidarity promotes creativity. The boundaries of this discourse are controversial. Sensitive matters of sexual regulation which may differ widely may be justified by culture and yet here the culture of tradition may not be compatible with the culture and creativity of the present or the future in human rights terms. For example, female genital mutilation justified by cultural tradition is not justified by either religion or by the science of human sexuality. Human rights thus provide a process by which these boundaries may be appropriately protected and expanded according to the normative challenges of human dignity. The current discourse often suggests that universality trumps cultural relativity or vice versa. This is not necessarily helpful unless one sees these ideas as only the starting point for value clarification and application from a human rights perspective. Aesthetics should never be a foundation for demonizing vast sectors of humanity.*

* Haddad, Aitza M., and Nagan, Winston P. "Aesthetics and Human Rights". *Montenegrin Academy of Sciences and Arts, Proceedings: International Conference on Humanities and the Contemporary World* (2012).

11. The status and value of the ecosystem: Today, we recognize a complex right to a viable ecosystem on what theorists have seen as Spaceship Earth.* The values embedded in the protection and promotion of a healthy ecosystem, are, like many other values, issues of complex interdependence and interdetermination. However, implicit at least, in the concern for the integrity of the ecosystem, is clearly the notion that there are no human rights if there is no environment in which human beings can survive and possibly even improve the human prospect. But this insight suggests an even higher level of moral consciousness in the sense that the ecosystem (with its plant life and animals, wild and domesticated) is part of a complex cycle, in which human beings are both custodians and also utterly dependent as individuals and as society. This means that we now see in nature not something irresponsibly exploited and destroyed but central to our identity as a sentient species. To take a simple example, for all the vaunted technology of human progress and human egotism, no one has seen a dog or a cat or a rat or indeed the most elemental of recognizable life forms outside of this lonely and unremarkable planet called Earth. Thus, as humanity, we now look at life even in its most humble forms as not only indispensable to the interconnected chain of life on this planet but we see in it something new and utterly connected to the very consciousness of being human and being alive. In short, we know that our dogs identify with us. We may now know those ordinary pets in terms of how they and all other living forms have shaped our identity both psychologically and physiologically. The integrity of the ecosystem requires a form of identification from *Homoeconomico-politicus* that is sufficiently comprehensive to cover the entire Earth Space System.

8. Leadership and Climate Change: Governance and the Challenge of a Green Economy as a Critical Ecosystem Value

Climate Change is a good tool to better understand the idea of leadership, consciousness and social responsibility for values. Climate change floundered at the Copenhagen conference because of the determined efforts of the climate change deniers lobby. Among the former spokesmen of that lobby were right-wing Republican senators, fanatically moved by the idea that climate change would require the mandatory regulation of corporate polluters. It is a maxim of modern Republican politics to oppose governmental regulation and in particular, the governmental regulation of environmental matters. The most vocal voice in the United States was the Republican senator from Oklahoma, Senator Jim Inhofe. The senator came with a record challenging the integrity of the entire climate-science community; this community, he felt, was a self-interested one and uncommitted to genuine science. The senator himself is an *ignoramus* on science, any science. According to Oil Change International, Inhofe has received over \$1.3 million dollars in contributions from the oil and gas industries.† His attacks on climate change were sheer political opportunism. He remains unrepentant and continues to lead the charge in the American congress to undo the environmental regulations of the Obama administration.

* Boulding, Kenneth E. "The economics of the coming spaceship earth." *Environmental Quality Issues in a Growing Economy* (1966).

† Matt Maiorana, *Hypocrite Alert: Senator Inhofe Complains about Money in Politics*, <http://priceofoil.org/2014/06/03/hypocrite-alert-senator-inhofe-complains-big-money/>, June 3, 2014

“With all of the hysteria, all of the fear, all of the phony science, could it be that man-made global warming is the greatest hoax ever perpetrated on the American people? It sure sounds like it.” – Senator Jim Inhofe

Indeed, he has demanded that the climate change agreement be brought before the Republican-controlled congress in order for the congress to kill it. Inhofe is unduly influenced by the fossil fuel industry. This industry is in effect responsible for the overwhelming contribution of greenhouse gases to the looming crisis of climate change. Inhofe is an excellent example of the political-power oriented personality type. His private motivations driving his antagonism to climate change are rooted in the financial support he receives from the fossil fuel industry to secure his position in the Senate of the United States. Of these industries, ExxonMobil remains the world’s largest Oil and Gas Company. According to Forbes, Exxon is the most profitable publicly traded company in world history.* The company generated revenue of over \$1.6 trillion dollars in 2009-2012 alone. Exxon is a notorious climate change denier, so notorious in its actions that Greenpeace has created a website detailing the company. Other republican senators are also beholden to the plutocratic establishment and its infusion of money into American politics.

Apart from the right-wing lobby, the concern for the development of a global mandate on climate change through the good offices of the UN had to confront a longstanding global problem: the division of the world community of states between the rich and the impoverished. Since a lion’s share of the carbon emissions in the atmosphere was generated by the rich industrialized countries, there was a lingering concern about the price and distribution of the price for reducing carbon emissions in the world community. Since the poor states made a negligible contribution to greenhouse gases in the atmosphere, a question of justice and fairness seemed to emerge. Why should they share in the cost of the reduction of greenhouse gases when they are not responsible for the crisis? More than that, the predictions of the crisis could spell catastrophe for poor states.

Perhaps these states should be the beneficiaries of financial assistance from large states to convert themselves to green economies, and to compensate for the damages they suffer. Clearly, in attempting to move forward there needed to be some formula for allocating responsibility as fairly and as universally as possible. Perhaps the most important outcome of the Paris accord† is that every country is a stakeholder in the problem and every country must commit itself to a constructive role in reducing greenhouse gases in the future. Most countries were persuaded to come up with plans as to how the economy would respond to cutting carbon emissions through 2025-2030.‡ In this context, every state is required to come up with a plan without a specification of the extent to which individual countries would cut emissions.

The agreement is not in the form of a treaty. It will only become technically and legally binding as an international treaty when at least 55 states which together represent 55 percent

* Corinne Jurney, *America’s Top Public Companies In 2017: A Buffett Buy List*, <https://www.forbes.com/sites/corinnejurney/2017/05/02/americas-top-public-companies-in-2017/#7852b0204ad2>, May 2nd, 2017

† United Nations General Assembly, *The Paris Agreement*, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

‡ IEA. *World Energy Outlook 2017*. Organisation for Economic Co-operation and Development, OECD, 2017.

of global greenhouse emissions adopt the agreement within their own legal systems as a form of treaty ratification.* Even assuming that this happens, the question would still remain of what the legal responsibilities are of the other approximately 100 states. We would contend that the agreement as it now exists is not without an element of a juridical imprimatur. In effect, the agreement contains in terms of its background, the core elements of the creation of a form of international soft law, which would appear to have an approximation to the development of a form of customary international law. The reasoning is as follows:

This agreement depends upon the good faith obligation that international law imposes on states, which establish public declarations of the nature and scope of their duties. The good faith obligation implies that these will be legally binding on the states. Thus, the binding effect of the agreement is not in the agreement itself but a matter of the customary international law dealing with the rights and duties of states. The agreement contains a legal expectation that states are required to reconvene in good faith every five years starting in 2020 indicating in good faith their updated plans to strengthen their emissions cuts. States were also required to reconvene every five years starting in 2023 to publicly report how they are achieving their emissions cuts, compared with their stated plans. Moreover, the agreement requires states in good faith to monitor and report the state of their emissions levels and reductions using a universally accepted counting system. This approach was achieved largely because the Obama administration did not want an agreement specifying specific levels of emissions reductions. Of course, such an agreement would in effect resemble the form of a treaty and the U.S. administration would have to submit it to the senate for its advice and consent. There are at least thirty nativistic and ideologically driven right-wing Republican nutcases in the senate of the United States. That is all that is needed to kill the treaty if its jurisdiction was submitted to them. The Obama Administration would therefore want to avoid the Senate at all costs.

In short, the standard of emissions set in good faith by states is voluntary but there is a legal requirement that they publically monitor, verify, and report on their progress. This model seems to work on the principle of transparency as a foundation for global peer pressure on states. States therefore will not want to be embarrassed by falling short of their own commitments. It is by no means clear that these steps are both necessary and sufficient to avert continued disasters triggered by the climate change process. In the United States itself, various states have experienced massive floods, including the states of major climate change deniers. To get the poorest countries onboard, the preamble of the agreement indicates that \$100 billion dollars is promised to help the poor countries adapt to a desirable green economy and to mitigate some of the damages of climate change.†

The principal feature of the climate change agreement is the target of holding the average global temperature to a figure below 2 degrees centigrade above pre-industrial levels.‡ In

* Alex Gray, *What is the Paris Agreement on Climate Change?*, <https://www.weforum.org/agenda/2016/09/what-is-the-paris-agreement-on-climate-change/>, September 7th, 2016

† John Upton, *The \$100 Billion Climate Question*, <http://www.climatecentral.org/news/the-100-billion-climate-question-19726>, November 25th, 2016

‡ Rajamani, Lavanya, and Jacob Werksman. "The legal character and operational relevance of the Paris Agreement's temperature goal." *Phil. Trans. R. Soc. A* 376.2119 (2018): 20160458.

practical terms this means that, the temperature increase on the planet should not increase above 1.5 degrees centigrade above pre-industrial levels. The idea of limiting the global temperature to 1.5 degrees above preindustrial levels means that there is a concrete goal to stay well below 2 degrees. Scientists believe that this would likely ward off the worst effects of climate change. No one is exactly sure what the triggering point is that would melt the entire Greenland ice sheet as well as the West Antarctic ice sheet. It is possible that staying below 2 degrees centigrade would trigger such catastrophe. However, the odds are much better if we stay at 1.5 degrees centigrade. It is not necessarily clear that the 1.5 target will be achieved by purely relying on voluntary state action. Even if it is achieved, it is only a scientific guess that this will be sufficient to avert the worst consequences of climate change. The position of this economic forum is that the target of 1.5 is a bare minimum to be attained and if it could be improved upon, it would secure a greater safety net for humanity. Additionally, the fact that the agreement is not a treaty of hard law does not mean that it has no juridical effect whatsoever.

In this regard, the target temperature aspiration is not mandated as a matter of international treaty law. It therefore does not have the status of hard international law, which would require advocacy from the XII International Colloquium and its allies that the agreement is still binding as a matter of law. However, it does have important juridical characteristics, sometimes defined as international soft law. The idea of soft law means that the binding character of the agreement is a matter reinforced by indirect methods designed to give the agreement the force of international obligation. First, the agreement comes with a consensus of 150+ states. The agreement comes with strong support from the international scientific community as well as important scepters of learned societies of the international social process. The agreement comes with a strong support of a multitude of organizations constituting the civil society of the planet committed to environmental integrity. The agreement is supported not only by states, but also by civil society, learned societies in the arts and sciences, specialist communities in the sciences, and those committed to environmental integrity.

Additionally, the agreement comes with the institutional support of the foundations of authority of the United Nations system itself as well as other organizations of nation-states at different levels of global society. Specialist aspects of civil society concerned with human rights and humanitarian values are also lined up in support of this agreement. This adds up to considerable strength in the foundations of the authority component, which is a critical part of the dynamics of international law-making. The other important component of international law-making is the component loosely described as the controlling intention designed to give prescriptive force to the obligation. Here the controlling intention is reflected in part in the good faith expression of intent to abide by the agreement of at least 190 sovereign states. In general, the good faith expression by a sovereign state that it intends to respect a prescription that it has openly supported of advocacy is enough to secure the notion that the agreement has sufficient controlling intention, which along with the authority signal gives it the force of law. Additionally, the agreement requires a public commitment to the scope of the obligation with regard to emissions reductions that the states openly subscribe to. This public commitment includes a threshold publication of the state's plan of action in the future,

and a reporting of the results of its action, which requires global transparency. This provides an additional lever to support the seriousness of the controlling intention of the sovereign states' commitment to emissions reductions. The active monitoring of the process by the United Nations itself, as well as a vast constituency of members of civil society including specialists in local politics, environmental advocacy, scientific expert knowledge, human rights organizations, and highly respected learned societies, reinforces the controlling intention of states.

*"Green growth
can be achieved by
the recognition of
human capital's
basic resource,
human creativity."*

Finally, international law-making does require clarity in the expression of the specific prescriptive expectations that the agreement entails. Since the states have stated what the prescriptive expectations are, this provides a degree of clarity in terms of the prescriptive expectations that a state is obliged to honor. Thus it would seem that at least in the context of the specific objectives of state action in reducing carbon emissions there is without a doubt a binding obligation on the part of states and their subjects to respect their agreements that the states have agreed to as having the force of binding international soft law.

The most important aspect of giving the human efficacy is the recognition that within states major corporate and industrial enterprises are largely responsible for greenhouse gases. This puts the controlling intention of the state against the self-interest of the corporate and industrial sector within a state. This is a challenge that has to be confronted. The most significant cause of pollution lies with the fossil fuel industry. Modern society owes progress to energy. To change this confronts not only corporate interests, but also the interest of workers dependent on the fossil fuel industry. There has to be an alternative and that alternative would depend in part upon radical new thinking, envision a new economic thinking of this economic forum, as well as the economic thinking behind the policy and progress of the global sustainability movement. The fundamental challenge lies in the shift on a global basis from the total dependence on the fossil fuel process to an alternative approach to meeting global energy needs as well as producing energy that eliminates the flow of greenhouse gases into the atmosphere. Experts maintain that the fundamental challenge of stabilizing the global climate via green economic growth is a matter of fundamental policy choices. Those policy choices have to be made on the basis of new economic thinking which makes as its fundamental postulate the vital importance of human capital. Green growth can be achieved by the recognition of human capital's basic resource, human creativity. We must therefore creatively take stock of how to make buildings, transportation systems, and industrial processes, energy efficient. This would have to extend to offices, homes, residences, cooking equipment, automobiles and public transportation.

The recognition of human creativity must be sustained by a commitment to major investments in clean and renewable energy. This includes solar, wind, geo-thermal, and various scales of hydroelectric power. If we are willing to recognize the genius of human creativity in creating a carbon neutral environment, experts estimate that an investment of 1.5 percent of the global GDP will generate effective and alternative energy policies for all

countries at any level of development. Such large-scale investment in clean energy would help raise efficiency standards in buildings, expand public transportation, and replace fossil fuels with clean and renewable energy. It is further estimated that such investments will pay for themselves in 3-5 years. These investments will have to come from both the public and private sector. The attractiveness of green energy would mean that energy costs would be reduced for all. If a carbon tax is placed on fossil fuels, then the price of fossil fuels will be far more expensive than green energy.* A policy commitment to green energy would enormously expand job opportunities. It is estimated that if the U.S. spent 200 billion a year on the green energy economy, it would drop U.S. emissions by 40 percent in 20 years and create a net increase of 2.7 million jobs. If India spent 1.5 percent of GDP on the economy, a 20-year program with these investments would create more than 10 million jobs a year. Other illustrations are equally impressive.

The real losers will be the fossil fuel industry and the mega-corporate giants that own it. It is estimated that they stand to lose 3 trillion in values over the next 20 years. Clearly, the petroleum industry will not take this lying down. Hence, the real problem is with green energy and greed energy. The losses of the fossil fuel sector may be somewhat tolerable if the losses are averaged out over 20 years coming to about 150 billion a year. One major issue that the mega giants of the fossil fuel industry must consider is that the holdings of the largest 200 corporations in the fossil fuel sector hold assets, which indicate that 60 percent of those assets, are unburnable. This is an important issue for investors and already some 456 institutions investing some 2.6 trillion dollars have committed themselves to this investment, or to reinvestment in clean energy. Others have already looked at diversification of their investments. For example, Warren Buffet, a famous corporate investor, doubled his holdings in solar and green energy companies in the amount of some 50 billion dollars.† It is important that this economic forum use its good offices to illustrate to the major players in the fossil fuel industry, the importance of diversifying their energy enterprise in the direction of green clean energy. The XII International Colloquium should emerge with a declaration in support of universal clean green energy.‡

9. Conclusion

This paper has sought to clarify the salience of the difficult relationship of scientific consciousness, its implications for world leadership, and the importance of cultivating that consciousness not only in creative ways but in ways that are morally and ethically compelling. This means that consciousness should be alert to the dynamics of positive and negative sentiment in the shaping of the technological paradigm of the future. Even more importantly, it is crucial for scientific consciousness to self-regulate itself by being better informed about the values it seeks to promote and defend. Successful self-regulation of science avoids the

* Machiba, Tomoo. "Eco-innovation for enabling resource efficiency and green growth: development of an analytical framework and preliminary analysis of industry and policy practices." *International Economics and Economic Policy* 7.2-3 (2010): 357-370.

† Zacks Equity Research, Invest Like Buffett with These Top Ranked Solar Stocks- Stocks in the News, <https://www.nasdaq.com/article/invest-like-buffett-with-these-top-ranked-solar-stocks-stocks-in-the-news-cm360536>, June 10th, 2014

‡ Winston P. Nagan and Megan Weeren, *Homoeconomico-politicus, Scientific Consciousness, and the Defense of Fundamental Values in the Context of the Climate Change Crisis: The Challenge of Scientific Responsibility for the Future of Economic and Political Science*, *Cadmus* Vol. 2, May 2016

danger of control and regulation by forces completely ignorant of the implications of science and technology. This means that scientific leadership must be more articulate in the defense of the values that sustain a creative, dynamic, and responsible scientific, economic and political culture as an indispensable foundation for an improved world order based on human rights and human dignity. This issue is made practically relevant by the challenges demanded for an economics and politics equal to the challenge of climate change for the earth-space community.

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