



PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

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The CADMUS Journal

The acronym of the South-East European Division of The World Academy of Art and Science – SEED – prompted us to initiate a journal devoted to seed ideas – to leadership in thought that leads to action. Cadmus (or Kadmos in Greek and Phoenician mythology) was a son of King Agenor and Queen Telephassa of Tyre, and brother of Cilix, Phoenix and Europa. Cadmus is credited with introducing the original alphabet – the Phoenician alphabet, with “the invention” of agriculture, and with founding the city of Thebes. His marriage with Harmonia represents the symbolic coupling of Eastern learning and Western love of beauty. The youngest son of Cadmus and Harmonia is Illyrius. The city of Zagreb, which is the formal seat of SEED, was once a part of Illyria, a region including what is today referred to as the Western Balkans and even more. Cadmus will be a journal for fresh thinking and new perspectives that integrate knowledge from all fields of science, art and humanities to address real-life issues, inform policy and decision-making, and enhance our collective response to the challenges and opportunities facing the world today.

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CADMUS

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CADMUS VISION

The world is in need of guiding ideas, a vision, to more effectively direct our intellectual, moral and scientific capabilities for world peace, global security, human dignity and social justice. Today we face myriad challenges. Unprecedented material and technological achievements co-exist with unconscionable and in some cases increasing poverty, inequality and injustice. Advances in science have unleashed remarkable powers, yet these very powers as presently wielded threaten to undermine the very future of our planet. Rapidly rising expectations have increased frustrations and tensions that threaten the fabric of global society. Prosperity itself has become a source of instability and destruction when wantonly pursued without organizational safeguards for our collective well-being. No longer able to afford the luxury of competition and strife based primarily on national, ethnic or religious interests and prejudices, we need urgently to acquire the knowledge and fashion the institutions required for free, fair and effective global governance.

In recent centuries the world has been propelled by the battle cry of revolutionary ideas — freedom, equality, fraternity, universal education, workers of the world unite. Past revolutions have always brought vast upheaval and destruction in their wake, tumultuous and violent change that has torn societies asunder and precipitated devastating wars. Today the world needs evolutionary ideas that can spur our collective progress without the wake of destructive violence that threatens to undermine the huge but fragile political, social, financial and ecological infrastructures on which we depend and strive to build a better world.

Until recently, history has recorded the acts of creative individual thinkers and dynamic leaders who altered the path of human progress and left a lasting mark on society. Over the past half century, the role of pioneering individuals is increasingly being replaced by that of new and progressive organizations, including the international organizations of the UN system and NGOs such as the Club of Rome, Pugwash and the International Physicians for the Prevention of Nuclear War. These organizations stand out because they are inspired by high values and committed to the achievement of practical, but far-reaching goals. This was, no doubt, the intention of the founders of the World Academy of Art & Science when it established this institution in 1960 as a transnational association to explore the major concerns of humanity in a non-governmental context.

The founders of WAAS were motivated by a deep emotional commitment and sense of responsibility to work for the betterment of all humankind. Their overriding conviction was on the need for a united global effort to control the forces of science and technology and govern the peaceful evolution of human society. Inhibiting conditions limited their ability to translate these powerful motives into action, but they still retain their original power for realization. Today circumstances are more conducive, the international environment is more developed. No single organization can by itself harness the motive force needed to change the world, but a group of like-minded organizations founded with such powerful intentions can become a magnet and focal point to project creative ideas that possess the inherent dynamism for self-fulfillment.

Ivo Šlaus

Orio Giarini

Garry Jacobs

CADMUS
New Perspectives on Major Global Issues
Volume 2, Issue 2, May 2014

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Inside this Issue

*Earlier issues of **Cadmus** Journal have explored new ideas and strategies for addressing the multiple challenges confronting global society today in the fields of economics, ecology, governance, security, society and culture.*

*Beginning last year the focus of the World Academy of Art & Science shifted from examination of individual sectors to a search for comprehensive, integrated solutions, which represent initial efforts to frame a New Paradigm for human development. This has been the subject matter of recent conferences at Trieste, the UN in Geneva, Library of Alexandria, Washington DC and Ottawa in 2013. This shift has continued in 2014 with a very successful conference on “**Transition to a New Society**” in Podgorica held in association with the Montenegrin Academy of Sciences & Arts and participation in a meeting organized by Club of Rome at Castell de Castellet near Barcelona in March 2014.*

*The April 2011 issue of **Cadmus** led with a “**Call for United Action**” by Heitor Gurgulino de Souza. In the spirit of that call, on April 30th this year WAAS and the Nizami Ganjavi International Center convened a meeting in Baku, Azerbaijan to explore the scope for collaboration between leading organizations on formulation of a new paradigm. The meeting involved leading organizations including the Club of Madrid, Club of Rome, Future World Foundation, Green Cross International, Institute for Cultural Diplomacy, Library of Alexandria, Partnership for Change, World Future Council, and the recently established World University Consortium.*

This initiative is based on the following premises:

- The contemporary world is global, complex, uncertain and changing rapidly.*
- The present economic, social and political paradigm is destroying natural, human and social capital at an accelerating pace.*
- The problems generated by this destruction require urgent solution.*
- All of these problems are complex, interconnected and cannot be effectively addressed in a piecemeal, sectoral fashion.*
- They cannot be solved within the existing paradigm.*
- One of the fundamental issues concerns rebuilding macro-economics.*

- *The world witnessed a number of sudden, dramatic, game-changing paradigm changes in the 20th century.*
- *Today a new human-centred and sustainable economic, social and governance paradigm is demanded.*
- *It must be global in perspective, adaptable to constantly changing conditions, and capable of responding to inherent uncertainties.*
- *A new paradigm is achievable while preserving the valuable components of the existing paradigms.*

*This issue of **Cadmus** includes a number of articles exploring different dimensions of these issues. We hope readers enjoy it and invite you to contribute to the on-going effort to frame new foundations for human development.*

Orio Giarini

Garry Jacobs

Ivo Šlaus

SEED-IDEAS

Expanding Network of Networks

The World Academy of Art & Science was founded as a network of concerned individuals committed to addressing the multi-faceted global challenges of the modern era. It would appear that a small group of people – no matter how distinguished – cannot expect to have significant impact on problems that span the entire globe and confront all of humanity. But appearances can be deceiving. On closer examination, we discover that each of our members is a member of many other networks that cross organizational boundaries, disciplines, fields of activity and national borders to form a rich web of interrelationships as intricate in its variety and complexity as the Internet. We are all nodes on that global network.

The development of the World Wide Web has made self-evident just how powerful inter-linking relationships can be for accomplishment of any objective. Indeed every society is such a network and all of the work accomplished by the world today depends on these subtle linkages. The power of language, money and the Internet derives from the fact that they are tools that facilitate networking. Every individual constitutes a network of immense potential. That explains why single individuals throughout history have exhibited a remarkable power to change the world as explored in the Academy's project on Individuality. What applies to individuals is even more applicable to organizations of individuals.

Three years ago the second issue of *Cadmus* began with a Call for United Action by Heitor Gurgulino de Souza.¹ It is with this understanding that the Academy has consciously set out over the past few years to foster and strengthen our relationships with like-minded institutions – organizations such as CERN, Club of Madrid, Club of Rome, European Leadership Network, Foundation for a Culture of Peace, Global Security Institute, Green Cross International, Institute for Cultural Diplomacy, Inter-Academy Panel and Inter-Academy Medical Panel, International Association of University Presidents, Inter-University Centre, Library of Alexandria, Montenegrin Academy of Sciences & Arts, Mother's Service Society, Nizami Ganjavi International Center, Parliamentarians for Nuclear Non-proliferation and Disarmament, Person-Centered Approach Institute, Pugwash, United Nations Academic Impact and World Future Council – nearly all of which are headed by Fellows of the Academy who are themselves members of many other distinguished organizations. And these tentative steps are only the beginning.

*“As an Individual,
each of us is a psy-
chological network
whose potential
power for effectiv-
ity remains largely
unperceived and
unexpressed.”*

With the founding of the World University Consortium of educational institutions last year, WAAS has taken the first step to convert these informal relationships into a formal umbrella group of organizations capable of leadership in thought that leads to action at the global level. We are now in the process of constituting two other umbrella groups to develop a New Paradigm for Human Development and promote peaceful development in the Levant. Each

member can contribute to the growth and development of these networks by serving as an active link between WAAS and the other organizations with which you are associated.

As an Individual, each of us is a psychological network whose potential power for effectivity remains largely unperceived and unexpressed. Becoming fully conscious of that capacity will enable each of us and the Academy as a whole to accomplish far more than we now think possible. We invite you to collaborate in this endeavor.

**Orio Giarini, Heitor Gurgulino de Souza, Garry Jacobs,
Winston Nagan, Ivo Šlaus and Alberto Zucconi**

Notes

1. Heitor Gurgulino de Souza, "Call for United Action," *Cadmus* 1, no.2 (2011): 9.

The Coming Revolution in Education

There are many kinds and degrees of freedom – political, social, psychological and spiritual. The end of colonialism following WWII liberated a third of humanity from the oppression of foreign rule. The end of the Cold War brought the freedom of democracy to hundreds of millions more in Eastern Europe, Latin America, Africa and Asia. The birth of the Internet brought unprecedented freedom of access to information, ushering in a revolution in knowledge that is breaking down the confining structures of ignorance, misinformation and prejudice that divide and separate people even when they are living side by side.

“The coming revolution in education is a harbinger of the coming freedom of the individual.”

But for all this astounding progress, humanity remains imprisoned and oppressed by the limitations of a social structure that separates the educated from the uneducated, those who possess the knowledge and certification which are passports to economic opportunity and social respectability and those who do not. For every privileged aristocratic elite it has abolished, education has created a new, albeit much larger and more inclusive social elite distinguished from the rest by the status of a diploma.

Freedom can liberate and empower like nothing else. We are now on the cusp of a revolution in education that will be both liberating and empowering. Education is a great leveler. It levels politically by generating awareness of rights and awakening the aspiration for freedom and equality. It levels economically by equipping youth with the knowledge and skills to rise beyond the occupations of their forefathers. It levels socially by dissolving invisible barriers to mobility and opening doors of opportunity. But, more importantly, education inspires and empowers the individual to come into his own, to discover his own potential, to become self-reliant and find his own place in the world. Knowledge provides access to information, but not necessarily the capacity to absorb or utilize it effectively. Education imparts that capacity to absorb what is available, process, interpret, apply and utilize it for individual accomplishment and social advancement. The coming revolution in education is a harbinger of the coming freedom of the individual, the empowerment of the individual to play his true role as co-creator for the further evolution of society in the 21st century.

It may sound naive to speak of a revolution in higher education, an institution which in its constitution and mode of functioning has remained immune to alteration by all the revolutions of the past in which it has itself played a crucial role as incubator for disruptive ideas, break-through technologies and impatient energies demanding radical change. The institution of higher education itself is still based on a pedagogy and technology developed centuries ago. Therefore it is wise to recall that even the most visionary failed to conceive in 1995 of what the World Wide Web would become in a mere 20 years.

The quantitative extension of access to free quality higher education made possible by the MOOCs is itself only the beginning of something far more important. The coming revolution will not only make education accessible to all; It will also upgrade quality and unleash creativity and innovation in the field of education as never before. It will tear down the barriers that separate the ivory tower from the real world. As Ismail Serageldin observed during the

April 2014 Biovision conference at the Library of Alexandria, “we are in the earliest stage of a transformation in the structure of the institutions of education and learning which will morph into something unrecognizable to those who think of yesterday’s schools as a model or those who yearn for their collegiate university experience. We need to think even more boldly and dream of reinventing education completely.”

“Imagine a system in which the often impermeable barriers between the university and society become a porous and dynamic marketplace for continuous exchange of ideas in both directions.”

Imagine a global system in which every student can choose from thousands of courses offered by universities around the world and from among the top lecturers in the world on every subject with automatic translation into any language of choice. Imagine a system in which other institutions – research institutes, NGOs, companies, governmental and international organizations – can offer their own expertise and experience as course material through a process of backward integration from live practice to theoretical knowledge in the world’s virtual classroom. Imagine a system in which the often impermeable barriers between the university and society become a porous and dynamic marketplace for continuous exchange of ideas in both directions. To imagine these things is to envision a world in which all individuals have unprecedented opportunity to develop their own capacities for independent thinking, creativity, personality and individuality. It is to envision a human-centered society in place of the technology, money and status-centered society in which we now live – a society which strives to develop and realize the full potential of every human being. That is indeed a dream today, but a dream that can soon be realized.

Alberto Zucconi and Garry Jacobs

Transition to a New Society*

Ivo Šlaus

Honorary President, World Academy of Art and Science;
Dean, Dag Hammarskjöld University College for
International Relations & Diplomacy, Zagreb

Abstract

The contemporary world is global, uncertain and rapidly changing. The present economic, social and political paradigm is destroying natural, human and social capital at an accelerating pace. Problems generated by these destructions require urgent solution. All these problems are complex, and cannot be addressed in a piecemeal, sectorial fashion. These problems cannot be solved within the existing paradigm. They have to be addressed holistically, simultaneously and immediately. A new holistic economic, social and governance paradigm is needed. The new paradigm has to be human-centered and sustainable. It should be global, constantly evolving by overcoming inherent uncertainties. A new paradigm is achievable while preserving the valuable components of the existing paradigm.

Five scenarios are possible: one, no change; two, business as usual; three, incremental changes; four, revolutionary changes and five, paradigmatic changes (a concept introduced by Thomas Kuhn in *The Structure of Scientific Revolution* (1962) for development of scientific research. I will use it here in the sense of socio-economic-political development and in a narrower way distinguishing it from revolutions).

Changes are imbedded into our society, e.g. demographic transition and technologies built in our lives; they cannot be stopped even if dedicated efforts were institutionalized. There is no end of history as F. Fukuyama and Hegel suggested, and option one is just not possible.

The last century witnessed major progresses: life expectancy increased by almost a factor of two, gross domestic product per capita (GDP/c) increased almost five times, freedom and democracy (one of the Kantian conditions for peace) now encompass a large fraction of humankind and the international system of sovereign states has produced notable successes such as the UN system and Montreal ozone agreement. One could conclude that business-as-usual is a desired scenario.

It is not!

Ecological footprint is considerably larger than what our Earth can tolerate and if business-as-usual continues in the year 2050, we would need two Earths. Since colonization of the universe is by no means as simple as the discovery of the New World 500 years ago (notwithstanding the fact that our mobile phones and GPS prove that we are already in the

* This article is based on a presentation made by the author at the international conference on "Transition to a New Society" organised by the Montenegrin Academy of Sciences and Arts and held in Podgorica on 21-22 March 2014

space outside of our Earth), the present ecological footprint is unsustainable. Much worse: our destruction of Natural Capital has been considerably deeper (e.g. destruction of biodiversity, nitrogen cycle and climate changes as demonstrated in *Bankrupting Nature* by A. Wijkman and J. Rockstrom). Life on Earth is threatened.

The enormous, not fully realized human potential, the guarantor that humans could overcome most of the obstacles, is destroyed by business-as-usual. Low employment rates, now in many countries below 70% (particularly vulnerable are two groups: young and those above 50) and huge inequalities (hundred-thousand times larger than recommended by Plato 1:5, and J.P. Morgan 1:20) lead to lower life expectancy, increased crime rate and deteriorate all socio-economic indicators (it is known that there is a window of desirable and acceptable inequalities). Human Development Index decreases because of inequalities. The loss is largest in education (e.g. 57% in Arab countries and 50% in South-East Asia) and in health (45% in Sub-Saharan Africa). Present economic structures and institutions are in conflict with current and developing economic realities as demonstrated by frequent and prolonged financial and economic crises. Business-as-usual led to serious destruction of trust and of social capital.

There are about 3000 different cultures which we have to preserve and 200 sovereign states which grossly differ in size, and the subsidiarity concept that could overcome this discrepancy is hardly implemented. The very concept of sovereignty in the 21st century is not what it was in the 17th century. The *raison d'être* of sovereign states is, to assure human security through maintaining order and justice internally and to provide common defense are questionable; the number of failing states increases even more ominously; democratic deficit increases since barely about 50% of citizens vote and many polls indicate that about 70% consider that their countries are governed contrary to their will. The governance system of the current world is not adequate – both at the level of sovereign states (it is interesting that the author of the famous Incompleteness theorem K. Gödel while going to get the US citizenship was prevented by his friend A. Einstein from saying to the clerk that the US Constitution has a logical inadequacy that could lead to dictatorship), and at the international level (The UN system designed after WWII is not adequate for the current world and in several ways has even deteriorated: The UN Security Council with veto power of five permanent members, the now established G8 or G7 or G20, and the fact that still there is no UN parliamentary assembly and most notably, no global governance).

Nine sovereign states (with about half of the world's population) have detonated nuclear weapons, and though numerous treaties have reduced nuclear stockpiles, about 20,000 nuclear weapons, a large fraction of them on trigger-alert status are threatening to destroy our world. Many times since the end of WWII the world came very close to destruction: to list just two, the Cuban crisis and on September 26, 1983, when the USSR's nuclear early warning system reported missile attack from the USA. Stanislav Y. Petrov, an officer on duty, assumed it was false (and it was a false alarm) and so saved the world. The Bulletin of the Atomic Scientists put a Doomsday clock on its front page. It was put at 7 minutes to midnight in 1947, and was moved to 2 minutes in 1953 when the USA and USSR exploded

their H-bombs, less than a year apart. At the end of the Cold War it was moved to 17 minutes. On January 14, 2014, it was put on 5 minutes to emphasize the danger of all weapons of mass destruction (WMD: nuclear, chemical and biological) and destruction of Nature caused by humans. Superimposed on WMD which were the weapons of the 20th century, new 21st century automatic robot weapons are being designed and deployed. Now I would put the clock again at 2 minutes

“A profound change is required, not a revolution!”

before midnight, since current political actions are pushing the world toward a renewed Cold War superimposed on terrorism and on all social, economic and political problems. Politics permeates everything, but as the 17th century Swedish chancellor Axel Oxenstierna said, “Politics is done with enormous stupidity.” It leads to strange results as often stressed now on the occasion of the 100th anniversary of WWI that claimed to be an improbable war and yet resulted in the largest casualties. “It was the worst of times, it was the best of times”, were the words of Charles Dickens describing the time of the French Revolution, which have now turned into “to be or not to be”, as underlined by WAAS Fellow Winston Nagan.

Change is needed! Are incremental modifications, so often recommended at many international forums, adequate? Experience with revolutions demonstrates they do not lead to anything good. The Club of Rome organized on December 8-11, 2012, the conference “Change the Course” remembering the April 15, 1912 sinking of the Titanic. Is it enough to change the course? The current world is substantially different from what it was, while the call implies that we would still be in the same ship. Now we are a very different “system”, likely not going to the destination that Titanic – our civilization – aimed to go. It seems that a profound change is required, not a revolution!

It would be interesting to analyze human activities dealing with systems that are considerably simpler than society. This is our physical universe that involves particles, forces and laws that apparently did not change for the last 13.8 billion years. Understanding of the physical universe considerably evolved during several millennia. It was and is based on observations, experimentations, measurements and common sense forming a multitude of prejudices. Technologies developed enabled us to change ourselves and the world we live in and gave us the worldview fairly different from what it was when we were hunters/gatherers. Based on observations and measurements in the past, we believed that we are the center of the world, and that stars including the Sun move around us in perfect orbits – circles. When facts required more, circles were superimposed upon circles (incremental modifications!) until the Copernican revolution (!): Earth moves around the Sun, and with Kepler and Newton it became clear that orbits are not circular. Looking from the 20th century it is a minor change: basic concepts remained the same. Actually, the idea was not even completely new: it was proposed much earlier by Aristarchus of Samos in 3rd century BC. Nevertheless, we term it ‘Copernican Revolution’. It was not peaceful, actually it was bloody, and enemies were burned at stakes, much like the French and the October Revolutions. The end of the 19th century was a glorious epoch for physics: unification of electricity and magnetism resulting in predicting electromagnetic waves thereby incorporating optics, added to understanding energy and introducing entropy. Logically, Kelvin concluded that physics is complete and

that two minor clouds would be clarified through more precise measurements. Minor clouds turned out to be the Theory of Relativity and Quantum Physics. Everything has changed: time, space, certainty, common sense. As G. B. Shaw said, "My dogma of infallibility is gone." However, notwithstanding the fact that the uncertainty principle is the basic law of all natural sciences, quantum electrodynamics, marvelous merging of relativity and quantum physics predicts results that agree with measurements to an accuracy of billionth of a billionth. Thomas Kuhn called this profound change a paradigm shift. Obviously this paradigm shift is much more pronounced than the Copernican Revolution. But, notwithstanding the profound magnitude of the change, the new paradigm reduces to the old paradigm when conditions for the validity of the old paradigm are fulfilled so there is no conflict: old paradigm is just a subfield of the new paradigm. It seemed that quantum physics and the theory of relativity would provide a definitive description of our physical universe, and that we have the answer to the 2500 years old Thales' question: How and from what is the universe made? In 1979 Stephen Hawking entitled his inaugural talk for the Lucasian chair "Is the End in Sight for Theoretical Physics?", and an American science journalist J. Horgan argued ("The End of Science", 1996) that nothing essential can come after quantum physics and theory of relativity. Though quantum physics and theory of relativity are not superseded, our present understanding based on COBE (1992), WMAP (2001), ESA Planck (March 21, 2013) and BICEP2 (announced just few days ago on March 17, 2014) as well as on many accelerator data leads to the understanding that ordinary matter (stars, planets, radiation and us) accounts for 4.9% of our 13.8 billion years old universe, while dark matter accounts for 26.8% and dark energy, 68.3%, which may be just one of the many universes in the multiverse. Our cosmos underwent a cosmic phase transition (we are familiar with phase transitions like ice turning into water and gas). Phase transition could even be involved in the creation of 3D space 10^{-12} seconds after the Big Bang. And this may not be the end of this marvelous story! Theory of relativity and quantum physics were full of surprises: Einstein rejected expansion of the universe (it is experimentally proven), and with many others did not believe in singularities nor in black holes (they are proven too). Randomness and uncertainty were so unacceptable to many 19th century physicists, and so were antimatter and supersymmetry, not to speak of strings and "branes". Different from revolutions that claim to be the end, paradigm change in physics at the turn of the 19th and 20th centuries was a creative explosion of potential surprises.

"Trying to apply reasoning derived from physical systems to social systems is wrong and can be dangerous! Applying physics to calculate the age of the Earth and thereby prove or disprove Darwin's theory of evolution led Kelvin to a totally wrong conclusion."

Are any of these analyses relevant and useful for addressing the current issues characterizing our society? Physical world is just a very simple segment of the total world inhabited by life, humans in particular. Humans are rational, but also irrational, even stupid, self-modifying

(though we were mainly characterized by our lifestyle as hunter/gatherer, humans today are vastly different from the age of the Agricultural Revolution and have already integrated some robots in themselves: pacemaker, implants etc.). Humans are conscious and creative. Beauty plays a significant role in Nature and in human activity (possibly more than required by evolution), and wisdom appears to be scarce. Trying to apply reasoning derived from physical systems to social systems is wrong and can be dangerous! Applying physics (albeit unfinished, but is hardly ever completed) to calculate the age of the Earth and thereby prove or disprove Darwin's theory of evolution led Kelvin to a totally wrong conclusion. Only when radioactivity was discovered and taken into account, it was possible to get the proper result for calculating and measuring the age of the Earth. Influence of physics, mathematics and model development was often detrimental to economic studies. However, parallels could be useful if applied with a grain of salt. So, let us proceed gently.

We argued that for our world a static solution is impossible and that the business-as-usual leads to catastrophe. Contemporary world is global (it was never global to this degree), fast changing (now significant changes occur several times during human lifetime) and uncertainties are its integral part. All this is very different from what it was centuries, even decades ago and lead to change. Change is inevitable! The world undergoes incremental and paradigmatic changes where some of them could lead to catastrophe. As G.B. Shaw's Don Giovanni said "to drift is to be in hell, to steer is to be in heaven!" We have to steer – to select desirable changes and to avoid and suppress undesirable ones. And we have to select the means of change. We argue that revolutionary changes are dangerous, superficial and produce incomplete and inadequate effects, and should be avoided. Soedjatmoko Mangoendingrat, former Fellow of WAAS and former rector of the UN University, argued that future is an ethical category: we are responsible for the future, we make the future, we enforce and suppress some changes and weave the paradigmatic shift. But how? Basic guiding principles are useful, just as in physics when Einstein was led by the requirement that in all frames physical laws are equal, resulting in the constant speed of light and no matter what we do we cannot catch it. Guiding principles to assure beneficial changes could be those centered on human beings.

Humans have rights and responsibilities. Our basic right is to live. Therefore, the guiding principle is human-centeredness. One could argue that our entire history was human-centered; it seems very straightforward (after all here we are. However, in centuries of the past, *raison d'état* was supreme over human values. Many of today's laws and policies are very far from being human-centered e.g. an austerity program severely affecting humans). Now greed, narrow-mindedness, adherence to old, now dangerous, concepts and "tools", prejudices and deliberate underuse and misuse of human capital are leading to catastrophe, to our collective suicide. ("There is enough for human needs, but not for rich persons' greed")

What does human-centeredness mean?

While in studying physical systems one could make useful approximations and idealizations and treat many topics separately and independently, we have to remember that the essential feature of our society is interconnectedness; everything is interdependent. All problems have to be treated simultaneously. The current paradigm is rapidly leading

to a catastrophe and so all problems have to be addressed promptly, since they are urgent. New economic paradigm has to be intertwined with new governance paradigm, and they all have to be sustainable and peaceful. The sources of the interdependence are individuality of human beings and integration of humans and Nature, integration of humans among themselves, as well as our values, identity, our aims, aspirations and expectations shaping humans into historical conscious beings.

Humans are an integral part of Nature, and preserving Nature is a vital aspect of human-centeredness. The present paradigm grossly violates Nature. Notwithstanding several successes, governance of the environment has been and is dismal. The economy maximized for profit and greed, and ignoring the commons is unacceptable in the new paradigm. New ecological economy has to maximize the use of abundant resources, and human and social capitals are abundant and underused, and it has to minimize the use of scarce resources like natural capital. As in physics some “sacred cows” would have to be modified. Again, one has to be careful in assessing concepts (property, virtual wealth) and tools (e.g. money, banking). One should be careful that some of our “revolutionary” ideas, which may appear to be new, could be part of our old grudges. Adam Smith was a moral philosopher and economist concerned with human welfare. Economics developed its own measurements and became an independent scientific discipline. It took humankind millennia to develop the system of units that was finally codified at the time of the French Revolution and we got meters, kilograms and seconds. It is no wonder that indicators and measurements in economy – productivity, competitiveness, GDP, Human Development Index and many others all the way to happiness indicators – are far from satisfactory, but some of them, when based on good theory, produced good policies and effects. It is often stated that the current age is the age of measurement, but we have to be careful and humble as we use these indicators and derive policies and actions from such measurements. The present disillusionment in everything, sometimes including science, leads to questioning the results of pollution and climate change. Of course, there will be progress in climate models and even more in understanding the enormously complex climate system, but as nobody would jump from a high story building arguing that we still do not properly understand gravity (it is absolutely true that we do not fully understand gravity), so humankind should stop violating Nature arguing that our current knowledge is not perfect and will soon be improved. We just have no time and the call “let us all have the standard as in highly developed countries” is not unrealistic, but senseless since that standard is not necessarily high or satisfactory.

Humans are social animals, and the Golden Rule is an integral part of all major religions and cultures is imbedded in our genetic code. Violence, arrogance and inactivity (sin of omission) have characterized the old paradigm and each and all lead to catastrophe. Violence is destroying human dignity, and all forms of violence from individual violence to terrorism, to war, to state-terrorism (democide) and social suppression are part of an old paradigm unacceptable in the age of a new paradigm. Part of the old paradigm was preparing for war, but contrary to any and all superficial analyses there is clear evidence that WMD are counterproductive, immoral and unusable, and through their enormous economic burden (it is estimated that the USA, within the next decade, will spend 1 trillion dollars just to maintain its nuclear

capability) lead to economic destruction. Arrogance is common to humans, and all “end of ...”s show that at various times we believed we achieved complete understanding and a perfect structure. There is a joke that astrophysicists are often in error, but never in doubt. Since our world is so rapidly changing according to the “rules” we do not yet understand, such conclusions are wrong. As quantum physics/theory of relativity provided explosion of surprises, so the forthcoming paradigm shift can produce an explosion of even richer surprises. Possibly the sentence “There are more things in heaven and in the Earth, my dear Horatio, than are dreamt in your philosophy” has to be turned around: our creative power is supreme. We may enter an age when we share our Earth with robots – automatic and artificially intelligent robots – and our economy and rule of law have to be modified, producing unforeseen and unimaginable integration of us and them. There

“Proposals for establishing UN Environmental Security Council and UN Social Security Council are more than three decades old, but nothing has been done so far.”

is an old joke from communism: when expert economists encounter two workers pushing a cart, they comment “why do two of you push it, when it is easier for one to do it?” and the reply comes “since the third one is ill.” The Future will likely replace their work with robots. This does not imply unemployment; it implies that people will do much less manual work, and a lot of creative work which is badly needed: we do not understand, we do not have answers, solutions to problems we face, and not acting will not solve any of these problems. Aristotle argued “That all men (he should have used humans) by nature have a desire to know.” Society has to assure education for all at all levels (including lifelong learning), research and creativity. This is what governments today are for since this is part of justice, prosperity and human security. Full employment is a human right, intertwined with human political rights. It is often emphasized that the current economy is a service economy. This is true, but beware that services do not overwhelm us through unnecessary and obstructive services (it sounds as an oxymoron, but services, e.g. various over-controls can suffocate the system; each step of mandatory services involves an error and they add).

Humans are political animals, and though Aristotle stated that “politics” has a special position in scientific activity, it is true that research, science and politics were constantly in conflict as demonstrated by Justinian abolishing the Plato Academy. In a global world we need global education and global governance. Present structure of sovereign states and present international regime should be constantly improved to include global dimensions and to add existing richness to the system of sovereign states. Some of this has been done long ago, e.g. ILO (first international labor organizations date from the 19th century and then immediately after WWI and through the League of Nations) having a tripartite governance structure representing governments, workers and employers (in 2:1:1 ratio) and it would be very useful to implement similar structures throughout the UN system. Proposals for establishing UN Environmental Security Council and UN Social Security Council are more than three decades old, but nothing has been done so far. There are other existing forms that could be implemented. For instance, referenda are integral part of a political process in several

countries, but global referendum was never tried there. Referendum is a rather complex political process with many drawbacks, but it would be rewarding to contemplate referenda on basic human rights that would then force legal consequences in each and all sovereign states laws. Examples could be protection of basic human rights such as the abolition of WMD, abolition of war and full employment.

We showed that no matter what, the world is facing major paradigmatic shift. In a world characterized by uncertainties actions of humans require interplay of science, creativity, political actions and decisions. Collaboration and harmonious actions by independent structures such as the UN system, Club of Madrid, Club of Rome, Pugwash, European Leadership Network, World Academy of Art and Science, regional academies, national academies and many other organizations such as research centers, sovereign states, various movements are necessary to implement leadership in thoughts that leads to action.

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New Paradigm: The Necessity and the Opportunity

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Abstract

The multi-dimensional challenges confronting global society today will not lend themselves to resolution by piecemeal sectoral strategies and incremental measures. Their causes are deep, inextricably interconnected and result from deficiencies in values, concepts, institutions, policies and actions. Fundamental change is needed in both thought and action – a new intellectual paradigm that is comprehensive and integrated combined with a new institutional policy framework founded on the values of human welfare and well-being. At every crucial juncture in human history the advent of new paradigms has precipitated radical change. Past paradigm changes confirm that the problems created by human beings can be solved by human beings. At such moments, ideas have the power to precipitate radical change driven by compelling social forces and emerging deep drivers. Today the pressure of rising expectations for freedom and prosperity, unprecedented technological capabilities, burgeoning global financial assets, and an inevitable movement toward an integrated global society combine to generate the opportunity and necessity for fundamental change. The starting point is the willingness to challenge the irrationality of the premises underpinning the existing paradigm. Paradigm change is not only possible. It is inevitable. The only question is whether it will occur by gradual, progressive, peaceful social evolution now or drastic, sudden, violent and potentially catastrophic revolution later.

1. Multidimensional Global Challenges

The world today presents unprecedented opportunities intricately intertwined with seemingly unsolvable challenges. A proliferation of money, technology, education, trade, communication links and democratic institutions is fueling ever more rapid global development. At the same time, prevailing ideas, institutions and policies impose severe constraints on our ability to meet the growing needs and rising aspirations of the human community for freedom, security, welfare and well-being in a peaceful, effective, harmonious and equitable manner. The growing global capacity to meet human needs has come face to face with seemingly insurmountable obstacles posed by out-moded ideas and attitudes, vested-interests, entrenched forces and ineffective institutions.

These opportunities and challenges present a nexus of unparalleled complexity. Each positive advance brings with it new problems and aggravates existing ones. Technological wonders widen social disparities and displace workers, generating public discontent, political instability and conflict. Rapid growth accelerates environmental depletion and competition

for scarce resources. Spreading democracy provides greater scope for polarization of society on religious, ethnic, linguistic, political and economic lines. Globalization opens up economic opportunities while making states and their people increasingly vulnerable to destabilizing impacts from beyond national borders. The weakening of national sovereignty has created a widening legal and governance vacuum at the international level at the very moment when coordinated global action is more necessary than ever before.

These challenges and opportunities share common characteristics. They are all interrelated and interdependent, global in nature, transcend narrow disciplinary boundaries, and subsist on the basis of erroneous conceptions, flawed theories and out-moded ideas. They defy solution by piecemeal concepts, incremental policies and sectoral strategies framed within the context of the prevailing values, concepts and institutions that preside over the formulation and execution of public policy. Each can be traced back to similar underlying factors and “root” causes, a major reason why they defy effective remedy by partial strategies. The true source of these crises lies in the ideas and values that underpin the structure of modern society and they will only lend themselves to permanent remedy when understood and addressed from a deeper and wider perspective. They are all anthropogenic in origin. All are the expression of prevailing ideas, values and actions, not inalienable laws of Nature, which means that all can be rectified by a change in those ideas, values and actions. As President John F. Kennedy put it, “Our problems are man-made – therefore, they can be solved by man.”¹

As they grow in magnitude, these challenges will compel a questioning, re-examination and reformulation of things once considered as sacred and unshakeable as the Roman Empire in its day or the USSR before its sudden demise a quarter century ago. Failing this, they will lead to increasing social turbulence unleashing revolutionary forces of violent change as society has witnessed at crucial transition points in the past. Whether by violent revolution or peaceful social evolution, the current impasse must and will inevitably be resolved by effective action, as surely as the Great Crash and Great Depression led to the evolutionary advances of the New Deal and the rise of the modern welfare state.

If not incrementally and piecemeal, then the solution must lie in a broader, more fundamental recasting of the political, legal, economic and social pillars on which global society is presently based. We have to move the goalposts that presently constrain our thinking and our action. The existing paradigm must inevitably give way to a new paradigm. This implies significant or even radical changes in the values that guide public policy and action, in the concepts that underpin our comprehension of society and its development, in the political institutions of governance and their relationship with different sources of social power, in the laws governing relationships between sovereign states and between governments and the governed, in the regulation of economic activities and their impact on people and the environment, in social policies that determine the distribution of rights and benefits in society, and in countless other areas.

A better appreciation of their common attributes and root causes will provide a platform for insightful debate and more effective remedies. Approaching the multiple crises from a

common perspective and addressing multiple pressure points at their common underlying roots can lead to solutions that are far more practicable, effective and lasting than those resulting from a fragmented approach. Only then can we hope to reconcile these complex economic, ecological, social and political forces and forge a coherent strategy to promote security and welfare for all human beings, present and future.

An integral perspective constitutes the starting point, but in order to translate it into usable, practical results, we will also need to examine the ruling ideas and values that govern the present system, the theoretical constructs and policy framework on which it is based, the social institutions through which it functions, and the structures and laws by which it is governed. These constitute the essential sources of the current problem as well as the principal instruments for building a better world.

“In countries around the world rule by money power, plutocracy, masquerades as representative democracy.”

2. Characteristics of the Existing Paradigm*

Ideas and values underlie all our thought and action. The world we know today is a natural consequence of ideas and values formulated in the past, adopted over time and still prevalent in spite of increasing challenges to their validity, fairness and relevance. The existing paradigm of global development is based on a set of spurious assumptions, premises and principles which may have had some utility in the past, but now represent serious impediments to global social, economic and political progress. There are numerous reasons why the present paradigm fails to provide optimal solutions.

The current paradigm is based on outdated and naïve economic theories and assumptions, such as the infallibility of free enterprise, which ignores the obvious fact that unregulated markets, like other networks, are neither free nor fair, for they invariably become skewed in favor of the early adapter or the most powerful. It is based on economic doctrines more appropriate to a capital-intensive, technology-driven industrial economy at a time when human services account for three-quarters of all economic activity and the quality of human resources is the single most important contributor to wealth creation. It is based on measures of economic value that consider expenditure on arms exports, war and environmental catastrophes of equal value to those on education, health care and human security. It is based on a narrowly defined notion of economic efficiency that neglects the wider efficiency of the society of which economy is but a part. A society with 20 or 50% youth unemployment does not qualify as efficient by any rational considerations, for it is a society that is squandering its most precious and perishable resource and sowing seeds for future revolution.

The current paradigm is also based on outdated concepts regarding national and global governance. In countries around the world rule by money power, plutocracy, masquerades as representative democracy. It supports an undemocratic system of global power sharing

* This section is adapted from an earlier published article by the authors. See <http://cadmusjournal.org/article/issue-6/search-new-paradigm-global-development>

established more than sixty years ago that is grossly out of tune with both professed ideals and current realities. It is founded on a narrow conception of national sovereignty that – regardless of the actual form of national government – subordinates the legitimate rights of individual human beings and the collective rights of the human community to that of national governments acting on behalf of special interests and power groups. It upholds the right of some nations to special privileges unmatched by commensurate responsibilities. It sanctions the production, possession and possibly even the use of weapons that violate the humanitarian rights of all humanity and endanger the global environment.

3. Characteristics of Paradigm Changes

History offers precedents for radical change. Usually they occur in the form of violent revolution in the face of intractable vested interests that resist dilution of their power, as in Revolutionary France and Czarist Russia. Occasionally they have been ushered in by far-sighted leaders who recognized the urgent need for rapid social evolution to preempt the possibility of violent revolution, as nineteenth century England sought to avoid a repetition of the bloodshed that wiped out the French aristocracy by opening up to the prospering middle class a greater share of political power and social respectability.

The challenges confronting humanity today are as formidable and threatening as any or all of these earlier challenges combined. At the same time the opportunities available to humanity to meet the needs of all human beings have never been greater. Both the compulsions of eminent danger and the prospects for unprecedented progress constitute powerful incentives and enabling conditions for unparalleled actions with potentially momentous consequences.

This naturally raises questions as to whether a significant change in paradigm is possible or likely in the foreseeable future and as to whether there is anything that can be done by a group of like-minded organizations and individuals to make that change occur or occur any sooner than global social conditions determine. An examination of past paradigm changes during recent WAAS conferences at Trieste, Geneva, Alexandria, Washington DC, Ottawa and Podgorica provides some insights regarding these questions.

3.1. Paradigm changes are not uncommon

A review of past centuries and more recent times supports the conclusion that significant paradigm changes are more common than is commonly believed. In 1932 US President Franklin Roosevelt spearheaded a remarkable and unprecedented change of paradigm in US economic and social policy. In the wake of the banking panic that led to the closure of more than 6000 US banks, he pushed through radical reform of the banking system, erecting the safeguards that protected the economy from recurrent banking crises for the next seven decades. But he did not stop there. It was almost unthinkable in 1932 to imagine that the world's leading proponent of free enterprise would adopt strong social welfare policies. Yet during the following two years FDR ushered in the New Deal, a radical reformulation of public policy to promote social security in a country previously resistant to all

government-sponsored welfare measures. Had he not died prematurely before the end of the war, he would have capped his revolutionary program with a new bill of economic rights, which included the right to employment. The adoption of similar social welfare policies in Europe led to a period of unprecedented economic development and rising levels of prosperity throughout the Western world.

Since 1945 four equally remarkable changes in paradigm have radically advanced the cause of freedom, peace and global security. India's non-violent independence movement marked the end of colonialism and was quickly followed by freedom for more than 50 subject nations representing about one-third of humanity. After fighting two horrendous world wars, the great powers founded the UNO to permanently shift the theater of major conflict between nation states from the battlefield to the conference table, thereby successfully preventing a third world war during the 20th century. In the 1950s the perennially warring European powers took the first steps toward founding a trans-national union that has brought unprecedented peace and prosperity to the continent and made war in Europe unthinkable. Again in the late 1980s, Gorbachev initiated steps which led to the dissolution of the authoritarian Soviet Empire, ended the Cold War and brought down the barriers dividing East and West Germany. As a cumulative result of these four great transformations, between 1945 and 2012, the number of democracies rose nearly five-fold from 21 to 98.² During the same period, annual war casualties dropped from 500,000 to 30,000.³ Since 1988 high intensity wars that kill at least 1000 people a year have declined by 78%.⁴

In past centuries and with increasing frequency, significant and sometimes radical changes of paradigm have altered the complexion of society in countless ways. Paradigm changes are of many types: intellectual, political, economic, technological and social.

The Copernican and Newtonian revolutions, scientific positivism, the theory of evolution, theories of economic progress, psychoanalysis, Relativity Theory and Quantum Theory, cybernetics and complexity theory are just a few of the radical changes in ideas that have powerfully influenced our understanding of the world and our ways of relating to it. The political revolutions in England, America, France and Russia are prominent historical examples. Since 1980 successive waves of democratic revolution have swept through Eastern Europe, Central Asia and from there to every continent.

The Industrial Revolution, monetarization of the economy, rise of the modern corporation and later the MNCs, rise and spread of the Middle Class, emergence of the modern service economy, financialization, neoliberalism, globalization and deregulation mark significant changes in economic paradigm which have had profound impact on global society.

Recent technological revolutions in telecommunications and computing are only the latest in a long history of radical transitions brought about by new forms of energy, transport, production and communication.

The New Deal, the rise of the welfare state, protection and equal rights for minorities, and emergence of global civil society represent game-changing shifts in social values and policies.

3.2. Paradigm changes are rarely perceived before their onset

Paradigm changes tend to occur suddenly, unexpectedly and rapidly. After more than five centuries of incessant warfare culminating in two world wars, the idea that war in Europe would finally come to an end and within decades become almost unthinkable seemed mere wishful thinking in 1945. The founding of the European Coal & Steel Community, the European Economic Community, and the European Union marks a peaceful evolutionary paradigm change in political, social and economic dimensions of unparalleled speed and magnitude.

In the mid-1980s, it was simply inconceivable, even to the most far-sighted, that communist authoritarian governments, the Berlin Wall, the entire East-West divide and the very existence of the USSR would disappear within five years.

The revolutionary impact of the Internet on global communications, access to information, the porosity of national borders, global commerce, the rise of global civil society and now global education remained unforeseen and unexpected until after it was already well underway.

These facts must caution us against succumbing to the frustration and cynicism that naturally results from recent experience with the blind refusal, bureaucratic dithering and entrenched opposition to progress on abolition of nuclear weapons or climate change.

3.3. Paradigm changes are driven by deep forces that gather momentum beneath the social surface before emerging into view

Events that appear suddenly and unexpectedly have hidden origins in the distant past and are driven by forces that grow in intensity unseen until they are strong enough to precipitate radical change. The American Civil Rights movement launched by Martin Luther King in the mid-1950s achieved remarkable progress on racial equality in America within a decade. King drew inspiration from Gandhi's non-violent freedom struggle in India during the previous three decades. The forces that drove it can be traced back to Lincoln's inspired leadership during the American Civil War in the 1860s, which led to adoption of the 13th Amendment abolishing slavery. These landmark accomplishments were in turn driven by the growing movement for abolition of slavery that began in Europe during the 18th century and spread gradually from home countries to their colonies around the world. Underlying the whole movement was the growing aspiration and demand for freedom that stirred rebellion in the American colonies and revolutionary France. The value of Freedom has been an irresistible driving force that has transformed the world over the past three centuries, politically, socially and economically. It continues to spread and grow globally today in magnitude and intensity. Its impact on the complexion of global society in the future will be equally inevitable.

An understanding of paradigm change requires an appreciation of the deep drivers and longer term trends that build momentum for long periods before expressing themselves on the surface. Therefore an evaluation of the current prospects for significant paradigm change

necessitates an inquiry into the deep drivers that are in various stages of preparation and emergence today.

4. Deep Drivers

Are there deep drivers pointing to the possibility of a radical paradigm change today? An examination of emerging social forces by the World Academy leads to the conclusion that a nexus of driving forces of unprecedented scope and intensity are in various stages of development and emergence and that together they have the potential to effect radical social transition of unparalleled rapidity and magnitude. A detailed study of these deep forces is likely to provide a more realistic assessment of both the prospects and nature of potential paradigm change than continued preoccupation with the established barriers and forces that resist change. Here we will only delineate a few of the drivers that appear most salient:

4.1. Growing Connectivity

Increasing interaction between human beings has been one of the primary driving forces for the evolution of humanity. Language has formed the bedrock of global civilization and culture by making communication possible between individuals and groups, locally, regionally and now globally. Money has been the principal driving force for exchange of goods and services that has raised global per capita living standards twelve-fold over the past two centuries. Today the IT and communications revolution is connecting billions of people within a single global Metaweb, which will change social values, ideas, standards and behavior patterns in ways still difficult to imagine.⁵

The speed of technological innovation and dissemination are dramatically compressing the distance and increasing the velocity of social interaction. In the process they are multiplying social productivity and integrating the higher and lower levels of society to an unprecedented degree. It took India more than 50 years to install the first 37 million phones in the country. Since 2001, that number has grown to nearly a billion, placing cellular communication within the reach of almost every citizen. This development has resulted in low-cost global connectivity, greater access to information, a more level playing field, greater intensity of interaction and exchange, higher levels of social awareness and activism. It is aiding protest movements and political revolutions around the world. It is also providing a platform with the potential to dramatically accelerate the spread of all levels of education globally, abridging decades of tedious and costly educational institution-building into a few years.

The power of this deep driver can be further enhanced by conscious initiatives to offset the digital divide between different countries and levels of society, which continues to widen inequalities between levels of society even as it encourages upward movement of the lower levels of society.

4.2. Freedom & Democracy

As Alexander Likhotal points out, over the next decade, an increasingly integrated global economy functioning as a holistic entity will spur a deep reframing of ideas regarding global

governance.⁶ At the same time, demands for freedom and human rights will continue to increase. The concept of universal human rights can be traced back to earlier centuries and has been prominently advocated for decades, but never before has it acquired such effective power to alter social reality. The spread of democracy and education, global access to information, and the rise of global civil society are extending greater freedom and equality to women, children, ethnic and religious minorities around the world.

The recognition of basic human rights is the first step in releasing human energies from bondage and submission to arbitrary authority, inaction, resignation and inertia. The swelling of social and political protests during the Arab Spring followed by more recent events in Thailand and Ukraine are compelling indications of the future, rather than mere isolated outbursts. The same is occurring within societies as women, ethnic and other minorities press forward their clamor for a fairer share in the fruits of modernity. Once these energies have been stirred to awakening, they will grow into movements increasingly organized, powerful and effective, as the movement that ended colonialism subsequently spread around the world to liberate so many people from authoritarianism.

The compelling power of freedom is tempered by the domination of money power and plutocracy in the governance of both democratic and authoritarian regimes, the wide prevalence of political corruption, and the domination of the nation state in international affairs based on an archaic conception of national sovereignty. The recent uprising against corruption in India and the prosecution of political leaders in China, Italy and other countries are isolated signs of an inevitable movement that has yet to gain sufficient momentum.

4.3. Rising Economic Expectations

Rising political aspirations is in turn a compelling driving force for economic advancement. In the early 1950s former WAAS President Harlan Cleveland coined the phrase “revolution of rising expectations” to characterize the powerful surge of human energies that spurred rapid development of the Western World during the post-war period. Today the aspiration and expectation of a better life stir the minds and hearts of billions in China, India, Brazil and other emerging economies and the magnetic power of that dream is still spreading. The rise of Middle Class is an irresistible force for change. From 1980 to 2009, the global middle class grew by around 700 million people, to 1.8 billion, from roughly 1.1 billion. Over the next 20 years, it is projected to grow by an additional 3 billion.

Expectations have risen even among the have-nots who feel disenfranchised and left behind by the progress of more fortunate sections of the population. Rising levels of unemployment, especially among youth, have fueled frustration and discontent as reflected in the Arab Spring, the Occupy Wall Street Movement, Islamic fundamentalism, Naxalite extremism in India, and rising levels of violence among the poor in many other countries. Social tension and unrest have been further aggravated by growing inequalities.

Rising levels of frustration and unrest represent another compelling force for change. Ten years ago, India introduced its national rural employment guarantee program – the largest in world history – precisely because it was concerned by the impact of rural unemployment

and rising levels of inequality on civil strife and fundamentalism. A number of European states were compelled to reject or curtail austerity measures during the recent financial crisis because of increasing public unwillingness to accept recessionary policies that undermined social safety nets. The incessant clamor of the world's population for greater opportunity will compel states to adopt more far-reaching policies in the coming decade.

“Global capacity would have to quadruple in order to accommodate the aspirations of all youth the world over.”

4.4. Environmental Threats

Growing environment threats are another force for change. Current world GDP is around US\$ 60 trillion. Even at modest per capita growth rates in the emerging economies, it could well reach \$200 trillion before 2050, exerting enormous pressure on the earth's natural resource base and climate. Ecological threats alone have thus far not been sufficient to compel rapid, dramatic change, but it would be an error to underestimate the magnitude of the changes that have taken place as a result of growing public concern. Environmentalism has permeated the thinking and action of every nation. The concerted global approach to depletion of the ozone layer has been followed by an increasingly rapid shift to renewable energy, tightening of pollution standards and major efforts at conservation. The Fukushima tragedy was quickly followed by the decision of Germany and Switzerland to phase out nuclear energy. In the next 10 years, conflict between the aggregate powers of human civilization and the carrying capacity of the Earth's ecological systems will compel us to develop new patterns of production, trade and consumer standards.⁷

4.5. Freedom of Education

Education is a powerful leveler which awakens the aspiration for freedom and equality, equips youth with the knowledge and skills to rise beyond the achievements of previous generations, dissolves barriers to mobility, and opens doors of opportunity. We are now on the cusp of a new knowledge revolution – a revolution in higher education – that will liberate and empower hundreds of millions of youth in the coming decades. The total capacity of the world's universities will have to double within the next decade in order to accommodate an additional 95 million youth seeking higher education. That would require founding three or four new universities the size of Harvard every week for the next ten years. Global capacity would have to quadruple in order to accommodate the aspirations of all youth the world over. The tradition-bound, university-based system of higher education is patently incapable of meeting this surging demand through existing delivery systems.

The emerging technology of the internet has now created the potential for delivering affordable, world-class higher education to all humanity. For long the status, inertia and resistance of the established educational system made it difficult even for visionaries to predict when and how this would happen. Two years ago the genie came out of the box with the explosive emergence of the MOOCs – Massive Open Online Courses – starting with

Udacity, Coursera, EdX, and Khan Academy. From a mere 100 on-line courses in 2012 there are now more than 1200 and the number is growing at the rate of 2 per day. It is estimated that by 2020 about 50% of all college level courses will be offered on-line in the US and 10% worldwide. Initially English language based, now a third of all courses are available in other languages. Initially confined to North America, now nearly 80 percent of on-line students live on other continents.

And this is still just the beginning. The quantitative extension of access to free quality higher education made possible by the MOOCs is itself only the beginning of something far more important. The coming revolution will not only make education accessible to all, but it will also upgrade quality and unleash creativity and innovation in the field of education as never before. It will tear down the barriers that separate the ivory tower from the real world. It will eventually make available to students everywhere the world's best courses and instructors in their own language of choice.

4.6. Other Deep Drivers

Many other factors and forces are spreading globally and growing in intensity, which can contribute significantly to preparing the ground, generating the pressure and creating the opportunities needed for transition to a new paradigm. These include the rise of global civil society with shared values and a shared commitment to building a better world for all humanity; a revolutionary new set of powerful biological, biochemical, genetic, and materials science technologies, synthetic biology and human enhancement; and the progressive shift of power from centers of gravity from West to East, from North to South, and from nation-states to private actors; the widespread disillusionment with prevailing institutions of governance.⁸ A careful consideration and analysis of these and other factors will serve as a realistic basis for assessing the likely direction, character and potential impact of paradigm change in the years to come.

5. Theoretical Discontent

It seems ironic that the most powerful driver for change may be the dismal performance of prevailing social theory and policy in recent years, which has led to widespread public disillusionment. It comes at a time of triumphal progress for the physical and biological sciences which has resulted in monumental advances in fields such as computing, telecommunications, biotechnology, medicine and materials science. Never before have the lives of ordinary human beings around the world benefitted so directly and immensely from application of science and technology to promote human welfare.

But the surging technology mania has been accompanied by an increasing frustration and disillusionment with the failure of social science theory to provide intellectual clarity and effective policy guidelines for promoting peace, prosperity and human security. Advances in the natural sciences have so far outpaced concomitant advances in social science that each new technological advance poses new threats to the welfare of human beings it is intended to promote.

There are growing signs of this dilemma in many fields, but most conspicuously in the field of economics. The failure of theory and policy is largely responsible for rising levels of unemployment, widening inequalities, accelerating ecological destruction, dissolution of public trust in the social contract, increasing alienation and rising social unrest. This failure has led to the paradox of a world in which unprecedented productive capacities co-exist with unmet needs and rising levels of economic insecurity. The world today possesses all the capacities required to meet the needs of every human being, yet prevailing theory is grossly inadequate to reconcile human needs with social potential.

Unemployment is a case in point. Visions of future economic progress are blurred and blighted by misconceptions and fallacies regarding the prospects for employment generation due to the widely held belief that population growth, technology adoption and globalization are permanently eliminating the possibility of full employment. But the facts contradict this view. During the last sixty years of unprecedented population growth, technological innovation and globalization, growth of employment globally has outpaced growth of population. It is true that present policies aggravate unemployment, but it is important to recognize that rising unemployment is not at all inevitable. It is a result of current theory and prevailing policy, not intractable laws of economics.

The superabundance of money at a time of rising deficits and budget cuts is another symptom of theory and policy failure. Since 1980 global financial assets have risen from \$12 trillion to \$225 trillion, many times faster than the growth of the global economy. About 80% of these funds are being channeled into financial speculation rather than being invested to create new jobs and higher incomes in the real economy. The negative impact of these free-wheeling funds has led to increasingly volatile financial markets and growing pressure to curtail hidden subsidies to the financial industry, tax havens, tax evasion and corruption. Public resentment is increasing the pressure for game-changing rules leading to more equitable income and wealth distribution. Since 1996 income inequality in Latin America has already declined by more than 10 percent, an indication that change is possible on a continent that long maintained very high levels of inequality.

A third symptom is the utter failure of current theory and policy to reconcile aspirations for economic advancement with the carrying capacity of the environment and the rights of future generations. The rapid depletion of water, minerals, soil and energy resources is the result of current ideas and practices which incentivize rapid automation and unbridled resource consumption while taxing labor. The flawed, pseudo-scientific statistical measures employed to monitor economic activity and justify economic policy aggravate the very problems they are intended to remedy.

Growing disenchantment with prevailing economic theory is a necessary and important step needed to challenge and undermine the authority of outmoded ideas. In order to create the intellectual space needed for the development and discussion of more viable concepts and perspectives, it is essential to recognize the unsubstantial character of the emperor's theoretical garb. The work of the World Academy, Club of Rome, World Future Council and many other organizations can play an important role in aiding that process.

6. A New Paradigm in Thought

“Throughout history ideas have exhibited enormous power to change the world.”

Impatience, frustration and disillusionment with ignorance, inertia and blind resistance to change prompt many informed individuals and institutions to look for a shortcut to the new paradigm by focusing on pragmatic policy changes and avoiding what appears to be a useless, never-ending debate over conflicting theories and concepts. This view does not take into account the deep conceptual roots of the current

paradigm and the powerful influence of outmoded ideas on current policies. Throughout history ideas have exhibited enormous power to change the world. A new paradigm must necessarily be founded on a new conceptual framework. There is no shortcut.

A new paradigm cannot be achieved by trying to either reconcile or settle the on-going intellectual conflict between Keynesian and neoliberal economic concepts and policies or between those supporting the political rights of sovereign states and those advocating the need for democratic institutions of global governance. As in all matters intellectual, there is truth in both perspectives, but both truths are partial. A new paradigm cannot be brought about by insisting on any aspect of truth without reconciling it with contradictory aspects.

The existing paradigm is the product of a reductionist, mechanistic, materialistic mindset that divides reality into countless separate compartments and tries to deal with each individually, unmindful of its impact on all the other aspects with which it is related. A new paradigm requires a more holistic, synthetic, organic mode of thinking that recognizes the interrelationships and interdependence between different fields. It requires development of an integrated science of society based on common principles to replace the fragmented disciplines that prevail today.

Most of all, the new paradigm requires a new center. Prevailing theory is based on a fatalistic belief in the value and power of money, free markets, competition, balance of power, national sovereignty, information, scientific progress, technological innovation, institutional mechanism and other idols of past paradigm changes. The new paradigm needs to be human-centered. Its guiding star and foremost preoccupation must be the right of every human being to peace, security, welfare and well-being.

The world urgently needs fresh thinking to formulate a new intellectual paradigm that fully comprehends the interrelationships and interdependence of all dimensions of global society and social development, has as its goal to optimize human welfare and well-being for all human beings, and is based on the premise that democratic principles and universal human values are the only viable basis on which sustainable progress for humanity is achievable. It should be based on the realization that money, markets and technology are human creations intended to serve, not dominate or enslave, humanity. It should regard human capital as the most precious of all resources, a resource of virtually unlimited creative potential, and give highest priority to the full development and free creative expression of human capacities. Economic value should reflect real contribution to human welfare. Economic systems

should be founded on the principle that freedom and regulation go hand in hand, freedom for individual initiative and regulation to ensure the fairness and equity of social systems.

“In a market-based economy, access to gainful employment is the economic equivalent of the right to vote in political democracy.”

A fundamental change in thought implies also a fundamental change in values. Values are not merely utopian ideals. They represent the quintessence of the knowledge acquired by humanity regarding the essential elements for survival, growth, development and evolution, for peace, prosperity and human fulfillment. A new paradigm cannot be founded by institutionalizing the temporary inequalities that presently divide the welfare of people and countries from one another or by imposing sacrifices on future generations that we are unwilling to impose on ourselves. The most important paradigm changes of the past few centuries affirm the values on which future progress should be based. The most ancient formula for social wisdom promises to be the last – freedom, equal rights and justice for every individual and responsibility for the welfare of all.

7. Principles for a New Paradigm

The purpose of this paper is to set forth the rationale and justification for a collaborative effort of leading international institutions to identify the basic components of a new paradigm capable of addressing humanity’s most pressing challenges and exploiting its unprecedented opportunities. While it is not the intention to suggest the ultimate content, it may be useful to illustrate the approach with a few salient principles that have been discussed in recent conferences and publications.

1. **Reform of Financial Markets:** The new paradigm needs to regard money as a social organization that capitalizes trust and is capable of multiplying the prosperity of all, rather than as a scarce material resource or power to be hoarded and applied for the benefit of a few. Financial markets originally developed as an adjunct to the real economy designed to pool capital for investments that meet human needs and generate employment. Today financial markets have become divorced from that original purpose and are left free to act in ways that directly undermine the effective functioning of the world economy. Less than 20% of global financial assets support development and activity in the real economy. Current policy regards the right to free speculation by the wealthy as more fundamental than the right of every human being to gainful employment and economic survival. As economy is a subset of society intended to promote social welfare, financial markets must be so regulated to support the real economy. A punitive tax on speculative financial transactions is just one of many feasible policy measures that could redirect tens of trillions of dollars into essential investments to create sufficient jobs for youth and the elderly, rapidly raise global living standards, reduce mortality rates, spread education, replace climate disruptions

with renewable energy production, extract drinking water from the oceans, and thereby eliminate the underlying sources of frustration and unrest that threaten social stability.

2. **Right to Employment:** The new paradigm must challenge the outdated notion that unemployment is either necessary or inevitable. In a market-based economy, access to gainful employment is the economic equivalent of the right to vote in political democracy. It needs to be recognized as a fundamental right. Monetary and fiscal policy are grossly inadequate mechanisms for achieving full employment during periods of rapid social transition. A re-examination of current economic and commercial policies will reveal ample scope for stimulating natural employment generation when full development and utilization of human capabilities are given top priority.
3. **Investment in Education:** Education is the prime instrument for conscious social evolution. Highest priority is needed to accelerate investment in education at all levels in order to raise levels of education globally to the level of OECD countries. Strategies should include the design of a world-class global system of higher education utilizing emerging technology for delivery of accessible, affordable, high quality, multi-lingual, multi-cultural, trans-disciplinary education and practical vocational training designed to more effectively prepare the young generation for commercial and social entrepreneurship, self-employment, employment and effective citizenship in democratic societies.
4. **Circular Economy:** The concept of circular economy strongly advocated by Club of Rome can dramatically reduce the consumption of both raw materials and energy, and the emission of CO₂ and other wastes. In a circular economy, sales of products would be largely replaced by leases, combined with exceptional service. Since responsibility for the material used in a product remains with the manufacturing company, strong incentives are created to fully exploit the material for as long as possible to earn maximum return on what already has been produced.⁹
5. **Global Governance & Security:** With regard to governance, international institutions need to be founded on true principles of representative democracy. The principle of sovereignty needs to be redefined to reflect the rights of the human collective to security and a fair sharing of the earth's abundant wealth. A truly cooperative global security system that enhances the security of all nations must replace the existing competitive system in which measures to enhance the security of one nation or group reduce the perceived security of all others. It must be based on the conception that law must be based on a codification of the public conscience, not on the vested interests of entrenched powers. International law must reflect the universal values and enlightened views of humanity rather than the negotiating power of governments. The basic premise of a global security system must be that war is illegal and that possession, use or threat of use of weapons of mass destruction is a crime against humanity.

This list of principles is intended to illustrate that solutions can be found to the entire range of challenges and opportunities presently before us. Some of them may appear unachievable

under the present political dispensation, precisely because they touch the root causes of current problems that we have thus far been unwilling to address. The greatest defense of the present paradigm is the premise that there is no better alternative. Impartial study supports the view that comprehensive solutions are indeed possible and that implementation of a new paradigm, no matter how difficult, could quickly usher in a world far more stable, secure, prosperous and just than the world we live in today. At the very least, this realization should dispel the fatalistic sense of helplessness that stifles human initiative and focus attention on the deeper issues that need to be addressed.

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Notes

1. John F Kennedy, American University Commencement, *Miller Center* June 10, 1963 <http://millercenter.org/scripps/archive/speeches/detail/3374>
2. "Polity IV Annual Time-Series 1800-2012" Systemic Peace <http://www.systemicpeace.org/inscr/inscr.htm>
3. Kishore Mahbubani, *The Great Convergence* (New York: PublicAffairs, 2013), 16.
4. *Ibid*
5. Alexander Likhotal, "Environmental Acceptability as the driver of New Paradigm," *Cadmus* 2, no.2 (2014): 24-34.
6. *Ibid.*
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Environmental Acceptability as the Driver of New Civilization

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Abstract

We are on a collision course with nature. And the underlying reason is that humans' creative capacity has largely bypassed their adaptive capacity.

Due to existing trends in 10 years the world will be changed dramatically.

These trends will change the social standards and human behaviour patterns; shift “centres of gravity” from the West to East, from the North to South, and from nation-states to private actors; spur deep reframing of global governance; force us to develop new patterns of production, trade and consumer standards; advance human capacities and possibly beyond the limits of the traditional definitions of humanity.

The development of new policies to manage these challenges and to respect the realities of the natural world offers a myriad of positive opportunities to generate the new ideas, new policies and new partnerships that are needed to overcome the present crisis by reorienting and restructuring our economies on a more sustainable, resource-efficient and inclusive path.

But, however important economics and technologies are, achieving the required level of global systemic change and overcoming the seemingly immovable implementation gap that is blocking progress will require political leadership, vision and courage, rather than an adaptive strategy of small steps, and a revitalized multilateral governance architecture adequate to meeting the interconnected challenges reflective of the 21st century.

“The problem is not about the world; it is about us, it is about our inability to change our eternal belief that we will always be able to shape the world according to our needs.”

Crisis is the most quoted term today. The notion of crisis – multifaceted, systemic, on-going etc. – is used to explain the need for a new civilization shift. However there is no such thing as climate crisis, water crisis, or economic crisis, because these are all but the demonstrations of a much deeper problem we are facing, and the problem is not about the

world; it is about us, it is about our inability to change our eternal belief that we will always be able to shape the world according to our needs, while we are demanding more than the earth can sustainably provide.

We are on a collision course with nature. And the underlying reason, as I understand it, is that humans' creative capacity has largely bypassed their adaptive capacity.

The problem is also related to the transformation of liberal values.

The modern market economy was a natural outgrowth of the rise of liberalism and political democracy in the West. The extension of freedom and democratic rights to every citizen has gradually led to the emergence of economic democracy as well, in which each individual casts monetary votes according to his individual needs and capacity. In the absence of basic human rights, economic life as we know it today is inconceivable.

But the further evolution of this value has played a trick with civilization. In this consumption driven world mentality of the people has more and more started to be characterized by the belief in economic prosperity as an organic part and the guarantee of human freedom. Material prosperity has become implicitly related to the extent of individual freedom. Personal wellbeing gradually has turned from a tool of liberal values into a competing goal, devaluing these values. That is why the threat to prosperity standards (leading to unbridled economic growth) is seen as the erosion of freedom.

As a result of human development, personal status has become hostage to economic success, distorting the basic civilisation's ethical matrix.

However, due to existing trends and regardless of our acceptance, in 10 years the world will be changed so much that we will be surprised with our current concerns:

- An integrated global economy functioning as a holistic entity will spur deep reframing of global governance;
- IT and communications revolution connecting billions of people to rapidly expanding volumes of data will evolve into a Metaweb that will change social standards and human behaviour patterns;
- A completely new balance of political, economic, and military power will shift "centres of gravity" from the West to East, from the North to South, and from nation-states to private actors;
- A radically new relationship between the aggregate powers of human civilization and the Earth's ecological systems on which humankind depends will force us to develop new patterns of production, trade and consumer standards;
- A revolutionary new set of powerful biological, biochemical, genetic, and material science technologies, synthetic biology and human enhancement will advance human capacities and possibly beyond the limits of the traditional definitions of humanity.

What are the immediate, predictable implications of these transformations?

Firstly it should be noted that 95 per cent of urban expansion in the next few decades would take place in the developing world, shrinking the population of the North to just 10% of the world's.

From 1980 to 2009, the global middle class grew by around 700 million people, to 1.8 billion, from roughly 1.1 billion. Over the next 20 years, it is likely to grow by an additional 3 billion.

Exploding growth in the developing world has already created there a vast new middle class, 66% of which will live in Asia by 2030. That is a lot of new consumers! How will they live, eat, shop, and travel? Will they emulate the worst habits of the developed world, or lead the way as better stewards of the planet?

Secondly, current estimates of global GDP are around US\$60 trillion and even at modest per capita growth rates in the emerging economies of the world to meet poverty targets we could easily see a world GDP (as we conventionally measure it today) closer to US\$200 trillion by 2050. Three worlds sitting on our present one world but stretched to the limits with regard to consumption and production patterns.

During the 20th century, the world increased its fossil fuel use by a factor of 12, whilst extracting 34 times more material resources. Today in the EU, each person consumes 16 tons of raw materials annually, of which 6 tons are wasted, with half going to landfill. In absolute figures some 65 billion tons of raw materials entered the economic system in 2010, and this figure is expected to grow to about 82 billion tons in 2020.

As a result of our economic activity half the tropical forests in the world – the lungs of our ecosystems – are gone; by 2030, at the current rate of harvest, only 10% will be left standing. Ninety per cent of the big fish in the sea are gone, victim to wanton predatory fishing practices.

We are polluting our lakes, rivers and streams to death. Every day, 2 million tons of sewage and industrial and agricultural waste are discharged into the world's water resources.

A comprehensive recent global study, published in 2010 in *Nature*, reported that 80% of the world's rivers are now in peril, affecting 5 billion people on the planet. Fully one-third of global water withdrawals are now used to produce biofuels, enough water to feed the world.

There is no possibility of proving the linkage between economic activity and natural disasters, but the frequency and intensity of the natural disasters have so increased in recent decades that it would be a little incautious to deny such a link. There were 78 recorded disasters in 1978; last year there were 385, and during the last two years we have already witnessed five mega-disasters. Recently, Hurricane Sandy was a reality check in the United States, putting a very clear climate change imprint on the results of the electoral campaign for the first time.

A lot has already been said about climate change, and I think we need to realize that if we fail to put a price on and reduce carbon emissions now, and if we continue to rely mainly on fossil fuels, we will damage our economy. This is not just an assumption; those who argue the converse are failing to account for the costs of damage already caused by climate change. Just five years ago, Stern Report assumed that by the year 2100, 1-2% of global GDP would be gone if temperatures increased by 2.5 degrees Celsius.

A 2012 study by the DARA group and the Climate Vulnerability Forum concluded that failure to act on climate change already costs the world economy 1.6% of global GDP amounting to US \$1.2 trillion in forgone prosperity a year, while rapidly escalating temperatures and carbon-related pollution will double costs to 3.2% of world GDP by 2030 – rising to 11% of GDP for Least Developed Countries. Therefore, the costs of failing to price carbon and reduce emissions are already very real, not to say that climate change and the carbon-intensive economy are leading global causes of death today, responsible for five million deaths each year – 400,000 due to hunger and communicable diseases aggravated by climate change and 4.5 million carbon economy deaths, due mainly to air pollution.

Next. A new digital revolution is coming, this time in fabrication. It draws on the same insights that led to the earlier digitization of communication and computation, but now what is being programmed is the physical world rather than the virtual one. Digital fabrication will allow individuals to design and produce tangible objects on demand, wherever and whenever they need them. Widespread access to these technologies will challenge traditional models of business, trade, and consumer behaviour.

Wohlers Report 2013, published by Wohlers Associates as an in-depth analysis of the worldwide additive manufacturing industry, reported earlier this year that the market for 3D printing (used interchangeably with additive manufacturing) in 2012, consisting of sales of all products and services worldwide, grew 28.6 per cent to \$2.204 billion, up from \$1.714 billion in 2011. Wohlers Associates expects strong double-digit growth to continue over the next several years, forecasting the market to approach \$6 billion by 2017 and reach \$10.8 billion by 2021.

Lux Research, publisher of another report that analyses 3D printing's commercial potential, has forecasted that 3D printing would grow into an \$8.4 billion market by 2025 (up from \$777 million in 2012), with sales of products and services to the automotive, medical, and aerospace industries leading the way. The report, titled *Building the Future: Assessing 3D Printing's Opportunities and Challenges* predicts rapid and widespread adoption for medical applications as 3D scanning technologies, printers, and materials fall in price. The medical market, pegged at \$11 million in 2012, is projected to grow to \$1.9 billion by 2025.

Already today changing 30% of personnel in manufacturing produces 25% gain in productivity and 56% of corporations of US and Europe are ready to switch to robotechnics. So far only the lack of adequate technology prevents this.

Current understanding of the relationship between employment and technological change is insufficient, and adjustment to this structural shift in the nature of work has been slow.

Many countries, companies and institutions continue to believe that the market will correct employment disparities. This view may be too optimistic, especially with a deficit of high-skilled workers and insufficient supply of jobs for low and medium skilled workers.

Production requires consumers but the revolution in robotics and energy will make many old professions extinct. How to stimulate the demand and provide the unemployed with work and livelihood in these circumstances? The problem will be not to supply consumers with necessary goods, but rather how to ensure that products have sufficient number of consumers.

Economic models and political systems built upon a desire for “full employment” will require revision. There is evidence of movement towards a more fluid employment relationship, whereby people are holding portfolios of activities, including paid employment, unpaid employment such as internships or volunteering, self-employment, and caring for children or the elderly.

Steady adoption of a portfolio of activities may lead to a different view on economic output and performance generated by the workforce, and shift tax and regulatory burdens away from labour in order to facilitate an inclusive, productive and flexible workforce fit for this century.

Therefore, one of the major problems for the world economy will be employment policy.

But not only the world will differ; we are transforming ourselves – we will differ!

The hourly Internet traffic will soon exceed the annual internet traffic of the year 2000!

The world’s ICT ecosystem uses electricity equal to the combined annual power generation of Japan and Germany – as much electricity as was used for global illumination in 1985. The ICT ecosystem now approaches 10% of world electricity generation. Or in other energy terms, the zettabyte era already uses about 50% more energy than global aviation uses. Reduced to personal terms, although charging a single tablet or smartphone requires a negligible amount of electricity, using either to watch an hour of video weekly consumes annually more electricity in the remote networks than the power consumption of two new refrigerators in a year.

Computers have become a part of our lives. All praise this as an enormous achievement. The achievements are undeniable and plenty. But what about the downside of this transformation?

Evidence is piling up that our reliance on Internet-based digital appliances and functions, such as the search window on your smartphone, affects not just the way we live; it affects our ability to think. In the December 2011 issue of *Scientific American*, Daniel M. Wegner and Adrian F. Ward explore the phenomenon in “How Google is Changing Your Brain.”

Internet, Google Glass, 24/7 online, direct intelligence interconnectivity: are we becoming part of a Meta-web? Looks like soon we will have to pay not to be online!

Computer – mobile computer or wearable computer – contextual web will soon be guessing and then probably shaping your interests and social targets.

Will humans become part of a giant “global software”, a real and not a virtual matrix?

“Human! We used to be exactly like them. Flawed. Weak. Organic. But we evolved to include the synthetic. Now we use both to attain perfection. Your goal should be the same as ours.” – Borg Queen, *Star Trek: First Contact*

What will happen to our individuality? Personality? Creativity? Goodbye, soul-searching; hello, facts-at-fingertips?

Social networks have reduced our vocabulary from 200,000 words to 20 words. Faulkner has become too difficult, Tolstoy – too long, too boring...

Already today half of the adult population in Russia do not read books at all. A lot more are “undecided”. Another 6% responded to the poll saying they read “one a year”, I suppose they lied, ashamed to say they do not read at all.

Russia is not unique. According to recent polls sixty per cent of Americans have not read a book since leaving school. Only 6 percent now read even one book a year. According to a very familiar statistic that cannot be repeated too often, the average American’s day includes six minutes playing sports, five minutes reading books, one minute making music, 30 seconds attending a play or concert, 25 seconds making or viewing art, and four hours watching television.

We have stopped writing. Why bother? There are convenient computer buttons. Psych neurologists argue that handwriting, fine motor mental skills, fine finger movements reflect the subtle movements of one’s mind and soul, the subtlety of perception ... But who will listen to neuropsychiatry today? Only a “modern luddite” would believe that it is necessary to write in their great-grandfathers’ way and voluntarily give up the “achievements of civilization”! Every day we have new gadgets that make our lives more and more comfortable and convenient!

But it’s a fact that psychomotor retardation (also known as “psychomotor impairment” or “motor mental retardation”) involves a slowing-down of thought in an individual.

In order to write a letter, one needs many times higher intelligence, a fundamentally different intelligence, than the intelligence required to push the buttons. Writing a letter requires a complex combination of movements of the mind and muscles. Just compare: fingers (and soul) of the violin virtuoso – and finger, pressing the play button on a machine... You can train a hare to push buttons in the circus. Try to teach it to write....

As a result already today if you google Homer you might get more references to Simpsons than to the great blind author of the Iliad and the Odyssey, and if you try Caesar you risk to get more Caesar salad recipes than references to the great historical general.

Consumption has become the god of our civilization. Last year an American shocked the audience of the NBC “The Docs” show when he offered to sell his left testicle for 35 thousand dollars in order to buy a Nissan 370Z sports car. In Goethe’s *Faust* the devil seduced man; today people stand in line to be seduced by consumption.

All these developments will dramatically and inevitably exacerbate the dual challenge of stimulating the growth needed to provide jobs and well-being to citizens, and of ensuring that the quality of this growth leads to a sustainable future.

One obvious conclusion is that the expected increase in demand cannot be met, unless there is nothing less than a revolution in the way we use natural resources. Our economy will require a fundamental transformation within a generation – in energy, industry, agriculture, fisheries and transport systems, and in producer and consumer behaviour.

“When a system is fundamentally flawed, making it more efficient or accountable will not solve the problem.”

Euphemisms like ‘green economy’ or ‘shared sustainable growth’ will not help. When a system is fundamentally flawed, making it more efficient or accountable will not solve the problem. This model locks the world in continuing crisis – social injustice and the danger of environmental disaster. What we need today is to decouple economic growth from the use of energy and materials; simply increasing resource efficiency will not take us where we want to be. I am not questioning the objective of increasing energy and resource efficiency; essentially, we have no choice. What has to be questioned, however, is how production and consumption are being organized today.

Rapid price increases experienced for many commodities and energy in recent years are already encouraging businesses to develop more efficient processes, but price signals will not be enough to stimulate a wide-spread transition to a new model.

In searching for new models for economic development, two important issues must be distinguished and addressed. First, how to produce more in order to meet increasing demand while making less of an impact on resources (often referred to simply as “decoupling”). Second – even more fundamental – how to limit the increase in overall demand. The challenge is immense as currently we are in a completely contradictory situation where the more successful we are at promoting growth on the existing model, the greater and quicker will be the environmental and social disaster. We need a total reversal of fortunes. Fortunately, many good and workable ideas are already in the pipeline, and beginning to be operationalized. The opportunities for innovation and creativity are enormous.

One emerging solution focuses on the creation of a circular economy (detailed in the works of Walter Stahel, Karl Wagner, Anders Wijkman and the MacArthur Foundation). Today’s business models are based on maximizing the volume of sales of different products. In a circular economy model, sales of products would be largely replaced by leases, combined with exceptional service. Since responsibility for the material used in a product remains with the manufacturing company, strong incentives are created to fully exploit the material as long as possible to earn maximum return on what already has been produced. This results in vastly decreased consumption of both raw materials and energy, and therefore less CO₂ emissions and waste. Meanwhile, profitability rises: a win-win proposition. Some large corporations are already embracing the circular approach: Rolls Royce has replaced sales of jet engines to

some airlines with leases; Michelin rents car tires for heavy vehicles and is responsible for their being maintained, upgraded and recycled as waste product; and Xerox offers copying services instead of selling photocopiers.

Another key component of a circular economy is the maximizing of recycling, reusing and reconditioning – rates of which remain senselessly low. According to a report released in 2011 by the UNEP, recycling rates of metals are far lower than their potential for reuse. Less than one-third of some 60 metals studied have an end-of-life recycling rate above 50% and 34 elements are below 1% recycling, yet many of them are crucial to clean technologies such as batteries for hybrid cars and the magnets in wind turbines. For example, CO₂ emissions are reduced by more than 90% when aluminium scrap is used instead of bauxite, but only one-third of aluminium demand is supplied by secondary production. The primary production of tin requires 99% more energy than secondary production, but the recycling rate is less than 15%. Putting valuable, reusable metals into landfills is a terrible waste. In addition, an estimated 50 million tonnes of electrical waste is generated each year and no more than 15-20% is being recycled. The rest ends up in landfills or incinerators. This e-waste is hazardous but also a potential source of valuable and scarce rare Earth materials vital for manufacturing smartphones and tablets.

The MacArthur Foundation's report *Towards a Circular Economy* was presented in early 2012 and backed by a group of leading multinationals, including B&Q, British Telecom, Cisco and Renault. It states that:

“A circular economy is an industrial system that is restorative by intention and design. In a circular economy, products are designed for ease of reuse, disassembly and refurbishment – or recycling – with the understanding that it is the reuse of vast amounts of material reclaimed from end-of-life products, rather than the extraction of new resources, that is the foundation of economic growth. Moreover, the circular economy shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models.”

That such a fundamental shift in perspective, away from the industrial system we have today, is supported by a group of multinational companies, and attracted attention at the 2013 World Economic Forum in Davos, is a sign that these concepts are gaining traction. While there is still significant private sector resistance to change, many forward-looking businesses are accepting that indefinite material growth on a planet with finite and often fragile natural resources cannot be sustainable, and that by embracing sustainability they can both reduce risk and exploit opportunities for new markets.

For example, in recent years, General Electric has earned large profits from its “Ecomagination” energy-efficient products. Siemens is also focusing on the rapid expansion of markets for sustainable products, energy efficiency, and greener buildings. The rapid growth of the renewable energy sector worldwide has been driven in part by big technology

companies, including Google, Microsoft and Apple, investing in clean alternatives to power their own operations.

Complementary to the rise in interest in the circular economy is the rise of “collaborative consumption” initiatives, particularly in urban areas. Businesses such as Zipcar, City bikes, Freecycle, AirBnB and Ebay are creating communities of people sharing resources, avoiding waste and saving money. They are examples of positive behaviour change precipitated by self-interest as well as a desire to be more environmentally and socially responsible.

Another business concept that is gaining attention is companies pledging to become “net positive”, meaning that their positive impacts on the environment and society should outweigh the negative ones. Early (partial) espousers of this initiative include Coca-Cola, which aims to be net positive on water for its bottling process, and BT, which aims to be net positive on carbon emissions. So far, no large company has been able to claim to be net positive over its entire operation, but it is a start.

The next question is, how can these isolated initiatives be massively scaled up to propel society in the direction of a more resource and energy efficient, inclusive economy? How can we move society in the direction of the circular economy? Because relying on pricing mechanisms alone will not be enough.

A fundamentally new transformational leadership and political will are what is most needed to provide effective responses to these new challenges. So far, government claims to prioritize sustainability have been largely rhetorical and have failed to set out clear, practical action plans. Counteracting the formidable economic forces that still benefit from current production systems (i.e., increasing revenue by selling more stuff) will take coordinated, proactive policy action on many fronts. Creating the right incentives and conditions will in turn motivate (or obligate) businesses to do what they do best – innovate and create new markets.

Rapid price increases experienced in many commodities and the energy sector in recent years are already encouraging businesses to develop more efficient processes, but price signals will not be enough to stimulate a widespread transition to a more sustainable economy. This transition will create a great deal of temporary dislocation, and there will inevitably be some losers in the process. Policies will therefore not only have to give clear incentives, but also be able to manage the resulting change, as well as considerable resistance and opposition.

Proponents of new development and business models have put forward a number of “framework ideas” (Club of Rome, WAAS):

(i) Reorienting markets by valuing natural and social capital

Our economies are based on incorrectly measuring and valuing a wide range of goods and services essential to maintaining a safe, secure and sustainable planet. This systematic

“A fundamentally new transformational leadership and political will are what is most needed to provide effective responses to these new challenges.”

inadequate valuation (both under and over) is at the root of many major problems, such as the degradation of ecosystems, depletion of biodiversity and the destabilization of the social fabric of families and communities. Natural and social capital must be properly valued in economic terms in order for the economy to be “real” and to be built on real values. This will result in energy price increases, as the social and environmental cost of carbon and water use is taken into account, but this will accelerate integrated solutions to climate and energy challenges. The most vulnerable in society can be protected from the impacts of these changes.

“Overcoming the seemingly immovable implementation gap that is blocking progress will require political leadership, vision and courage.”

(ii) Creating an alliance of sustainability winners

Create an alliance of the speedy ones, of the “game winners”; there is no need to wait for everybody (including traditional energy suppliers) to wake up to this call. The “carbon justice” approach can propel low carbon technologies to the South. An alliance of champions on effective climate policy from Europe, Asia and leading “developing countries” (90% of the world’s population) can help provide the revolutionary shift needed to recalibrate our economy, protect our environment and achieve sustainable development. The “early birds” will be the best placed to seize the opportunities of transition and develop strong markets and new jobs in innovative industries.

(iii) Governments acting as custodians of public interest

A prosperous and stable society requires a proper balance between, on the one hand, the role of the market to stimulate innovation and the effective use of resources and, on the other, the role of government as the custodian of the common interest. Governments should provide a clear and predictable framework of law, supervision and regulation within which the markets can operate to achieve a balance between private rights and benefits and the prosperity of the community. Strong regulatory mechanisms that can safeguard common public interests are urgently needed.

In addition, several policy instruments that could help maximize our chances to shift towards a sustainable, equitable and “happier” world by triggering the necessary transition include:

- Agreeing on ambitious, binding targets for resource efficiency to encourage the maximum reuse and recycling of materials;
- Promoting innovation by giving priority to sustainable design and closed material loops;
- And reforming tax, for example, by lowering taxes on labour and raising them on the use of virgin materials.

The development of new policies to manage the challenges and to respect the realities of the natural world offers a myriad of positive opportunities to generate new ideas, new policies and new partnerships that are needed to overcome the present crisis by reorienting and

restructuring our economies on a more sustainable, resource-efficient and inclusive path. But, however important economics and technologies are, achieving the required level of global systemic change – and overcoming the seemingly immovable implementation gap that is blocking progress – will require political leadership, vision and courage, rather than an adaptive strategy of small steps, and a revitalized multilateral governance architecture adequate to meeting the interconnected challenges reflective of the 21st century.

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Change the World by Changing “Economics”

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Abstract

We live in a world of opportunity – the opportunity to use the insight generated through the multiple crises humanity finds itself in to transit into a much more liveable, sustainable and equitable society.

A paradigm change seems to be taking place, a movement for change seems to be in the making, but at the same time there is a widespread feeling that things are getting worse instead of better and there is no guarantee that change will lead us into a better future in the next few decades.

To effectively guide the direction of change we need to address the root causes of today’s global challenges and take a close look at what drives human society and human beings. In doing so we realize that we are looking at a holographic picture which contains different layers, which are interdependent: Human biology; values and belief systems; the changing narrative underlying the development of human society; economics and governance and the many tools as well as special interests, support and uphold the outdated paradigms.

The one element which influences all people nearly every day and is behind just about each and every crisis is the theory and practice of current economics. The article explores the debate on current economics and proposes mechanisms of change.

1. Introduction

We live in one of the most dynamic and important periods of change humanity might have ever seen. A time of fundamental change comparable with the change from a hunter and gatherer society to an agricultural society, the change from a feudal society to a democratic society or the change from an agricultural society to an industrial and technology-driven society. What is different in these periods of change are the speed and the geographical scope.

But we also live in a time of multiple crises and negative developments and trends. Unemployment, inequality, the financial crisis, biodiversity depletion, and degradation of ecosystems, climate change – you name it, we have it. There is a growing feeling amongst civil society representatives, foundations and citizens from all walks of life that we are winning skirmishes and battles, but losing the war in our strife for a sustainable, equitable and just world – despite the multitude of positive initiatives and the billions spent on good causes. Or at least, light at the end of the tunnel doesn’t seem to be appearing yet.

The reasons for this feeling are manifold but lie certainly in our current inability to address the roots of the problem. Even thinking about fundamental approaches is not encouraged. The debate constantly revolves around “what goes wrong” and “where we should be” and ignores the crucial question: “How are we going to get there?”

“The various challenges humanity faces are in fact aspects of a systemic crisis, which to a large degree is related to our current economic theory and practice and our underlying values and belief system.”

This short paper is the result of a process that I was asked to guide by a couple of foundations that were not satisfied anymore with winning small battles alone. Their question was: “If we are really serious about winning the war, what is it that we should do?”

Few dare to even ask such fundamental questions, as those who ask them tend to be regarded as victims of their own hubris or as outright crazy. However, this key question should be explored and addressed without taboos on a broad scale, foremost by civil society organizations, many of which believe and claim that they do this anyway, but looking closer reveals they rarely do so.

It is becoming more and more evident that the various challenges humanity faces are in fact aspects of a systemic crisis, which to a large degree is related to our current economic theory and practice and our underlying values and belief system. If we want to change the world for the better we will have to find ways of addressing the real causes of this systemic crisis and we will probably have to be content that there is no “magic button”, no “silver bullet”, but plenty of “silver buckshot”.

What stops us from trying? For one it is evidently the magnitude of the task, as underlying root causes seem too fundamental, big, nebulous and fuzzy to tackle. But if the apparent complexity is our challenge, then why not try to find a way through this complexity, which allows us to identify clear and pragmatic lines of action, like trying to change the global economic system, which stands out as the key driver behind the global challenges we face?

A second key reason is directly linked to ourselves: Civil society, which should drive the process, has become sectoral and institutionalized to a certain degree. Instead of pursuing a vision for the world, it is increasingly absorbed in its own vision. And, let’s face it, we all are somehow caught in the system we want to change and opting out is not an easy undertaking. Being a hamster in a running wheel and having to go faster and faster just to remain in the same place have become widespread feelings, especially for the Western middle class. And for many, the sheer complexity of the world seems too much to digest, so they have stopped trying to make sense of it.

Those who benefit from the current system and do not want any change plus all those who are wedded to the old worldview and have difficulty finding a way out of it, effectively build a barrier for natural change to happen. They force humanity directly and indirectly to stay

on a detrimental course of rising inequality and looming social unrest, rising CO₂ concentrations, waste and depletion unless we, the concerned and committed citizens of this world, change this course.

The resulting brainwash is so subliminally intense, that it is difficult to free one's thinking to a degree that enables us to dream and realize a different and much better world in earnest. We are to a certain degree moving within the conceptual framework of systems that we know we need to change.

The bad developments are and seem to be massive and tend to block the view on all the positive aspects of development, which are as massive but differently structured and not that easy to spot in their entirety.

Hundreds of millions of people are engaged in making this world a better place. Everywhere around the world, groups of people try to prevent damage from occurring or helping those in need by healing. This is a web of life, largely invisible, stronger than one might think.¹ Consider the sheer number and the scope of initiatives for a world that works better in the long run for all humans. Still, the planet is staggering.

A movement is already in the making. Organized civil society might not be on the move (the smaller the organization the less powerful it is as institutionalization seems usually linked to size), but "ordinary" people certainly are powerful. Beliefs are changing in a big way; segments of a new "earth citizen" lifestyle are becoming part of everybody's life; paradigms are changing in front of us and if there weren't any special interests that profit from the way the world runs downhill we would already be in a different and more sustainable world.

The aim of this paper is to open a debate on how foundations, civil society and committed citizens can address the root causes of the global challenges facing humankind – moving from short-term thinking, acting and investing in sectors that are involved in long-term engagement on systemic issues and analysing consequences from root causes. Actually doing it will require a fresh approach, characterized by entrepreneurial spirit and the ability to take risks and to move outside the box of well-established programming and way of doing things.

We should all team up to create an exciting drive towards a transition into a sustainable and equitable world – one so exciting that artists, creative professionals, intellectuals, concerned citizens and movements engage in a peaceful revolution to create a sustainable, fair and equitable world. It will require cooperation and working together and also a return to a vision for the world as the main objective for civil society. And it will require personal commitments – no matter how small.

It is impossible to speak in general terms for all people and cultures across the world. China, India, Brazil and Russia, to name a few, are on a very different trajectory and experience their own paradigm change. However, the roots of the problem originate to a large degree from the economic thinking and practice developed, promoted and exported by the West and if we want to change things at the fundamental level, then it makes sense to go to where it all started. The West could be in a unique position to be a driver of change towards a sustainable and equitable future.

2. A Hologram

2.1. The Matrix

By looking at the systemic crisis and its causes we are in fact looking at human beings with all their complexities, intricacies, defaults, strengths and weaknesses and we are also looking at a human society that has evolved over thousands of years. Root causes, drivers, consequences and effects can be portrayed as a matrix of interconnected and interacting layers. At the very bottom we find the biological framing of our species, the hormone system, the intuitive level and the peculiarities of our brain, going back as far as the reptile brain.

The next level could be called our “cultural level”, where values and belief systems are located. This is the level that determines how human society is essentially structured and operates. Values and beliefs guide our lives, opinions, mechanisms and tools of society, but tend to be deeply hidden within our personality and our specific culture.

“One detrimental characteristic of both the political and economic systems is their current focus on short-term approaches, decisions and actions.”

Our main societal instruments, namely how we organize economic and political activity (mainly through various versions of capitalism and democracy) represent the next layer. One detrimental characteristic of both the political and economic systems is their current focus on short-term approaches, decisions and actions. We live, however, in a period of time where challenges are complex and require long-term and holistic answers instead of sectoral and short-term responses. So, we have created institutions and mechanisms which deliver the opposite of what is required.

A number of tools support these instruments and help keep the system on its course (quarterly financial reporting helps to maintain a focus on financial short-term profit, elections secure political short-termism) and often the debate addresses the tools instead of the underlying root causes.

This matrix produces partly positive results (lifting people out of poverty, the constant evolution of technology which would cover all our needs and wants), but to a large degree negative ones (with impacts ranging from inequality to fragmentation of communities and from plastic in the oceans to climate change).

One could argue endlessly about what kind of levels make up the human being or the human society, but this is not the point. All levels are interlinked and interdependent and function like a hologram, where each splinter of a picture contains the entire picture. If we want to address the root causes of the systemic crisis we will need to take this into consideration.

2.2. Values

Discussions about today’s problems and the challenges facing humankind or individuals, be they climate change, unemployment, financial crisis, destruction of nature, poverty,

crime or the way people interrelate and live together, turn rather quickly into a (unfortunately mostly superficial) debate about values. There is a general feeling that bankers and others in the financial and political worlds ought to live more by values and there is a growing sentiment that the absence of higher values is undermining the stability and viability of modern society, the welfare of human beings and the health of the environment.

Values are fundamental for humans. They represent the quintessential cumulative wisdom of humanity – the essential principles for survival, peace, harmony, development and human fulfilment. At the same time it seems nearly impossible to address them in any other but a banal or deeply philosophical way.

Values are the principles we use to guide our way through the possibilities and problems of life. They are the main drivers behind our societal instruments that shape the world we live in. Our theory and practice of economics do not rest on natural laws, but on our underlying values. It is our choice whether to have an unequal or equal society; it is not given by nature. It is our choice whether to build a world which can nurture and feed generations for hundreds of years. There is no natural law which compels us to overuse and deplete resources. It is our choice whether we want a world where billions live in poverty and where climate change already risks our grandchildren's future, where excessive individualism and narcissism reign instead of solidarity, caring and sharing.

It is our value-based choice which determines whether we live in a world of opportunities for all or in a world where only a few benefit from the riches of planet earth.

Values are often so subliminal that we never realise they are there until they either fall away or some crisis makes us question what values we lived by. Often the question about values ends up with earnest groups proposing codes of ethics. These often seem to hark back to a world of certainty and authority, which many feel they have left far behind.

Our present problems of unemployment, rising inequality, alienation, and social unrest can best be understood as a reflection of the insufficiency of prevailing values as they are being implemented in society. The increasing returns on speculative investment to the detriment of the real economy and employment make implicit value judgments that weigh the system towards the wealthy. This applies equally to the inordinate political power of the wealthy.

There is a growing recognition that the values guiding the course of our society are not the ones which can lead us into a better world. Some of the values we have lived by for many decades have led humanity straight into a world of separation, isolation, depletion and systemic crisis.

A sustainable and equitable society will not be possible if we cannot create a society built on fully recognizing the value of the human being – the most precious of all resources, the values of “respect” and “responsibility” for our family, our neighbour, our community, our fellow human beings, for other species and the wellbeing of life on this planet. These values will not arise as a result of codification (ethics or rules of conduct) but from the character

(ethos) of a culture or community. Business ethics for example is a list of rules and regulations which people might be inclined to follow if they have the right ethos.

2.3. Need for a New Narrative

Values are transmitted through many different media, through families, traditions and cultures in various ways – ranging from festivals to how the young are taught. As the human species is a story-telling species, myths, stories, narratives (the overarching purpose of stories being told) are the main transmission belts for values.

“The problems confronting us today are a human creation.”

The narrative humanity is living today is a fantasy that borders on illusion. It neglects serious challenges based on a blind faith in science and technology. It discounts the value of the human being and nature. It mesmerizes us with visions of unlimited consumption and opulence. While the world fantasizes, problems mount and threaten the stability, security and viability of society. The narrative we need is one which maximizes security, welfare and well-being of all human beings. It is a narrative that fully develops our individual and social potential while conserving the sacred inheritance nature has bestowed on us.

Converting this narrative into a compelling vision backed by facts and figures is one of the most essential steps needed to effect a radical change of course for humanity.

Narratives provide guidance for individuals as well as for communities, small or large. At the highest level they guide the development of human civilisation. “Progress” was a modern and powerful vision for the second half of the 20th century and it seems that while “progress” as a vision has largely disappeared, it has not been replaced with another emotionally inspiring and uplifting vision with the power to explain the world in simple terms and to provide direction for the development of human society. “A sustainable world” is largely a technological, intellectual concept, but not an emotional one. A global society is in the making, but people cannot feel it yet.

But there is a wave of fundamental change building up and it is made of the many small changes taking place. People are in fact developing their vision for their world and the powerful global vision we are missing might be emerging from countless personal, local and regional visions.

2.4. Belief Systems & Worldviews

Our narrative is a construction, which has numerous layers. It is a conglomerate of elements originating from different periods of historical, intellectual and social human development. Together, these layers determine how we, as individuals or as a group, view and understand the world.

There is nothing inevitable about where we are today. We could have told, and can choose a different story and therefore a different world. The laws governing economy are man-made. The problems confronting us today are a human creation. In order to change course and to

navigate a better world for humanity we need to understand the assumptions which have led us on our current course and correct them properly.

Today's dominant belief systems originated in the West during the period of enlightenment and have been influencing the rest of the world for many years. However, what started out as humanistic ideas with the well-being of the community in mind have been distorted over the last few centuries. We now find ourselves in a world where competition is more important than cooperation; where material values trump non-material ones; where caring for the community has been replaced by excessive individualism; and where "liberty" (originally the right of every human being to live according to his/her beliefs and opinions, as long as it did not harm or negatively impact on others) has turned into the freedom of overconsumption and selfishness.²

"Financial markets have become an end in themselves, increasingly divorced from their original intention, destabilizing and suppressing healthy economic growth."

The original thinking on which today's economy is based is 200 years old and comes from a time when "the market" was still the city market, where everybody knew everybody. Its underlying purpose was seen as improving the wellbeing of a maximum number of people and not the maximization of individual benefit and financial profit.

At that time few people lived on earth and the planet's resources seemed endless. No wonder that the value of natural resources was mainly seen in terms of extraction costs and sales profit.

Economy has now become the master narrative.³ This is basically the result of a several-decades-long effort by a rather small group of people, spearheaded by politicians such as Reagan and Thatcher in the 80s who were promoting the free market ideology, deregulation, privatization of the commons and egoistic values.

Today's economic worldview builds not only on false interpretations of economists like Smith, but also on an interpretation and simplification of Charles Darwin's theory of evolution. Competition is heralded as a key driver and "survival of the fittest" as nature's recipe to succeed and conquer. The capitalists of the Industrial Revolution readily took up this interpretation of Darwin's theory as it rationalized their inhuman behaviour towards workers as being normal and "natural".

However, a new and different belief and evidence have emerged these days that while "competition" is an important driver in evolution it is by far not the only one and maybe not the most decisive one. This probably is "cooperation". Imagine the consequences if the belief that competition is the only real driver of development were replaced by the belief that "cooperation" is the key driver or at least equal to "competition"! This change of narrative alone would have a major impact on business practices.

The values underlying the expansion of the finance industry, which seemed so sexy to many during the late 80s and 90s are now perceived as not only wrong and misleading, but also as obscene and damaging to society as a whole. Modern economic dogma disregards the fact that financial markets developed during the Industrial Revolution to support the growth of the real economy, employment and real wealth generation at a time when enormous capital investment required the pooling of resources. Today, financial markets have become an end in themselves, increasingly divorced from their original intention, destabilizing and suppressing healthy economic growth.

“Both world wars have served as tipping points for the creation of international institutions.”

Despite the negative trends of the last few decades, we are seeing positive signs of movement in a new direction: a move from competition to cooperation; from a purely materialistic worldview to one which is linked more on a spiritual level; from a life defined by an unhealthy living standard to a life of well-being. The various initiatives and the number of intellectuals and philosophers exploring a new paradigm might be small, but they likely already represent an “elite”, which will trigger broader change.

3. Change

3.1. *A Short Theory of Change*

When asked how he went bankrupt, Ernest Hemingway famously replied “First gradually, and then suddenly”. This is an apt expression of how change tends to happen. Yesterday there was no sign of anything moving and today the revolution is on. Change happens first gradually and then suddenly, following often the dynamics of exponential growth. As with population growth, for a long time the build-up is not visible and cannot be noticed. The curve runs more or less in parallel to the line at the bottom. Then suddenly the curve goes upward, getting steeper and steeper, until it crosses a tipping point.

What happens is the build-up of a critical mass. This build-up is not visible before the mass “explodes”. It can be anticipated, but cannot be foreseen in detail (some people can to an amazing degree).

A consequence of this dynamics is that big changes tend to be an accumulation of small changes. Furthermore, it is valid to say that if I change my world (by changing my behaviour here or there for instance), then I am effectively changing the world. It is rarely a single very important person who changes the world. It is the people who produce the pressure, mood, need and energy for change to happen. So you or your friend, as long as you are active, is equally important to a top-notch decision-maker. In fact, you are the actual decision-maker.

It is possible to interact with the dynamic process of change in various ways and via various mechanisms through targeted intervention at a critical point in time, especially when considering that big changes tend to be an accumulation of small changes.

3.2. Elements of a Change Process

There must be a cause, something wrong to be righted. This can be a moral issue, an issue of justice, an issue originating from outdated scientific understanding etc. Change is something natural, part of the evolution of nature and human civilisation. Blocking natural change is therefore seen from a certain point as a wrong move that needs to be corrected.

Change is essentially driven by people's emotions, visions and aspirations. The intellect plays a role, but it is human feelings, such as compassion, which are the actual drivers of change. Any change initiative needs to take the emotional factors into account, because only when you touch upon emotional issues can you reach out to people's hearts and minds. It is about what kind of world we want to live in and about making people understand that it is in our hands to create this world.

In each movement, which creates change, decisive moments and incidents occur, when a balance tips. These tipping points relate many times to catastrophic events, as people have the tendency to primarily learn through small and large catastrophes (both world wars have served as tipping points for the creation of international institutions).

Fortunately, it is not only catastrophes that can serve as tipping points. Works of art (books like *The Jungle* by Upton Sinclair, and *Uncle Tom's Cabin* by Harriet Beecher Stowe), photography, sometimes even legal cases (as was the case with slavery or abortion for instance), technology, especially in the field of mass communications (bookprinting, radio, internet, development of PR and advertising) or social media, can have an electrifying effect. Artists are in fact highly underestimated actors of change.

Human sacrifice tends to be at the heart of what becomes a decisive moment, but so are personal statements of opinion and commitment. An individual, who overcomes fear and starts to act according to his/her belief disregarding all sorts of consequences, often turns the tide by being a role model, inviting others to follow suit.

Change processes are always also a power struggle, as those who benefit from the status quo usually have no interest in change and will resist it with the power they can afford and muster. Proactive change processes require actors who understand how power is used, detected or neutralized. This understanding flows into the conceptualization of change efforts and is incremental to change.

4. Moving Into Action

4.1. Finding the Entry Point Into the Matrix: Economics

If one wants to develop a pragmatic action plan to tackle the root causes and underlying drivers of the systemic crisis which manifests itself in so many ways, where should one start?

As the various layers of the matrix are inter-connected, any topic can serve as a point of entry. In fact, the point of entry is less important than understanding the linkages.

Values are fundamental and come up quickly in all debates since all basic questions such as “What kind of world do I want or want my children to live in?” boil down to questions on values. No matter their race, nationality, creed, gender, occupation or level of education, it seems that people are broadly in agreement in their perception of what a desirable future should look like. A world characterized by honesty, dignity, empathy, decency and gratitude. It is the simple joys of life that make life valuable; it is the shared relations with other people, be they family, friends, neighbours, that make a life rewarding.

Values are difficult to address though (but not when we address them as part of a holistic approach). “Belief systems” are intellectually better accessible and, as they are intrinsically linked with values, could provide an easier approach to engage “heart and mind”.

However, the most powerful and decisive driver behind what’s going wrong is the current economic paradigm. No matter which negative global development we want to stop or change, in the end we will have to replace our current system of theory and practice of economics, which have become counter-productive and detrimental to our future, with a new one. Current economics interacts with every person just about every day and it is a root cause behind so many of the crises humanity faces at a global level. Addressing economics seems to be the right point of entry. If there is anything that comes close to a magic button, it is economics.

Economics is not a natural science like Chemistry or Physics; it delivers what we want it to deliver. Whatever its achievements, they are what we want it to achieve and not the inevitable outcome of a natural law like gravity.

Economics and governance have over the last hundred years determined to a large degree the course of society and by and large they have served us well. But economics has also morphed into today’s material-driven, wasteful consumer society and a 1% versus 99% world and there is an increasing agreement amongst critical economists that it will not help if we tweak theory and practice of economics here or there. A fundamental rethink and restructuring are needed.

4.2. Finding Entry Points Into Economics

There is a broad, emotionalized and global debate taking place around economics. The debate has different levels: Underpinning the debates about technical issues such as GDP, taxes, distribution mechanisms, finance and banking is a more fundamental but largely under-represented moral and philosophical debate which is concerned with the role and purpose of economics in our current and future societies and the values that should guide them.

4.2.1. The moral, philosophical, and emotionally important debate can be summarized in key questions

- *Purpose:* What is the purpose of economy, what should economy deliver?
- *Growth:* What is it that should grow?
- *Progress:* What should we call progress?

- *Rights*: Do future generations have rights?
- *Value*: Which values should underlie our economic activities? Do we properly value the world's natural resources?
- *Earth*: Does what we do to the planet matter?

4.2.2. Key questions and topics relating to the technical debate

- *Scarce resources*: What is the most effective way to harness the world's scarce resources and humanity's vast undeveloped and untapped potential – to convert physical limits into a catalyst for human creativity and innovation and rapid social evolution?
- *Financial markets*: What is the role of financial markets and how far do their present functioning really serve that intended purpose?
- *Tax systems*: Why do we tax payroll making labor more expensive while incentivizing capital investment that eliminates jobs?
- *The lack of proper valuation of natural resources*: Why do we pass on the burden to future generations by pricing scarce natural resources far below their replacement level?
- *Monetary and trade policies*: What is Money? On what is it based? How and for whose benefit is it created? What is the impact of the current international monetary system on the real economy and employment?
- *Alternatives to the GDP, which better measure success of society*: How far are we really progressing economically when the real cost in terms of unemployment, inequality and destruction of the environment is taken into account? What would be the impact of measuring economic performance with indicators that more truly reflect the impact of economic activity on human welfare and well-being?
- *Regulation of banking and finance sector*: Is financial speculation a natural right if it endangers the stability of the economy and welfare of the majority?
- *Unemployment*: What is the true cost to society of unemployment and underemployment in economic and social terms? What is their cost in terms of human physical and mental health?
- Is there any policy mix by which we could obtain near full employment within the framework of a market economy?
- *Corporate law forcing corporations to give priority to shareholder interests*
- *Corruption*
- *Harmful subsidies and possible incentives*
- *Influence of wealth on politics and regulation*
- *Corporate lobbying*: What is the impact of corporate lobbying and money power on the functioning of democracy?

- *Rising inequality and its negative effects (also in rich countries)*
- *Extreme poverty*
- *A wide and diverse range of debates about the negative consequences of current economics: Waste, overfishing, climate change, rainforest destruction, depletion of natural resources, plastic, ocean, toxic chemicals.....*

4.2.3. The Outlines of a New Economy

The outlines of a new economy have been taking shape for a long time and there are a growing number of people, economists and even some enlightened politicians who support the notion that the overall purpose of an economy should be to provide income and meaningful occupation to a maximum number of people while at the same time safeguarding and strengthening the global natural resource base.

4.2.4. To achieve this we need a transition

- From unbridled financialization to financial markets that support job creation and equitable income growth.
- From technology for its own sake to technological applications that raise the quality of everyone's life.
- From quantitative growth for growth's sake to qualitative development of human security and well-being.
- From a dominance of material, egoistic and narcissistic values to values supportive of a healthy planet and a healthy human society.
- From a flow-through economy where resources basically move from the mine to the landfill to an economy which minimizes resource use by keeping it within a cycle.
- From the dominance of large, global economic systems to a better balance between local and global economic structures
- From a consumer to an earth citizen attitude
- From deregulation to an enlightened and stronger regulatory framework where public good costs are internalized

In principle there is considerable agreement on the need for fundamental change and a wide consensus on where to go. The unanswered question is, how will we get there?

4.3. Operational Recommendations

1. The collapse of the Soviet empire has shown that a system can be perceived as being made of solid steel, while in reality it is a hollowed-out earthen giant, ready to collapse. This might be true of much of the current (old) system, which is built on old beliefs and outdated paradigms. Joint efforts might be all that is needed to initiate the transition

towards a world built on respect and responsibility, where we see ourselves as earth citizens instead of consumers. Many of the topics where considerable effort has been undertaken to create change (seemingly without much success – we are debating the pitfalls of the GDP for more than 50 years) might in fact be low-hanging fruits.

There is no need to secure broad agreement before acting. In fact, we are witnessing many types of initiatives started by individuals, which immediately “snowball” and are picked up by large numbers of people, producing more impact than anticipated. The accumulated impact of these initiatives might already do the trick.

It is however important that individuals understand, as expressed above, that when they change their world they effectively change the world. They should not act out of a feeling of guilt, but out of a feeling of doing the right thing and be proud of having the character and the strength to do so. Individuals are the true decision-makers and they should act on their own pace.

Civil society organizations can aid this process by returning to the vision for the world as their first priority.

2. As stated above, we can view the situation and its causes as a matrix or better as a hologram. In practical terms: When addressing one element within the matrix we will always discover all the layers of the entire matrix. It is therefore essential to serve all layers even when aiming just for a particular one.

The distinct layers of the economics debate are:

- It is a values debate
- It is a debate on fundamental principles of economic, political and social theory
- It is a debate about belief systems
- It involves emotions
- It relates to people’s daily life
- It is a multi-layered technical debate, partly easy to follow, partly incredibly complex

The world currently addresses a technical aspect without addressing values and underlying beliefs and only a handful of people discuss values without getting emotional about their beliefs. We are addressing values without linking them to the technical level risks or considering them.

From an operational point of view it means that any kind of concrete target needs to be looked at from different angles. The conceptual approach requires a focus, but it should be functional at all levels described above.

3. Leverage investment by building on the interrelatedness, addressing the matrix with a systemic approach. Several projects should be linked in a mutually reinforcing manner and use different starting points. This can be done within an organisation or across organisations or as part of a funding strategy from a foundation.

4. To increase the chances of success it is advisable to free each project from limiting conditions and structures. Better invest in people than in organisations.
5. Link “theory” with “practice” by establishing mechanisms by which cutting edge thinkers interact with cutting edge practitioners such as campaigners in several day brainstorming settings.

4.4. Possible Areas of Intervention

4.4.1. Start thinking more fundamentally and radically in the truest sense of the words

There are many opportunities for intervention and the examples that follow are by no means a complete list. Some opportunities might sound insignificant, but a closer look reveals they aren't. Some might look entirely impossible, but trying them might prove this assumption wrong.

Fresh thinking is required and this implies freeing ourselves from our own limitations and from what others believe or tell us when they ask us to be realistic.

“The current concept of “Growth” is one of the intellectual pillars of today’s misguided economics.”

4.4.2. Address the societal objectives of economics, implicit assumptions and the values behind current economic theory and practice

The aim should be to get the economics debate out of its intellectual expert ivory tower and bring it down to the level of normal people. This can be done by raising basic moral, philosophical and essential questions, thereby initiating thought-processes and debates on what the true purpose of the economy should be.

4.4.3. Enter the values debate

By and large people from all walks of life, no matter the nation, race, creed, age, societal standing or income share a similar view about how they would like the world and human society to be: They will value honesty over dishonesty; kindness and compassion over cruelty and thoughtless behaviour; a decent life for themselves, their family and their children; decent health and education affordable for all; a safer and cleaner environment to live in; a level of prosperity that takes them out of poverty; a sense of belonging to a community; a strong sense of a purpose in life, and let's be frank, possessions and some vain desires.

4.4.4. Go to the theoretical roots of the root cause; one of them is the current concept of “growth”

An entire edifice of underlying, misleading beliefs has been built around “growth”: Growth in the sale of products and services has become the measure for progress of society and it is heralded as the only means to generate new jobs and as the only viable strategy to increase equality through re-distribution. In fact, current thinking on material growth has permeated our entire thinking. It is a bandwagon for the commoditisation of the world where all or everything is seen as either worthless or of financial value. The current concept of

“Growth” is one of the intellectual pillars of today’s misguided economics. It has been criticized since the 60s but little has changed in reality. A concerted effort might show that the time is ripe to seriously question the concept of “material growth” at the level of values and beliefs and at a technical level.

A fresh approach might mean focusing our energies on creating new ways of measuring society’s success, which can provide a better and more meaningful guidance. The immediate aim would not be to replace the GDP, but to promote alternatives, as there will most unlikely be a one-size-fits-all alternative. The old GDP might then still be around, but reduced to merely explaining a sector of economic activities. A lot of efforts have already been taken in this direction for many years and it might just require the right kind of team effort to make a difference.

“Universities are still based on old thinking and thereby delay the transition to a new economy.”

4.4.5. Challenge Corporate Law

A fundamental point of criticism on stock-listed large corporations is the primacy that is given to the interests of anonymous shareholders (short-term financial profit) and their helpers, largely the finance industry. The latter has become a destructive force by the accumulation of power through financial intermediaries such as hedge funds, investment vehicles and new financial instruments.

At the bottom of this is legislation, which obliges the management to primarily pursue the interests of stakeholders and the legislation that grants a company personhood.

People by and large have learnt to mistrust large companies. There would be no backing for a handful of wealthy shareholders or finance institutions having priority over the planet and the people as such. An initiative whereby corporations will be mandated through a change in law, that the interests of planet and people have a priority over the interests of single shareholder, which would probably receive overwhelming support. Sure, it will need explanations, but there are more difficult challenges.

4.4.6. Prepare for legal action against fossil fuel companies

The fossil fuel and energy companies, the mining sector and the food industry are probably the most problematic corporate sectors and it is especially the fossil fuel companies that block real progress for humanity, partly through strategies of manufacturing doubt⁴ initially developed by the tobacco industry.

This is not the only parallel. The fossil industry probably acts against its scientific insight, as the tobacco industry did and if this turns out to be correct then they should pay for the damage their actions have caused, or rather the damage that has been caused because they spent a lot of money on sowing doubt to prevent meaningful action from being taken. Preparing for a large lawsuit might yield interesting information and send a signal to the fossil fuel industry that their actions might not be without consequences for their shareholders.

4.4.7. Build consensus on the principles of an alternative framework for teaching new economics

Higher education is still organized around old thinking: It emphasizes a sectoral approach and teaches “past paradigm” knowledge. Nearly all universities teach the concepts of old economics and it is no wonder that the new thinking finds it difficult to gain ground when students are still being taught outdated concepts and thinking.

This is especially true for “economics”. Universities are still based on old thinking and thereby delay the transition to a new economy. Online courses and summer schools could bridge the gap and provide innovative teaching to economics students, thereby changing the university system from outside rather than from the inside, which might be a costly and expensive undertaking. In addition it would meet a lot of resistance from representatives of the old school and corporate university donors.

4.4.8. From consumer to earth citizen

The consumer mass culture did not come about naturally; it is the result of a deliberate and consistent effort.^{5,6}

It is not entirely clear if the many initiatives from individuals, groups of people, communities and cities to develop alternative means of living will soon merge into a much more powerful system opting out of the current hyper-consumerism but there is reason to believe that a targeted intervention could come at the right time.

This could be true for the Western countries, which have been part of the consumer culture for more than seven decades. It may not be true for all emerging countries such as China, India or Indonesia, where the aspiration for a Western lifestyle is met with the opportunities and the wealth to pursue material growth.

There is a lot of movement and people are changing their lifestyles, but considering human nature, will it be enough to bet on intellectual understanding and ethos?

We need holistic and long-term approaches and solutions. But our most important societal systems (capitalism and democracy) are built on short-term thinking, mechanisms and dynamics. Official reactions to our systemic challenges tend to be sectoral and not holistic (rebuild New Orleans instead of investing into clean energy).

Human beings tend to have a preference for decisions which grant them immediate gratification, so we might need to look at measures which can bring long-term benefits while providing short-term gratification. There seem to be plenty of hooks, as any measure, which increase the disposable income of citizens. Examples include:

- Increasing the longevity of products and the minimum product guarantee
- Eliminating waste in all its forms
- Reducing the personal financial vulnerability caused by being part of a global financial system by avoiding debt; by investing sustainably and not into murky derivatives; by switching to alternative banks; by keeping basic expenses low

- Gaining control of one's life by becoming part of local structures
- Strengthening and getting involved in all systems where goods and services are shared

All these initiatives result in a reduction of household spending and waste and could, combined with intellectual arguments and ethos, make a difference.

A powerful and largely neglected opportunity to participate in changing the economics of this world is through what kind of food we buy. By purchasing food everyone can make decisions about the environment and macro-economics on a daily basis. Food is where the rubber hits the road. Buying food means deciding over the use of chemicals; the destruction of rainforests, the support for local farmers; waste; suffering of animals; our own health and much more. Everybody can join this movement by starting to become more and more conscious, informed and selective about the food he/she buys.

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The Crisis of the Existing Global Paradigm of Governance and Political Economy

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Abstract

This article seeks to underline the central challenges to world order that are outcomes of our current system of global, social, power and constitutional processes. The article outlines these major problems which it is suggested represent a crisis for the future trajectory of human survival and well-being. The paper then uses the problem of the emergence of transnational criminal activity in order to underline the limits of the current global paradigm of governance. In effect, in the criminal law context the jurisdiction of sovereign states to attack the problem of transnational crime is hedged with severe limitations. The most important of these limitations is the fact that the jurisdiction over crimes by sovereigns is limited by the territorial character of the definition of sovereignty. Thus a sovereign has a limited capacity to control and police criminal activity whose main locus of operation is generated outside of the territorial reach of the sovereign state. This essentially means that the element of global governance generates a juridical vacuum which permits organized crime to flourish outside of the boundaries of the state but at the same time, having the capacity to penetrate and corrupt the social, political and juridical processes of the sovereign state. The article explores the effort of the UN to provide some form of response to this crisis in the form of an international agreement.

The most important global expectation about global governance is reflected in the Preamble of the UN Charter and it is authorized by “we, the people” of the earth/space community. That expectation includes the high priority humanity gives to international peace and security; the reaffirmation of faith and fundamental human rights, in the dignity and worth of the human person, and equal rights for men and women and nations of whatever size. It also underscores the importance of the global rule of law as well as the promotion of social progress, better standards of life, and expanding freedoms. That is the promise. However, at the practical level the institutions of global governance have been to a large extent a captive of their own history. That history emerged with scholars in the late 1500s and early 1600s (Bodin and Hobbes) and later was given a juridical imprimatur in the Treaty of Westphalia (1648). In the early 19th century Bodin, Hobbes, and Westphalia were given a powerful juridical imprimatur when John Austin published his influential book *The Province of Jurisprudence Determined*. In effect, from Bodin to Austin we have the developments from scholarship, to political agreement to creation of a jurisprudential foundation for the

notion of the territorially organized sovereign state. The sovereign state became the currency of international relations, diplomacy, international law, as well as a powerful limitation on the force and efficacy of both international law and constitutional law.

“What is needed is an economic paradigm that is not confined to a single state or sovereign but a paradigm that functions within the context of a global, social and political process and responds to the problems that emerge from this process from a global inclusive perspective.”

In the 20th century the sovereignty idea contained no obvious constraints that could limit a drift into a global war (WWI). Moreover, the creation of the League of Nations system and the Covenant of the League was itself limited in a context of facilitating international peace and security by state claims to sovereign absolutism. At the end of WWII the victorious powers adopted the Charter of the United Nations. The Charter reflected ambiguity of its authority resting in “we, the people” and the residual strength and ambition of sovereign state powers, claiming frequently the competence to trump activities challenging their ambitions and interests. The current paradigm is thus responsible for generating problems that now seem to challenge the survivability of humanity, as well as undermine the prospect of global policy and practice that moves in a trajectory that secures humanity’s wellbeing for the future. We list several of the most obvious scenarios where the state/sovereign-centered paradigm is limited in its capacity to respond effectively to the crisis of humanity’s future survivability and wellbeing. These are listed as follows:

1. ***The crisis of the global war system.*** States no longer have an effective monopoly on war making. States have been involved in privatizing the functions of the military with unforeseeable consequences. There continues to be the emergence of mercenary-like forces for hire in the global environment. The proliferation of the flow of arms and armaments in the global arms market remains significantly unregulated. The existence of weapons of mass destruction (nuclear, chemical and biological) still represents a major crisis regarding the acquisition of the technologies and assets of these weapons systems falling into the hands of terrorists groups or organized crime cartels.¹
2. The growth of civil society deviance may threaten world order when it develops into forms of apocalyptic terrorism, state terrorism, organized crime, human trafficking, global drug production and distribution, and trading in small arms and/or components of mass destruction.
3. ***Global political economy of radical inequality.*** Conventional economic theory seems to lead a global race to the bottom. More wealth is produced than ever before and greater inequality is produced as well. Greater wealth concentrations often result in plutocracy which favors the wealthy and greater alienation for the impoverished. What

is needed is an economic paradigm that is not confined to a single state or sovereign but a paradigm that functions within the context of a global, social and political process and responds to the problems that emerge from this process from a global inclusive perspective.

4. ***The depreciation of a human right to development, a depreciation that undermines the value potentials of human capital for the improvement of the human prospect.*** Clearly, the right to development is a human right of global dimensions and requires a global solution to effectively respond to it. The solution here is beyond the parochialism of national sovereignty.
5. ***The importance of a viable ecosystem for the survival of humanity requires policy making that is beyond the nation states' competence.*** In short, global warming and climate change are matters of inclusive global concern. All must participate because all have a stake in preserving a viable ecosystem for all.
6. ***Human demographics and human survivability.*** The radical population increases raise the question of whether food security and accessibility to clean healthy water may be put at risk when earth's population exponentially increases. Demographic growth may well challenge eco-social and economic capacity of the earth to indefinitely sustain such increases without important radical innovations in birth control, food production, and water conservation. These issues transcend any particular nation state.
7. ***The global capacity to respond to natural catastrophes (tsunamis, earthquakes, hurricanes, asteroid collisions).*** It's now well accepted that such catastrophes require global action because the capacity of any particular sovereign is limited in this regard.
8. ***The global health crisis (AIDS, malaria, TB, Ebola, etc).*** It is clear today that any emergent global pandemic will be beyond the capacity of any single sovereign state. Such health threats are really beyond the current paradigm.
9. ***The global crisis of human rights and humanitarian values.*** Notwithstanding the vigorous advocacy for the promotion and defense of basic human rights, it is still the case that we have a great human rights crisis on the planet. At the heart of this crisis is the muted claim of unlimited sovereign absolutism. The human rights crisis cannot be solved exclusively within the sovereign state. It is a global problem that implicates the global authority of "we the people."

The issues listed above represent a crisis for global humanity and as well underline a weakness of the existing paradigm which is a state sovereign dominant paradigm. This underscores the need for new and fresh thinking, nothing short of a new paradigm for understanding and responding to the global crisis of our time. To provide a more detailed explanation of the limits of the state sovereign paradigm we provide an overview of the background and possible value for humanity of an important UN initiative to enhance a global paradigm of governance with regard to a particular problem that defies the exclusive

authority of the sovereignty approach. In this initiative we underscore the effort to strengthen the global rule of law, as an indispensable element for a new paradigm of global governance.

The initiative that we focus on is the Convention Against Transnational Organized Crime. In general, this instrument defends the rule of law precept as a stabilizing and transformative component of a world order that honors and respects the dignity of all the people. How then does the UN convention against Transnational Organized Crime,² in general, impact on the major themes just specified? What does the convention have to do with the rule of law and the earth-space community?

1. The Convention, Organized Crime and Sovereignty

The convention represents recognition of the harsh reality that crime is not simply a localized phenomenon. Indeed, it recognizes that a huge segment of crime is international; it is transnational; it is indeed global. In particular, the identification of a critical segment of global crimes namely the phenomenon of ‘organized’ crime, underlines the particular threat that this form of crime presents for world order, and in particular the rule of law foundations of world order.

The historically territorial nature of criminal law had a close correspondence with the principles of juridical and political sovereignty.³ The functions of sovereignty directly conditioned the reach and efficacy of the prescription, application and enforcement of criminal law, with serious territorial limitations.⁴ This undermined the efficacy of the state to control and regulate crimes having trans-state or transnational character. From an international perspective, the global system is still largely a constitutionally state-centered system.⁵ The system has limited the power of organized global society to control and regulate crimes of the magnitude represented by transnational organized criminal syndicates and gangs. In effect, it provides a loophole in our global system of law and public order. It is a dangerous loophole because it tolerates a juridical and political vacuum within which organized crime can thrive.

The success of transnational organized crime means that vast amounts of ill-gotten proceeds are outside the reach of organized political authority. These proceeds are better seen as bases of power and material resources for the support of organized transnational crime. They permit it to become globally institutionalized, to become competitive for power, to become a threat to states large and small. Indeed, organized crime might be seen to represent an alternative normative order (a negative utopia) which supports brute force over law, order and civility.

The Convention against Transnational Organized Crime is a truly significant milestone in international law and cooperative world order. The problem of organized crime as indicated is an especially dangerous threat to world order and to the basic principles of the UN Charter, which is the living symbol of the constitutional order upon which the contemporary international rule of law is based. Transnational organized crime is not simply antisocial, apolitical and economically exploitative, it is much more.

Traditionally, crime is a socially deviant aberration. Organized law enforcement must simply be effective in the detection, apprehension, prosecution, trial, conviction and punishment of the perpetrator. The perpetrator is often randomly created. Even when working in groups, the deviance is *ad hoc*, occasional, and certainly, like all deviant behavior, a threat or potential threat to public order and civic freedom. When crime gravitates from the occasional, isolated and random experience to systematic organization and sustained practices of institutionalized deviance, it is a particularly dangerous threat to world order. Indeed, when organized crime marshals vast resources such as capital, functionaries and instruments of violence, the attack on public order moves from the random and anecdotal to the systematic and sustainable. Organized crime moves from the challenge of deviance to the challenge of an alternative structure of normative priority. Law and authority become challenged by a 'non-law' scenario and the 'values' of an immoral and amoral negative utopia, where force is the rule and legal authority is extinguished. Organized crime is thus a clear and present threat to the sovereignty of the state, especially democratic states whose authority is rooted in the people. Large and powerful states may be more capable of limiting the power of organized crime to compromise and or challenge their constitutional and public order foundations. Smaller states may indeed be more vulnerable to the assaults and challenges of organized crime activity. It is thus possible that some sovereign states may be politically vulnerable to the penetration of cartels of organized crime syndicates. Some states may be effectually drug controlled or indeed subject to levels of penetration and corruption so that they may be fairly labelled 'thug' controlled. When the level of corruption becomes so great, the term 'kleptocratic' state may be appropriate.⁶

The core characteristics of the challenge of organized crime to the sovereignty and independence of the sovereign state may be that its power rests on the unrestrained use of brute, arbitrary force, intimidation and coercion. Moreover, its reach may corrupt the vital social process of the state such as business, governance, family, education, labor, law, and even possibly the institutions of religious affirmation. The threat organized crime presents to sovereignty, self-determination, independence, good governance and democratic values is serious. But the threat of organized crime to the state is even more critical. Organized crime is often unconstrained by territorial or political boundaries. Political and juridical sovereignty may be limited by the restraints inherent in sovereignty itself. Thus, territorial boundaries crucial to sovereign law enforcement may be a hindrance to the control of systematic, institutionalized crime, sustained by bases of power that are rooted in violence, with vast unaccountable financial resources and animated by the capacity to corrupt and coerce the legitimate institutions of governance and civil society. Organized crime in this context threatens the very constitutional foundations of world order; it is thus a threat to the rule of law, indeed to the idea of law itself.

The political, geographic and economic 'space' between sovereign nation states has long been seen as an arena where organized crime can function without an effective process of control and policing. There is no 'super sovereign' with a centralised mechanism that might readily fill the spaces between sovereigns. More than that, weak states and new states, often styled as emerging market states, may be stuck with powerful institutions of organized crime.

South Africa is a case in point. The corruption of law enforcement processes during the period of repressive apartheid created a vacuum in law enforcement. The new, post-apartheid democratic order was challenged by the penetration of organized crime groups during and immediately after the miracle of transformation. The legacy the new regime had to confront was an incredible wave of crime, a huge quantum of which was inspired by the 'imperialist' character of transnational criminal syndicates. It is also remarkable how speedily the new authorities acted to reorganize law enforcement agencies and to enact vital legislation to empower the authorities to attack organized crime in the new emerging democracy.⁷ Even older states, unaccustomed to the overreaching nature of organized crime, have felt the influence of its activities.⁸ Weaker states may not be able to effectively bring the power of law to constrain or limit the power of organized crime. Indeed, its power might penetrate and undermine the legitimate institutions of state and society in many contexts.

The convention thus attacks a critical world order problem. It seeks to fill the cracks in the global, political and juridical vacuum created by a system primarily organized around territorially based nation states. It also recognizes the problem that sovereignty may be abused, through inadvertence, incompetence or gross astigmatism, to create safe havens for the operatives of organized crimes as well as their assets. The convention prescribes a situation in which safe havens will become increasingly rare. It recognizes that cooperation among sovereign states is a necessary basis for effectively attacking the threat posed by organized crime.

The limits of traditional extradition are apparent when we recognize that traditional extradition law does not permit the exercise of jurisdiction over the movement or laundering of money.⁹ Asset forfeiture and international controls over bank secrecy mean that the convention effectively prescribes a serious limitation on safe havens for the assets of organized crime.¹⁰ Very importantly, asset forfeiture has long been known to be a critical tool in the fight against organized crime. With procedures and rules to facilitate investigations, particularly regarding the status of assets, as well as cooperation in the protection of witnesses¹¹ and the general framework for broadening the mutuality of legal assistance,¹² there has been a major step forward in the development of an effective regime in the fight against organized crime. A quick perusal of issues of bank secrecy, forfeiture,¹³ witness protection¹⁴ and money laundering¹⁵ suggests that the cooperation required to make this regime work is itself the outcome of the harsh and brutish reality of transnational organized criminal behavior. It also suggests that there is a changing idea of the relationship of the international rule of law to the idea of state sovereignty. The expression of cooperative sovereignty¹⁶ in this kind of treaty is a vital and important constitutional principle of the new millennium.

2. International Rule of Law Responsibilities and Harsh Global Realities

The millennium coincides, as noted, with the post-Cold War world. Former U.S. President George Bush once visualized this world as a 'kinder and gentler' world. Bush's optimism coincided with an unvarnished armed attack on Kuwait by Iraq. The central problem posed by the attack was that it was a clear violation of one of the core principles of international

constitutional order,¹⁷ which prohibits and declares unlawful acts of aggression. Although the Cold War was awash in acts of 'indirect' aggression or aggression through surrogates, the specific use of armed forces to extinguish the sovereignty of an independent state immediately raised the stakes of the post-Cold War world, as a world subject to even the attenuated restraints of the rule of law, and the rejection of even minimal restraints.

As the Gulf War came to an end, the disintegration of former Yugoslavia presented a huge threat to human rights and humanitarian concerns. In effect, thoughtful scholars contemplated a 'non-law' state characterized by so called 'ethnic conflicts'. At the back of the ethnic cleansing policies of the Serbian and other ethnic elites were challenges to the rule of law in a global sense. If ethnic cleansing and ethnic conflict were both incomprehensible and not amenable to the restraints of law, did policy makers then not contemplate the rejection of the juridical and normative restraints of the UN Charter itself? Were these crises matters of global concern or were they indicators of the limits of global concern, and global law?¹⁸ Was the stress on 'limits', a disguised claim to repackaged isolationism, to parochial identifications, to chauvinism and unilateralism at the expense of responsible, cooperative internationalism? Defining the 'universal' scope of the international rule of law is vital to any lofty vision of world order based on universal ideals of security, peace and dignity.

As the international community slowly responded to the problems of South-East Europe, the ethnic conflict in Rwanda spiraled out of control when Hutu militias systematically butchered nearly a million of their Tutsi countrymen. These problems (and many others) underlined the idea that the rule of law is not a national or international luxury, a symbol of pure impractical lofty idealism. Rather it is also a critical restraining element in the core global issues of peace, security, human rights and a minimal respect for humanitarian concerns; it was and is a vital component of the effort to constrain globalism's harsh realities as well.

The crises of South-East Europe and later Rwanda led to a level of international institutional paralysis which culminated, somewhat belatedly, in a renewed interest in the rule of law foundations of basic international human rights and humanitarian law. The establishment of the Ad Hoc Tribunals for the Former Yugoslavia¹⁹ and Rwanda²⁰ was an important response to these issues, although it may fairly be said that these events and public opinion virtually compelled action of some sort from the UN Security Council. The mandate of these tribunals was limited and precluded crimes against peace. On the other hand, the relative success of these institutions has generated a renewed interest in the idea of an International Criminal Court as well as a Human Rights Court for Africa. Although the USA strongly supported the creation and work of the Ad Hoc Tribunals, it surprisingly opposed the passage of the Rome statute for creating the International Criminal Court.²¹ In particular, it opposed the codification of crimes against peace (aggression). Although opposition to the Rome statute is motivated by political factors as well as security concerns, it is also highly influenced by the resurgence of the idea of 'sovereignty',²² and the concern that international obligations are corrosive of this idea. In short, positivism, often nurtured by the impulse to chauvinism, still influences in important ways the legal perspectives of critical actors in the international system.²³

Whatever the full importance of these issues is, a few general considerations about globalism seem obvious from the perspective of the rule of law. The world of global events, facts and occurrences might require that the rule of law be more adequately defined in a more comprehensive (universal) context and that normative values in some important degree are inherent in the broader identification with the international rule of law. If the rule of law is seen as controversial in the context of war and security matters, other areas of globalism may directly impact on rule of law responsibilities, especially in the area of development which often implicates demographics, including population policy and reproductive freedoms. In short, impact of demographics on development and the capacity of states to deliver an adequate standard of living. Development dysfunctions can nurture criminal behaviors and be a fertile arena for penetration by organized crime syndicates.

3. Harsh Realities Generated by the Current Paradigm

The socio-political reality of globalism may be symbolized by numbers and statistics. For example, the tensions between the right to life and the right to a higher quality of life may be given a distinctive perspective when it is considered that every day 365,000 babies are born in the world. Ninety per cent of these babies are born in poor, underdeveloped countries. Notwithstanding the scope of global poverty, over 2 billion people worldwide have significantly improved their standard of living over the past ten years. India, a country long seen as an economic development basket case, has the world's largest middle class (200 million). However, there are still 750 million who live in dire poverty globally. China with a population of over 1 billion has one-fifth of the earth's population. And finally, in this regard it is estimated that in 1804 the world's population stood at 1 billion. In 1927, it was estimated to stand at 2 billion. By 2027, it is projected to increase to about 8-9 billion. The connections between population, development and criminal deviance may be one of the important challenges confronting the harsh reality of globalism.²⁴ In other words, what exactly will be the role of the rule of law in the new vision of global order? Some of globalism's harsh realities are listed here:

- law and global apartheid or global poverty (development, poverty, income distribution, economic equity, population policy etc);
- law and the global public health crisis (eg. AIDS); law, emerging markets, and the trend toward corruption and fragmentation; law and proliferation and threat of nuclear arsenals; law and the global war system (arms race, armed conflict, ethnic conflict etc); law and basic human rights (the epidemic of gross abuse of human rights and human atrocity); law and global constitutional crisis; law and the crisis of the rule of law (failed states, corrupt states, drug-controlled states, terrorist states, garrison states, authoritarian states, totalitarian states);²⁵
- law and the threat of organized transnational criminal behavior.

The idea of cooperative sovereignty is connected below to the nature of the international rule of law and its relationship to the international constitutional system and the promise of a lofty ideal.

4. The International Rule of Law Precept

In September 2000, President Jacques Chirac of the French Republic said the following:

‘The Charter of the United Nations has established itself as our “World Constitution”. And the Universal Declaration of Human Rights adopted by the General Assembly in Paris in 1948 is the most important of our laws.’²⁶

Like all laws, the UN Charter has been under constant pressure to affirm its promise and its universal lofty ideals. There has also been insistent pressure sought to limit the effect of the charter as a critical, indispensable framework for a defensible world order. It was a former US Secretary of State²⁷ who suggested that in the aftermath of the atomic age, the charter itself had become a near-obsolete instrument of world order. Indeed, assertions of power to intervene by the superpowers as they declared exclusive zones of security-based extra-territorial interests created real tensions between the letter and the spirit of the charter, and the exigencies of claims to expanded spheres of national security influence.

Even if one believes that the end of the Cold War represents a demise of ‘history’, its legacy for the international rule of law will linger long after its causes are forgotten. Events confronting international legal order after the Cold War brought back a sobering reality. There is indeed a harsh sociopolitical reality in global society. Moreover, this reality represents a real threat to the UN Charter system if it is not effectively confronted. Transnational organized crime as well as the epidemic of humanitarian crimes are only a part of the global problem, as the list of harsh reality issues illustrates.

The harsh reality of globalism also confronts us with the public policy challenge of how to change the harshness, which includes the widespread suffering humanity experiences under current world order conditions. This challenge requires a more articulate normative road map – a more explicit form of policy guidance. Such guidance may be rooted in many sources of comparative, cross-cultural and moral experience, as well as in the UN Charter’s promise of a deepening awareness of the importance of human dignity as a universal moral, ethical and juridical imperative.

Normative guidance found in the scholarly discourse of morality, ethics and value analysis might also provide incentives to policy makers to enhance the prospects of transformation, at least in the direction of a global public and civic order founded on the universal ethic of respect for the dignity and worth of all of humanity, as well as the earth-space environment which makes human survival and transformation possible. The prospect of an improved human future is therefore an important expectation of the normative guidance based on an ethic of universal human dignity.

The central problem some modern philosophers and moralists have grappled with is that human dignity based on universal respect is in fact a cluster of complex values and value processes. In order to enhance human dignity in policy contexts, integration of many of these values is required. Specific prescription and application of values to enhance human dignity is indeed a complex matter.²⁸ At an abstract philosophical level, these values may indeed

seem to be incommensurable.²⁹ At an operational policy level, ostensibly conflicting values may have to be contextualized and more deeply analyzed in light of broader, more abstract formulations of value judgment. Thus, values such as power, respect, rectitude, affection, enlightenment, wellbeing, skill and wealth must be construed and interpreted in terms of their enhancement of a more abstract human dignity/human rights postulate. The policy maker seeking enhancement of the ethic of universal dignity must develop complex techniques of decision making, including sophisticated standards of construction and interpretation.³⁰ Does evaluating the value of liberty induce the sacrifice of the value of equality? It is at this 'operational' level that practical lawyers, social scientists and real-world policy makers must make critical decisions about how to integrate often ostensibly conflicting values and norms genuinely to enhance the universal ethic of human dignity.

For example, in South Africa the Constitutional Court was confronted with a claim by a political party actively involved in the struggle against apartheid that the 'Truth and Reconciliation' statute which provided amnesty for those who should otherwise be prosecuted for grave violations of human rights was both unconstitutional and a violation of international law.³¹ In effect, the court was confronted with a truth and reconciliation procedure which was a critical component of the internal peace process as well as the process whereby the disenfranchised mass of South Africans could gain their political freedom. This procedure was, however, in ostensible conflict with universally accepted norms of international law which do not provide derogable excuses for heinous crimes against humanity.

Does the ethic of universal respect and human dignity demand absolute, universal compliance at the expense of other universally accepted values? To ensure 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 (*jus cogens*) of international law embodies an obligation *erga omnes*, it should be evaluated, appraised and construed so as 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, which prescribes a public order committed to universal peace and dignity for the people of the entire earth-space community.

Practical decision makers and interpreters might gain more normative guidance about the universal ethic of human dignity, since this is expressed in six keynote concepts embodied in the UN Charter. These concepts embody the global community's fundamental expectations about global constitutive and public order priorities.³² Indeed, these concepts are vital if the interpretation of international law is to be guided by explicit standards of normative understanding built into the ethic of universal respect for human dignity. In short, the construction and interpretation of modern international law (i.e. its specific prescription and application) may be rootless, arbitrary, and even quixotic if it is not subject to explicit standards of

normative guidance, which are expressed, *inter alia*, in the concrete terms of the UN Charter itself.

5. Keynote UN Charter Precepts and Values Relevant to a New Paradigm

The opening of the preamble expresses the first precept that 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.'³³ 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 people's goals, expressed through appropriate fora (including the United Nations, governments and public opinion), are critical indicators of the principle of international authority and the dictates of public conscience as they relate to the conditions of harsh global realities, as well as aspirations encompassing lofty ideals. The charter's second key precept embraces the high purpose of saving succeeding generations from the scourge of war.³⁴ 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. The third keynote precept is the reference to the 'dignity and worth of the human person'.³⁵

"There is no law without the idea of community and there is no community without the idea of law."

The eradication of millions of human beings with a single nuclear weapon or policies or practices of ethnic cleansing, genocide and mass murder hardly value the dignity or worth of the human person. What is of cardinal legal, political and moral importance 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. The negative utopian ideals of transnational organized crime make this principle a crucial component of normative guidance. The fourth keynote precept in 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 organized criminal activity. The fifth keynote precept in the charter 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'.³⁶ These other sources of law include values which complement efforts to promote ethical precepts built into expectations of the universal ideals of morality. The sixth keynote precept in the preamble of the charter contains a deeply rooted expectation of progress, improved standards of living, and enhanced domains of freedom and equality. Organized crime represents the antithesis of this prospect.

6. UN Charter Values, the Rule of Law and a New Paradigm for Global Governance

The idea of the rule of law built in these keynote precepts is as controversial, or indeed obvious and noncontroversial, as the idea of law. What then is the idea of law from a historic, cross-cultural, international perspective that inspires these keynote concepts? It is simply this: human beings belong to communities. Communities cannot exist without some culturally approved and supported rules of conduct. There is no law without the idea of community and there is no community without the idea of law. Law is a condition and a consequence of community and community is a condition and a consequence of law. Justice Oliver Wendell Holmes once indicated that the notion of a legal right was so basic to the idea of law and community that without it, a ‘dog will fight for his bone’. One might add to Holmes’s insight that in this ‘fight’, the big dog would ‘win’ and acquire all of the bones, the marrow and the meat. The smaller dogs would get nothing. A way to understand this almost ‘symbiotic’ relationship between law and community is to ask the audience to imagine a society without an expectation that

- a) agreements and exchanges made in good faith and according to law will be honored;
- b) wrongs (delicts) inflicted upon innocent parties will be compensated;
- c) basic interests and expectations of entitlement as in fundamental property interests will be honored;
- d) conduct which violates the basic fundamental norms of right and wrong shall be sanctioned by a collective community response;
- e) basic structures of governance and administration respect the rules of natural justice such as *nemo iudex in sua causa* or *audi alteram partem*, and in general constrain the abuse of power and thus the prospect of caprice and arbitrariness in governance.

The idea of law, based on a comparative, cross cultural, historic reality, is that human beings interact within and without community lines. In so doing, they exchange, 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. In this anthropomorphic sense, law protects or secures the most elementary conditions of social coexistence. Let us describe this as the function of minimum order and assume that it is an aspect of ‘law’, and of ‘justice’.

It is also in the nature of human beings that they are transformative in their capacity for growth and in their relations with others. 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, or next century. Human beings are transformative agents who make things happen, and in doing so, underline the question also embedded in the nature of law and community, i.e. 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. 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.

The rule of law idea in the above sense protects both the individual and the community (the village). By seeking to secure the conditions of basic security for human coexistence, by seeking to ensure that coexistence will not be subjected to arbitrary and capricious exercises of power, the rule of law provides a constitutive architecture which permits human beings to transform themselves in terms of loftier ideals; in terms of something akin to the Palermo renaissance. The great British political scientist, Leonard Shapiro, was once asked what the real difference was between a totalitarian state and one committed to the culture of democracy. He unhesitatingly responded that it was the rule of law, in the sense that it was the basic mechanism for constraining the prospect of arbitrariness in governance. In short, the rule of law is the protective shield against the abuse of power by arbitrary means, by both private and public actors.

What, then, is the relationship of the rule of law to the notion of cooperative sovereignty which is suggested here to be a cornerstone of the convention? One of the most important values embedded in the UN Charter is the obligation of national sovereign states to cooperate in the achievement of its purposes and objectives. This charter precept is codified in the Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations.³⁷ The principle of cooperative sovereignty recognizes the limits of traditional sovereignty and sees the prospect of strengthening the sovereignty of the state, through cooperation, to realize common objectives and common interests. If such cooperation can be achieved in the sensitive area of jurisdiction over criminal activity, then an enlargement of the boundaries of cooperation may bring an even greater awareness of how common problems and mutually experienced crises can be more effectively confronted and resolved. The UN Charter's constitutional promise as the Rule of Law Cornerstone of cooperation is thus the key to making the rule of law a critical component of an improved world order.

7. Conclusion

The rule of law is an idea rooted in the principle of practical realism. Yes, human social process can have systemic dysfunctions creating harsh realities. The rule of law is critical in the process of ameliorating and then changing those harsh realities. If it is successful it will maximize the prospect that loftier ideals of human organization and reciprocal respect can occur. Those values are no mystery. They include Roosevelt's four freedoms: the freedom from fear and from want, the freedom of expression, and the freedom of conscience and belief. They are today reflected in President Jacques Chirac's 'universal and emblematic values', namely, 'liberty, equity and solidarity, tolerance, non-violence, respect for nature and shared responsibility.'³⁸ They are reflected as well in the International Bill of Rights and its commitment to universal human dignity. As the Palermo experience aptly demonstrates,

the rule of law issue is not someone else's problem: it is everybody's. It is a moral and juridical problem. It requires the collective effort and solidarity of all – individuals, institutions of civil society (professional, academic, voluntary) and institutions of law as well as governance at all levels to move the being and becoming of our global village from the harsh reality of deprivation to the abundant reality of mutual respect and universal dignity. The Palermo renaissance invites us to renew our commitment to the rule of law as a crucial pillar for the lofty ideals that give us a reason for being.

In conclusion, it is important to stress the place of the Organized Crime Convention in a renewal of the promise of the international system based on the UN Charter. The cooperation inherent in the sovereign obligations of this treaty will enhance the realization of the ideals of a universal international ethic as the basis of a truly universal rule of law. The principle of cooperative sovereignty is an ethical and juridical milestone. Both ordinary individuals and state representatives must work toward the adoption and the effective application of this convention (and its protocols) with all deliberate speed. To delay ratification and adoption in effect supports the criminals. To obstruct ratification and adoption is, effectively, to demonstrate solidarity with a common enemy of mankind. To expeditiously adopt the convention and give it full efficacy is to cement the ties between state and people. It will give genuine meaning to the ringing words of the UN Charter 'We the peoples...' upon which the authority of law and ultimately international ethical comments are based. Finally, the Organized Crime Convention underlines a critical problem in the current paradigm and takes a small step in the direction of a new paradigm of cooperation and solidarity for the earth/space community.

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Notes

1. Among the most important global organized crime cartels is the Mafia. The role of the 'mafia' in Sicilian political culture and criminal deviance is well described in James Fentress (2000) 'Rebels and The Mafiosi: Death in a Sicilian Landscape'. The book is also favorably reviewed by Peter Robb, 'Family Business', in the *New York Times Book Review*, 7th January, 2001, at 23. The term 'mafia' appeared in the national vocabulary (of Italy) in 1885. According to Robb, 'Mainland Italy's alarmed discovery of how deeply rooted organized crime was in Sicily was part of a wider shock experienced by bourgeois northern Italians when they began to discover the hidden culture of southern Italy and the dramatic lives of their new fellow citizens.' *Ibid.* at 23. About the historic character of the mafia: it is according to Fentress and Robb an '... old form of criminal exploitation of the Sicilian people by a small number of their fellows.' An important contemporary insight into the Palermo renaissance lies in the political fact that '[a] strong indigenous civil culture today is implacably opposed to the ways of the Mafia'. The re-establishment of the mafia in Sicily as a potent 'political' and criminal syndicate is partly due to the conduct of the United States Army in 1943: 'Mussolini's fascist regime had effectually brought the Mafia under state control and many of its leaders were imprisoned.' As Robb indicates, 'Mafia opportunism had worked brilliantly in 1943 by serving the American invaders and regaining for the Mafia overnight all the territorial control it lost under fascism. Only in Sicily did Cosa Nostra perfect that parasitic vesting of criminal interests in the body politic that has been a model for the rest of the world's organized crime.' *Ibid.* Finally, criminal networks like Cosa Nostra do 'control a significant part of the global economy. ...', they 'impinge in terrible ways on many millions of lives, and they all follow Cosa Nostra's example of growth through political alliances'. On the Palermo renaissance, see 'New Ways To Fight Back', from CIVITAS, Palermo World Congress: Civic Education Works (1999), <http://www.civnet.org/civitas/palermo/cived.htm>. See also Umberto Santino, 'Law Enforcement in Italy and Europe Against the Mafia and Organized Crime', CSD. <http://www.centroimpastato.it/publ/online/mcdonald.htm>
2. United Nations Convention against Transnational Organized Crime, 55th Sess., Agenda Item 105, UN Doc. A/55/383 (2000) (hereinafter the convention).

3. Winston Nagan, 'Strengthening Humanitarian Law: Sovereignty, Criminal Law and the Ad Hoc Tribunal for the Former Yugoslavia', *Duke Journal of International Comparative Law*, Vol. 6, No. 1, (1995): 135-146.
4. Winston Nagan, 'Lawyer Roles, Identity and Professional Responsibility in an Age of Globalism', *Florida Journal of International Law*, No. 12 (2000).
5. *Ibid.*
6. The term 'kleptocratic' is a neologism.
7. L. de Koker, (2000) 'Money Laundering Control in South Africa – A South African Response to an American Comment', unpublished manuscript, on file with the author.
8. B. Ryder, (n.d.) 'The Enterprise of Crime: Organized Crime in the United Kingdom', unpublished manuscript, on file with the author. For example, see the European Convention on Extradition (13th December, 1957) Europ. TS 24, 359 UNTS 274. The convention provides for confiscation of assets, including forfeiture which is defined as 'the permanent deprivation of property by order of a court or other competent authority'. The Convention, ref. 2 above, Art. 2(g) at 25.
9. *Ibid.*
10. *Ibid.*
11. The Convention, *ibid.*, Art. 24, at 43.
12. *Ibid.*, Art. 18, at 37.
13. *Ibid.*, Art. 12, at 31.
14. *Ibid.*, Art. 24, at 43.
15. *Ibid.*, Art. 7, at 28.
16. UN Charter, Arts 55, 56.
17. UN Charter, Art. 2, para. 4.
18. For a skeptical appraisal of new world order interventions, see Chomsky, N. (1999) 'The New Military Humanism: Lessons from Kosovo', Common Courage Press, Monroe, Maine.
19. United Nations Security Council Resolution 827 on Establishing an International Tribunal for the Prosecution of Persons Responsible for Serious Violations of Humanitarian Law Committed in the Territory of the Former Yugoslavia since 1991. SC Res. 827, UN SCOR, 48th Sess., 3217th mtg, at 29, UN Doc. S/Res/827, 32 ILM 1203 (1992).
20. United Nations Security Council Resolution 955 on Establishing the International Tribunal for Rwanda (with annexed statute). SC Res. 955, UN SCOR, 49th Sess., 3453rd mtg, at 15, UN Doc. S/Res/955 (1994); reprinted in *Weston* I.I.E.12.
21. *Is a UN International Criminal Court in the US National Interest: Hearings Before the Subcomm. on International Operations of the Senate Comm. on Foreign Relations*, 105th Cong. (1998).
22. See generally Nagan, ref. 4 above.
23. *Ibid.*
24. For a skeptical appraisal of the economic foundations of neoliberal 'globalism' see N. Chomsky (1999) *Profit and People: Neo Liberalism and Global Order* Seven Stories Press, New York/London. See also *PIOOM Newsletter and Progress Report*, (1999-2000) Vol. 9, No. 1, Leiden, The Netherlands, 3.
25. The literature on these crises themes in international law is extensive. For a general orientation see Falk, R. A. (1989) 'Revitalizing International Law', Iowa State University Press; Mohammed Bedjaoui, M. (1979) 'Towards A New International Economic Order', UNESCO, Paris; Kohler, G. (1978) 'The Three Meanings of Global Apartheid: Empirical, Normative, Existential', *Alternatives – A Journal of World Policy*, Vol. 4; Falk, R. and Meyrowitz, E. (1980) 'Nuclear Weapons and International Law', *Julian Journal of International Law*, 29, 541; Nagan, W. (1999) 'Nuclear Arsenals, International Lawyers, and the Challenge of the Millennium', *Yale Journal of International Law*, Vol. 24, No. 2; Weeramantry, C. (1987) 'Nuclear Weapons and Scientific Responsibility', Kluwer, Cambridge, MA; Charlesworth, Chinkin and Wright (1991) 'Feminist Approaches to International Law', 85 AJIL 613; Purvis, N. (1991) 'Critical Legal Studies in International Law', 32 HILJ 81; Falk, R. A. (1997) 'The World Order Between Interstate Law and The Law of Humanity: The Role of Civil Society Institutions', reprinted in *Weston*, Falk and Charlesworth, 'International Law and World Order', p. 49.
26. J. Chirac, (2000) 'Universal Values', The United Nations Millennium Summit, 6th-8th September, 2000, p. 6.
27. The tension between the technological advances of nuclear weapons and the UN Charter is indicated in Dulles's idea that the UN Charter was 'a pre-atomic age' constitution; it was, he held, 'obsolete before it actually came into force. As one who was at San Francisco, I can say with confidence that if the delegates there had known that the mysterious and immeasurable power of the atom would be available as a means of mass destruction, the provisions of the Charter dealing with disarmament and the regulation of armaments would have been far more emphatic and realistic.' Foster Dulles, J. (1953) 'The Challenge of Our Time: Peace with Justice', ABAJ 1063, 1066.

28. Values considered widely to implicate the human dignity precept are deemed to be implicit in the Universal Declaration. These values include power, wealth, respect, rectitude, enlightenment, wellbeing, health, skill, affection, rectitude and possibly aesthetics. See McDougal, Lasswell and Chen (1980) 'Human Rights and World Public Order', Yale University Press, Connecticut; Nagan, W. (1993) 'Africa's Value Debate', *East African Journal of Peace and Human Right, Vol. 1*; (1991) 'African Human Rights Process: A Contextual Policy-Oriented Approach', *Southwestern University Law Review*; (2000) 'African Jurisprudence', *Encyclopedia of the Philosophy of Law*.
29. J. Gray, (1996) 'Isaiah Berlin', Princeton University Press, New Jersey, especially chs 2, 3, 4 (Pluralism, History, Nationalism).
30. See generally, Vienna Convention on the Law of Treaties, 1155 UNTS 331; 1969 UNJYB 140; 1980 UKTS 58, Cmnd 7964; reprinted in 8 ILM and 1 *Weston IE, 1*.
31. See *Azanian People's Organization v President of the Republic of South Africa, CCT 17/96*; see also Nagan and Adkins (2001) 'Conflict Resolution and Democratic Transformation: Confronting the Shameful Past – Prescribing a Humane Future', SALJ, forthcoming.
32. See 'Legality of Nuclear Weapons' (1996) LCJ at 443 (Weeramantry J, dissenting).
33. UN Charter, Preamble.
34. *Ibid.*
35. *Ibid.*
36. *Ibid.*
37. See GA Res 2625, UN GAOR, 25th Sess., Supp. No. 28 at 21, UN Doc A 8028 (1971).
38. See Chirac, ref. 26 above, at 6.

The Digital Era: Challenges for the Modern Mind*

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Abstract

The digital media are the new interface between mind and world. They enable us to gain instant access to an infinitely expandable collective memory system. This is an indispensable breakthrough, but has the potential to seriously violate the ancient co-evolutionary pact between brain and culture which has kept the rate of cultural and technological change within tolerable limits. Traditional cultures, with all their flaws, stayed well within the adaptive capacities of the individual brain. However, the recent explosion of digital culture has placed all forms of traditional culture under serious challenge.

The principal challenge is a cognitive one: the economic system is increasingly tethered to a machine-driven agenda that either ignores or downgrades the most basic needs of the human mind. The result is a governance system that is out of control, in which success depends upon fitting the individual mind to a largely machine-driven agenda, rather than vice versa.

Three especially serious concerns stand out: (1) how to maintain the autonomy of the individual mind in the context of massive and sophisticated external programming; (2) how to construct networks of trust in an environment of anonymity and manipulation; and (3) how to place the most basic needs of the human mind at the top of our list of governance priorities.

The digital media are the new interface between mind and world. They cannot be avoided because they have become essential for survival. They enable us to gain instant access to an infinitely expandable collective memory system. Every corner of the world has been reached by this system, through cell phone networks and the Internet.

This is an indispensable breakthrough, but it is also disturbing and disorienting. It represents a massive change in human interconnectivity that comes with intellectual and emotional baggage. All forms of traditional culture are under challenge. It is fair to say that our conception of human nature itself is also under challenge.¹

This is a revolution, perhaps one of the greatest in human history, and we are in the middle of it. But it is not so much a political or economic revolution as it is a *cognitive* revolution. The new media are aimed at the mind. They are interconnected with the sense organs. They

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aim their sophisticated, carefully engineered messages directly at the memory systems of the brain. They actually restructure memory, changing both the storage and retrieval systems we depend upon, and they are addressed directly to the source of our experience, and aimed at consciousness itself.

Moreover, the digital media are omnipresent. The old religions and ideologies enforced influence by means of daily rituals, sermons of an hour or so once a week, and in small numbers of books and pamphlets, but their available means of influencing people were very limited besides the tools available to the new media. For much of humanity today, the media are present every hour of the day, in the bedroom, living room, and boardroom; on screens in subway stations, airports, and store windows; on buses and automobiles; and in schoolrooms and offices. Smartphones are in our pockets; laptops and tablets are in our briefcases and backpacks. Wearable devices are already appearing, and we are soon going to see flexible new micro-devices insinuated into the fabric of our bodies and clothes.

Politicians are using the new media for self-promotion, rather than seeing them as a serious challenge that might require a major adjustment to our political system. Educators are being forced to reconsider what they should be doing with the new media, but they have no visible plan at this point, at least none that is not tainted by self-interest, whether in the massive revenue-generation opportunities afforded by Massive Open Online Courses (MOOCs), or in fundraising and personal careerism.

The revolution has just begun, and counter-revolutions are inevitable. We should not be surprised if reactionary movements gain momentum. The new media are a central component in the rewiring of human society by machines, and the replacement of human work with robots that comply more easily with highly centralized systems of control. There will inevitably be pressure to decentralize control, in such phenomena as hacking, leaks, whistleblowing, and deliberately decentralizing Internet projects like Wikipedia. But there is also continuing pressure to privatize and monetize every aspect of the Internet, and bring it under corporate control.

1. Finding Context

If this is a period of cognitive revolution, it follows that cognitive science should have something useful to say about its significance. At the very least, what we know about the mind should be able to provide some context that might make the new media, and digital culture, more intelligible. A coherent theoretical framework might help us think more clearly about what these radical new technologies are doing to our minds, what this implies for the way we run the human world, and what we should expect of ourselves.

A massive cognitive revolution also implies an equally massive cultural revolution. Cognition and culture have been locked into a symbiosis for a very long time and, given the nature of the new technologies coming down the line, that relationship is leading toward a major cultural shift on a global scale: the importance of knowledge stored in the brains of individuals is shrinking, relative to the size of our communal knowledge bank. Where

individuals once held most of our collective knowledge in personal memory, knowledge is now overwhelmingly stored in new media, outside our biological systems.

Our minds and brains are living evidence of where we started the human journey: as animals living in the wild. Distant human ancestors evolved from African primates during the Miocene era, five million years ago, and this is evident in our anatomy; we are still very much cast in the primate mold. Our vision, hearing and basic emotional repertoires greatly resemble those of Great Apes. Human intelligence is somewhat more evolved than that of our ape relatives, but we should not exaggerate the size of the cognitive gap. Collectively, we may be very clever and able to achieve remarkable things; but individually, and especially when isolated from society, we are quite limited creatures. This applies even to our so-called geniuses, most of whom are more a product of their historical situation than they might like to admit.

Our particular subspecies of humanity has lived on this planet for only about 150,000 years, and for most of that time our way of life was very slow to change. During the last few millennia, the rate of change has accelerated; and during the last two centuries it has exploded into an exponential growth curve that has suddenly increased our numbers sevenfold, while our technology suddenly reaches every corner of the planet.

This has happened so fast that the speed of our ascent is difficult to place in historical context, and somewhat worrying for anyone aware of the typically slow pace of adaptation that characterizes most biological systems. There seem to be no precedents for the speed of our sudden rise to dominance of this planet, and for the stress this imposes on our capacity for adaptation. We have arrived at a point in history where our range of intellectual possibilities as a species has greatly expanded, mostly because of the new digital web encircling the world.

However, as might be expected, we have not all travelled at the same speed. Some societies have developed very fast; others very little, and some, apparently, not at all. Whether due to the accidents of climate, the vicissitudes of geography, or the availability of resources, human societies have not all developed at the same pace, nor arrived at the same cultural destination. Some societies discovered metal technology and writing very long ago, while many never reached that point. Moreover, the ones that got there first have tended to move farther and farther away from those still more or less stuck at the starting line, and they are constructing a globalized economy that is encircling the entire planet. This uneven race has left our planet with a wide variety of human cultures living side by side, colliding and interacting, while existing at vastly different stages of development. Even those few small groups that have remained relatively isolated are now inevitably influenced by the wider world.

Cultural collisions create tremendous stress. This is usually treated as an economic and political problem, but it is also, and perhaps even mostly, a cognitive problem. Societies on our planet do not all operate on the same assumptions, and do not share values and norms to the extent that they must. Our traditional bag of economic and political instruments does not seem to be working very well in resolving these stresses (if it ever has). Thus, it might help to examine the problem of cultural compatibility from the vantage point of cognitive science;

that is, by looking at the world as if societies were primarily systems for governing thought and memory, and only secondarily concerned with what we normally call government and economic growth.

We have good reason to believe that dissonance between cultures has much deeper roots than a mere mismatch of specific values and norms. The sources of disagreements between any two cultures at roughly similar stages of historical development, such as between the subcultures of Christian Europe, are fairly obvious, and attributable mostly to the pursuit of incompatible self-interests. So are disagreements between say, Russia and China, or between Pakistan and India. But the sources of disagreements between small tribal groups and the large national governments that exist in Asia, South America, and Africa, or between hunter-gatherers and any developed modern state, are so deep that one wonders where to start.

This may sound like the myth of progress: well, yes it is, but without any moral implications whatsoever. So-called developed societies are not necessarily more moral, nor are their citizens necessarily any more intelligent, in terms of innate potential; quite the contrary. But it would be foolish to deny that the president of, say, Citibank, or the chief scientist at CERN does not possess massive cognitive advantages over their counterparts in a Stone Age hunter-gatherer society in the Amazon, regardless of whether they would prove, on closer examination, to be on equal moral or intellectual terms.

The reason for this is that it is the larger cognitive *system* that matters most, not the individual. Collective cognitive power is more a function of the society as a whole than it is of its individual members. Intelligence, as manifest in such things as new technologies, and complex ways of life, is largely a product of a collective system that coordinates the intellectual resources of an entire society. The collective cognitive system even exerts influence on gene expression during development. By means of this kind of influence, social systems can profoundly influence the way individual brains develop, and the way growing minds allocate their inborn resources.

Before the twentieth century, societies that were very far apart in cognitive resources tended to be geographically isolated from one another (with some notable exceptions). We can easily forget how much of the Earth was still very difficult to explore a mere two centuries ago, and how little we knew of societies that were far removed from the hot spots of development. The globalization of economic activity has brought many of those societies, isolated from the mainstream in terms of collective cultural experience, into close proximity and inevitable collision with the mainstream. Like it or not, we all now share a common economic and communication space.

Moreover, that space is getting crowded and more complicated. Some small societies still live in the late Stone Age and continue to exist as hunter-gatherers, without writing, agriculture, or metal technology (as most humans did until 10,000 years ago). Others are locked into

“Collective cognitive power is more a function of the society as a whole than it is of its individual members.”

various historical prisons. Even some highly literate societies still maintain theocratic rule, living and governing as many societies did a few hundred years ago. A few secular high-tech states have completely broken with the past, and have come to dominate the planet, not through any superior moral force, but rather through their overwhelming success in merging technology with social organization to create a powerful new apparatus of thought and invention.

This recently achieved global power is cognitive power. Societies that master it dominate because they have an institutionalized system to merge technology and knowledge, and a collective apparatus of thought and memory incomparably more powerful than anything we had before. Moreover, this revolution is just starting. It will go much further.

“How can we design a system that will harness the collective intellectual and adaptive power of the human species?”

The question is: how can we design a system that will harness the collective intellectual and adaptive power of the human species? We cannot afford to underestimate the scale of the challenge facing us. The variety of human tribes, nations, and multicultural entities on the planet is truly staggering, and we are all now marching toward a kind of global forced marriage, largely because of the spread of communication technology and rapid transportation.

Technological change imposes challenges on society. The juxtaposition of so many disparate societies represents a historical convolution of human history and prehistory back upon itself that amplifies both the size and number of challenges. It is as if all periods of human history were suddenly present at once: all the migrations and diasporas, all the tragedies and victories and great inventions, all the strange ideas, all the different habits and customary practices, suddenly present at once, in a global collision.

All this complexity needs governance, and a governance structure is gradually emerging, consisting of a rather loose collection of institutions and governments, dominated by several large super-powers. There is a new elite emerging, as well as a ruling international culture. However, this new elite does not reflect the full complexity of world cultures, and it is questionable, first, whether it wants to govern at all; and second, whether it has the internal resources to deal with the difficult problem of world governance if it should choose to accept the challenge to try.

In fact, the new elite governing class is drawn from a fairly narrow sample, and reflects a fairly homogenous international culture, one that has been very recently developed in concert with a massive application of new technologies. This has entrenched a way of thinking that can be characterized by certain unique features, which have been institutionalized in the more elite schools and universities.

What I am suggesting is that the cognitive style of the new elite might well be regarded as its distinctive and identifying feature. I have suggested a label for this new cognitive style: “theoretic” culture, that is, governance by abstract theories and analytic thought.² International standards and control systems are now vested in non-biological memory devices. Examples

can be found in the vast archives of legal codices, for example, in the archives holding the documents spelling out the Law of the Sea, which far exceed the personal memory capacities of experts in the field; or in scientific instruments that anchor world-wide standards of measurement in physical devices (such as the atomic clock); and in complex human-machine networks that link the minds of human beings into a complex web involving computers and other electronic devices, as in the control systems for nuclear weapons. All of these examples show how dependent our society has become on system-level networks, rather than on the memory capacities of individuals.

“Plato famously complained that reading would make us mentally lazy.”

The theoretic mode extends to the sampling statistics and monitoring strategies of governments and corporations; they now rule by means of abstract models and large-scale analysis of metadata banks. Personal whim may occasionally override the theoreticians’ work, but for the most part the system is driven by abstract models and technologies.

This new system of cognitive governance stands out, when compared with governance systems from the recent past, let alone the more distant past. Whether we realize it or not, national and ethnic origins have become largely irrelevant, except inasmuch as such things may affect the way the new cognitive system works. The members of the new elite have been educated into a common culture more closely tied to the new digital media than to the traditional guideposts that once defined cultures. They are entering a unique cognitive-cultural ecology, which will have its own distinctive way of regulating the thoughts and memories of its members.

The graduates of the top universities in the world are moving into a world where knowledge is mostly out there, rather than inside the head, and decisions are made by hybrid social networks that merge humans and machines. They are entering an emerging new culture, and need to accommodate the novel demands of that culture. They need to develop new ways of allocating their personal cognitive resources.

A new ecology implies a new set of challenges, and three potentially serious flaws of the new theoretic culture stand out. These concern (1) individual autonomy, (2) trust; and (3) priorities: human versus machine-driven.

2. Challenge #1: Autonomy and the Externally Programmable Mind

The new media have made us more externally programmable than ever before. This means we are subjected to a constant bombardment of highly controlling messages and images. This situation is not new in principle; Plato famously complained that reading would make us mentally lazy. However, it is certainly novel in terms of the intensity, scale, rate of change, and sophistication of the new media.

The notion of external programmability can be traced back to the invention of writing. When a person becomes literate, whether in the limited sense of just learning how to read, or in the broader sense of reading widely and critically, the brain is permanently changed by

the experience. The scientific study of acquired dyslexia has shown that the brain of a person who learns to read acquires a new wiring pattern that creates a “cognitive architecture” – that is, a subsystem within the brain that automatically carries out the various complex sub-operations involved in reading.

The cognitive architecture of reading is interesting because we know the reading circuitry of the brain did not evolve as such; writing was not invented until about 5,000 years ago, very long after the modern brain reached its present form. Moreover, the vast majority of the world’s languages have no indigenous writing system, and yet any neurologically normal child from any remote corner of the preliterate world can learn to read. This is strong evidence that the neural architecture of reading is not innate; rather, it is installed in the brain by culture and technology. The corollary is this: in principle, *technology and culture can change the brain’s functional architecture*.

The same principle applies to the subsystems of mathematical skill, and other cognitive skills that depend heavily on external symbolic devices and scripts, such as those involved in musical performance, or the graphic arts, or computer programming. Recent imaging experiments have shown that the internal organization of several brain areas changes when a person acquires numeracy and literacy skills. Regions normally used for other purposes are “cannibalized” or redeployed, and as the brain becomes entrained to any new symbolic interface, it rewires its circuits accordingly, setting down new functional pathways and reallocating resources.

This ability to rewire internal functional circuits, is a reflection of the extraordinary plasticity of the human brain, especially of the cerebral cortex. However, plasticity renders us vulnerable to external programming. When we learn to read, the images of words in our native tongue acquire great intrusive power, because they can no longer be treated just as normal environmental stimuli; once the brain’s circuits are altered, these images tap directly into automatic neural circuitry. External symbols can thus evolve into “cerebral Trojan horses,” triggering automatic circuits in our brains, like it or not.

This makes us highly programmable, in the sense that, once our cognitive architecture has been altered, our minds can more easily be manipulated by people who are skilled at triggering those deep automatic responses in us – such as writers and film directors, or more dangerously, marketers who use explicitly cognitive techniques of persuasion. A good film, book or advertisement can quickly set up a mind-state that has been carefully designed and powerfully scripted, and which is very hard to resist; this is due to those Trojan horses planted in our brains, which continue to proliferate as we enter adulthood. This is the basis of present-day “cognitive engineering” by writers, film directors, advertising designers, and various other kinds of media producers, employed to manipulate our states of mind. The objective of cognitive engineering is to manufacture, not material products, but states of mind. It has enjoyed a great increase in relative power in recent decades, with sophisticated new media, supplemented by systematic psychological and social research.

Not all these influences are used maliciously or dangerously; most are not. However, some are, and the potential for mass manipulation is significant. Just as automatic weapons

make it easier to wage a war of terror, the new media open up new possibilities for mass cognitive influence. Regardless of the benign intentions of the majority, the fact remains that training in the use of symbolic systems opens the mind to outside influence and leaves it vulnerable; this is given of modern life. We are made this way by our bond with technology, and we have no choice in the matter, given the obvious cognitive benefits associated with developing such a powerful interconnected system for thought and memory. This connectedness can add enormously to our experience of life.

However, our increased vulnerability to intrusive cognitive engineering is a good reason to think very carefully about how we use our digital power over the growing brains and minds of children. Digital natives they may be, more skilled perhaps, but also more vulnerable, precisely because they are so wired into the system. We may campaign for open access to the Internet, and against censorship of any kind. This appeals to liberal values; but it also exposes the brain to an unstoppable plethora of powerful external factors, and renders the individual vulnerable to disintegrative forces that break up attention, and can prevent the formation of a coherent personal identity.

To mitigate this danger, students need to be trained in a new kind of cognitive guerilla warfare: how to see through, and resist, such powerful forces of persuasion. Professional training usually achieves the opposite, socializing the student into a pre-existing set of ideas and symbols, so that they fit nicely into a slot in a managerial flow-diagram, and are unlikely to insist on thinking for themselves. The ideals of education once emphasized the cultivation of personal autonomy and judgment, rather than specialized job training; never in history have these ideals been more important than they are now.

3. Challenge #2: Building Networks of Trust in a Digital World

This concerns the problem of how to construct and maintain networks of trust in an open digitally connected society where anonymity is easy, deception is even easier and much harder to detect, and influence can be far more subtle and devious than it is in traditional social life.

All humans, even those living in hunter-gatherer societies, live in communities in which the cognitive work of thinking and deciding is distributed across the members of the community, and supplemented by whatever symbolic technology is available. This kind of arrangement produces a space in which trust becomes possible between people who do not live in close proximity. It works best when the members of a community are in agreement regarding certain ideas and habits that make cooperation and division of cognitive labor possible.

Written documents were important in extending the range of trust, by aligning values and belief in large populations. Classical civilizations used writing to manage their larger-scale communities, and this was an important step that enabled rulers to extend their control far beyond the boundaries of relatively small kinship groups. Material artifacts such as monumental buildings, art, and libraries also served to maintain a zone of trust, and a

common universe of discourse, by defining a set of symbols and values over generations, and helping perpetuate the kinds of cognitive arrangements that make a large community of mind function effectively.

The cognitive arrangements that establish alignment, and control the flow of ideas and memory representations in a community may or may not correspond to what is conventionally known as “government.” In theocratic systems, the two were usually identical. In more complex societies, this was not necessarily the case. For example, in Medieval Europe military power lay in the hands of kings, whereas cognitive governance was mostly determined by the Church hierarchy, which controlled most legal and educational institutions. This separation of power probably aided the gradual breakup of old power monopolies in the West.

Religions and legal systems, usually backed up by military force, were the traditional vehicles, as well as products, of this alignment process. The digital world (backed by military and economic force, albeit more indirectly) carries the same process one step further, because individuals must enter into a far more intimate and personal embrace with the new technology, and thus with the ideas and symbols communicated by the media. Digital culture has much more sophisticated weapons to work with than traditional societies, and the virtual worlds created with technology can become subjectively hyper-real, and even more intense and persuasive than the “real” worlds of traditional social intercourse.

Of course, traditional communities of mind could also bully and coerce; they were not always benign. It would be naïve to expect that digital culture will be any different. To achieve any degree of effective cooperation and alignment in a digital community, the same ancient need for establishing reliable circles of trust will still be there. However, there are enormously complex challenges involved in establishing a satisfactory degree of trust in a digital environment; it is obviously not going to be easy to achieve.

At all levels of society, trust is paramount, because trust supports two of the human brain’s strongest preferences: predictability and familiarity. It also reduces stress; a perpetually vigilant, hyper-alert brain is a stressed brain. The shared machinery of cognition cannot function without a framework of predictability and familiarity. To achieve this, members of a community have to be in sync with one another, more or less as the gears of a clock must be in sync. Absolute universal trust is an impossible ideal, and all communities inevitably have cheaters. But circles of trust are essential in any functioning social-cognitive system, and a common universe of discourse is particularly indispensable in a democracy.

However, the Internet is wide open, to a degree that is historically new. A reasonable balance between openness and cognitive alignment has always been hard to find in human history. Educational systems have played a crucial role in preserving and transmitting cultures across generations; traditionally, they have provided and protected the shared visions that made communities of mind work. But the electronic universe is radically different, because it has multiplied the number of visionary options by many orders of magnitude, making circles of trust harder to rely on. Digital natives may figure this one out eventually, but in the complex world of the Internet, finding a solution will not be easy.

In the current world order, cognitive governance is very widely distributed, and there is no single center of ideational power. This may be seen as a weakness, because cognitive governance has always had a visionary aspect. Shared worldviews keep communities working reasonably well, because they are the basis of trust, encouraging altruistic behavior among the members of the community, and reducing the sources of violence.

The new cultural astronauts will need a home planet, like previous generations. They will need a common culture to unite them in a world they can trust. This means they will need a common culture offering a level of trust comparable to that of traditional cultures. It is not obvious where this will come from.

4. Challenge #3: Moving from Machine-centered to Human-centered Governance

The modern digital economy is increasingly influenced by considerations that are largely or entirely machine-driven. By machine-driven, I mean that the economy is dominated by algorithms and mathematical formulae that are linked directly to computers and the Internet, and dominate the context of decision-making, to the point where they are more important than the humans who are supposedly controlling the process. The theories that are fed into the system have come to dominate it, because the algorithms in question are now *causal*; that is, they are harnessed to various devices that search, analyze, and compress enormous clouds of data that are inaccessible to the human mind without further machine processing.

The intricate corporate and financial systems that dominate the global economy are run by highly focused distributed cognitive networks that co-opt a huge proportion of the world's resources (both human and nonhuman) for their activities, and routinely make major decisions independently of any consideration of the long-term common good, or of elementary human needs such as hope, identity, and a sense of purpose. Their resources are tied up in intricate political systems that are also digitally wired and economically tied to a machine-driven agenda. The competitive economic framework of human life is tied closely to short-term bottom lines, and those are not based on basic human needs such as the need for security, trust, and meaningful work. Rather, they are usually based on numerical calculations performed, for the most part, by robots and algorithms, without much human intervention.

Although many key decisions continue to be made by individual human beings, they are limited to devising personal strategies for surviving in a machine-dominated economy where data are seldom provided without machine support. The sheer speed of interconnectivity within the digital world, and the kinds of short-term incentives that shape so many corporate and government decisions, are creating an international decision-making apparatus that is determined much less by human needs (even simple-minded needs such as egotism, rivalry, and domination) than it once was. This is not all bad; the psychological needs of kings and potentates were not always a good basis for government. But if we assume, as we must if we are orthodox Darwinians, that human governance systems must ideally serve the long-term welfare and survival of the human species, the machine-driven modern world does not appear to bring us closer to the ideal; in fact, it may be drawing us further away.

Some political leaders genuinely wish to guide our shared cognitive system toward an agenda that is more human-friendly and less machine-driven, but the present system of economically-mediated control makes that extremely difficult. Moreover, the speed of technological change cannot easily be slowed, and has created unprecedented pressure on our collective intellectual capacity as a species.

Finally, a caveat: to reiterate a point made earlier, the personal cognitive capacities of human beings are highly over-rated (this includes our so-called geniuses). Some people may appear to be incredibly clever if they are fortunate enough to be functioning well in a coherent community of mind, largely because our digital networks provide them with such formidable resources. In other words, when married to an effective network, and in possession of the right combination of genes, we can be made to look, as individuals, much smarter than any of us would look if left entirely to our own resources. Geniuses are the lucky possessors of particular talents sought after in a particular historical context. Social networks function as search engines, and when they find what they need in the form of a relevant talent, they can shower that particular individual with great rewards.

“Our current educational system needs to be re-invented for a twenty-first century world where global governance and high technology are inevitable partners in setting a cognitive agenda that is more sensitive to the human beings it supposedly serves.”

Specific geniuses are wedded to specific cultural contexts. The hybrid system humanity has built over centuries, with its clever hardware and software, is extremely effective in exploiting such talent. It now has an endless supply of trained and well-supported specialists, and a seemingly infinite system of stored knowledge. But at the same time as the new cognitive ecosystem has produced such remarkable change, it also has the potential to stress the human species to an unprecedented degree, because the distributed system is stressing the brains that sustain it.

The modern mind is exposed to constant change. This in itself is a very large deviation from our historical preference for generational stability and familiarity. Modern consciousness is confronted with too many choices, too much information, and too much uncertainty, without a common world view. History tells us this will cause us eventually to fail, unless we find some way to tailor the system to meet the needs of individuals. One civilization after another has had to fight to establish some degree of stability and intellectual cohesion. We are no exception, but the stakes are higher. If our global system collapses under its own weight, it is not clear what kind of system, if any, will be in a position to follow.

5. Conclusion: The Need for a Post-theoretic Governance Strategy

The new cognitive ecology is exciting, creative, and potentially very dangerous and destabilizing, because we have made very little progress in addressing the concerns outlined

here. An out-of-control machine-driven agenda driving a global economy could bring out a fatal flaw in our system, stressing the human mind beyond its capacity.

Our world needs intelligent, sensitive governance as never before. The human brain is basically the same brain we have been using to construct communities of mind for millennia. Because of digital technology, it is being put to the test. Individual minds need protection from the potential dangers of this new world order, but they also have to be immersed in it. If the machine-driven agenda dominates policy, without taking into account the needs of its human component, the system will almost certainly fail.

“It is urgent that we promote the importance of subjects like history, and other value-related disciplines such as philosophy, art, literature, politics, and ethics in our educational systems.”

However, the signals emanating from our media do not reassure. Theoretic culture sails merrily on, oblivious to the human needs of the vast majority. This trend cannot continue without placing the human species in peril. Our current educational system needs to be re-invented for a twenty-first century world where global governance and high technology are inevitable partners in setting a cognitive agenda that is more sensitive to the human beings it supposedly serves. What we need is a discussion of strategy for a society that transcends the present form of theoretic culture: call it a “post-theoretic”^{*} strategy or a new variation on the theoretic, but in either case, it is urgently needed.

However, this will not happen unless the world directs its resources to prioritizing human needs over machine-logic. It is urgent that we promote the importance of subjects like history, and other value-related disciplines such as philosophy, art, literature, politics, and ethics in our educational systems. A new generation of digital natives will have to find a way to make the system work more effectively for the benefit of the people in the system, which can only be achieved by placing, and then keeping, machine-driven agendas in a subsidiary role.

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Notes

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^{*} A term suggested by Bhavna Hariharan of Stanford University.

Towards a Global Comprehensive Context-driven and Decision-focused Theory and Method for a New Political Economy

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Abstract

There is currently significant dissatisfaction with conventional economic theory. The unreliability of conventional theory as a predictor of future economic possibilities of catastrophes emphasizes the need for a new paradigm of political economy. This paper provides a capsule of some of the important limitations and consequences of the “old” paradigm. It proposes the necessary elements of a new paradigm and it seeks to locate the new paradigm of political economy in terms of its global reach. This requires a richer contextual approach, with the tools of contextual mapping. It has as well a focus on the global process of effective power and the emerging rule of law based constitutive processes. This is a key to the role of decision and the architecture of decision-making in political economy. We conclude with the global to local implications of the Vicos Experiment in Peru. Finally, we stress the wider lens of focus to identify the real and not the illusory generation of value. The implications here facilitate real global democratization.

1. Introduction

In giving this presentation, we start with certain trepidation. Both my coauthor and I are specialists in legal academic culture. Our interest in economics is incidental to that professional focus. However, in exploring the role of law in global society it has become more apparent that we need a better economics as a coequal partner in the central challenge that confronts the global rule of law. That challenge is how to improve the human prospect in securing peace, security, human well-being, and ultimately a global culture gravitating toward the universal ideals of human dignity. In exploring the ideals and possible promise of a new paradigm of both law and political economy, we must readily concede that there are many insights in the discipline of political economy that may have escaped our focus of concern. However, we hope to bring some perspectives and methods of advances in law that may enrich the promise of a new political economy for a new world order. Conventional

economics has rarely shed itself of the label that it is a dismal science. It has earned this label because its central weakness seems to be the continuing diminished expectation that it may provide perspectives and methods that produce reliable predictions. In short, it is an unreliable enterprise that occupies space of major global importance to the well-being of humanity.¹ It would be useful to provide an overview of the problem of radical inequality as an outcome of conventional economic theory and practice.

2. Overview of the Crisis of Economic Inequality: The Political Economy of the Drive to the Bottom

The most notorious fact about the American economy is that for decades we have experienced an inexorable drive to move the overwhelming majority of American citizens to the bottom of the economic system. In short, the expansion of inequality has been an extraordinary fact of the politically inspired economic policies of the Republican right wing.²

“The success and the genius of American civilization has been its belief in human capacity and the critical importance of human resources for national prosperity.”

Let us start at the top. Reputable economists tell us that one percent of our population takes one quarter of our nation’s income. One percent of our population controls forty percent of our nation’s wealth. One percent of our population has seen their incomes rise by over eighteen percent.

The central political question is whether this kind of outcome is desirable and in the national interest of the nation. If this is desirable, is there a sound reason to justify it? There have been marginal economic theories, which suggest that the one percent who have benefited so mightily are simply better than the rest of us.

Many people whom we consider talented and who have made enormous contributions and inventions to modern society have not necessarily benefited from this. The financial wizards who almost destroyed our economy were in fact rewarded with performance bonuses. Although to their credit, they saw the irony in this and changed the label to retention bonuses. Meanwhile, those at the bottom of the economic ladder were not candidates for any form of retention. They were candidates for pink slips.

One of the assumptions of right wing Republicans is that if we have a bigger economic pie there will be more to go around. Unfortunately, the arithmetic is the other way around. The bigger the pie, the less the American citizens share in its bounty. It would seem that our economic growth is essentially a growth that is downwards in the direction of inequality. This means we have an exponential growth in lost opportunity for the American people.

The extinction of opportunity for our people is a major social and economic loss because the success and the genius of American civilization has been its belief in human capacity and the critical importance of human resources for national prosperity.³ This means that when we depreciate human resources we are attacking the recipe, which was at the heart of American genius. There is of course enough blame here for everyone. However, I think most of the blame must lie with the Republicans. They have historically been the most frenetic defenders of economic monopoly. Additionally, they have been successful in hijacking rational tax policy debate. No new taxes means that the weaker members of the body politic still pay while the special interests, which fund the Republicans, the well-healed financial oligarchs prevail with outrageous tax holidays. Indeed, a recent survey about the fairness of the tax system showed only twelve percent believing it was fair and eighty eight percent believing it was unfair.

The consequence of these outrageous benefits to those who already have an excess of resources is that they also promote the idea that national investment in education and human resources, investment in technical innovation and sound infrastructure are a waste of scarce resources. Their version of appropriate national incentives is driven by an intense desire to discourage investment in the future based on basic research and the central importance of our transportation and infrastructure system. Essentially, Republican policies have hugely empowered the financial oligarchs while undermining the participation of the overwhelming majority of citizen stakeholders in the process. They promote no version of a national common interest and see only the vista of narrow special selfish interests.

Greed is king. They attack labor unions, promote the replacement of labor with technology and export jobs abroad because foreign labor is cheap. American labor is a liability. It is too expensive for the oligarchs. Hence, their mantra about jobs is “send jobs abroad.” The role of government in seeking to moderate the concentration of wealth and power in the few was well expressed by the political genius of the last century, Ronald Reagan. The government is the problem, is the enemy because it is the critical restraint on the unfettered power of economic oligarchs. Now at present the agenda appears to be clearer: do what we need to do to keep our wealth and get more of it. Demonize the government as a moderator between extremism and the people; extinguish the opposition such as the labor unions and the independent media and most critical of all, no taxes on the rich.

Probably the most impressive victory of the financial oligarchs was their promotion of the economic theories of neo-liberalism. The center point of this approach was to oppose any and all government regulation. The great success was the deregulation of the financial sector. With the financial benefits, which they acquired through a non-regulatory state, they could use their bounty of wealth as a base of power to control a good deal of law making, and they did. Their successes have permitted a huge scale of financial manipulation in a no-financial rules context – the context they in effect purchased. This was a good financial investment.

After the Citizens United case, a major Supreme Court blunder, the corporate sector could now begin the process of purchasing the government without spending limits. In short, the Supreme Court solidified the nexus between wealth concentration and its capacity to

control the government in an almost complete form. One illustration of many will suffice. Big Pharma was able to squeeze a trillion dollar boondoggle out of the government by the Republican drive to block the government from bargaining with Pharma about the price of drugs. The Republicans have their eyes on other temptations such as Medicare, Medicaid and Social Security. What is it that drives the Republicans to destroy highly popular social safety nets?

The answer to the above question is to be found in the longstanding Republican nightmare called the New Deal. The New Deal produced popular policies and its political success was reflected in Roosevelt being elected four times. After his death Republicans considered that the New Deal was popular and an important base of power for the Democrats. The problem they confronted was that the New Deal programs were popular and could not be directly attacked. Their agenda focused on foreign fears and anti-communism. However, the lingering fear of New Deal institutions was finally frontally assaulted by the brilliant Ronald Reagan. Reagan had the insight that the New Deal worked only so long as the government could pay for it. The critical Republican strategy would now be to run up huge deficits so that there would be no funds to pay for New Deal programs.

Moreover, if the Democrats came back to power, they would find that there is no money in the state bank to fund their programs. So fiscal conservatives like Reagan and Bush ran up huge deficits, and borrowed billions, which they could now distribute as governmental socialism to Republican business and defense interests. This left us with a deficit nightmare and a mighty recession.

With a great deal of political amnesia Republicans now proclaim the morality of living within our economic means. You can't spend funds if your bank account has no funds in it. They are the architects of this approach and the creators of the monumental deficit. Few heard from the deficit hawks during the Bush spending spree, fueled with money borrowed from China. We still do not hear the Republican leadership willing to acknowledge their budgetary scam. Meanwhile, our nation is in a spiral towards radical inequality and a diminishing of our national values. Perhaps our economic oligarchs should be reminded of the wisdom of Alexis de Tocqueville who saw the key idea behind the American genius as "self-interest properly understood." By this he meant that by taking care of your own self interests you simultaneously express a concern for the other person's self interest as well.

3. Other Dimensions of the Problem of Economic Theory and Practice

For a long time, conventional economics has entrenched itself in both academic and intellectual circles and in policy arenas. It has experienced sharp and trenchant attacks on its organizing theories, methods of analysis and more importantly, its unapologetic lack of concern for the undesirable outcomes for human society that it consistently generates. In our time, senior members of the World Academy of Art and Science had made the issue of the need for a new paradigm in political economy a prime concern. The new paradigm will require a serious revision of its fundamental premises, its failed methods and its lack of concern for the social consequences of its theoretical inadequacy. A number of specific issues

have been used to target the weakness of conventional theory. For example, the concern that the focus of economics should be on the value of the GDP is considered to be myopic and ultimately unrealistic.⁴ Others have stressed the limitations of mechanistic measures to realistically understand values. The methods of measurement are thought to be rooted in the fundamentals of a Newtonian universe in which matter and cause are exclusively used in cognition. Still other concerns stress the lack of understanding of productive forces and productive relations in the real world, which has gravitated to a post-industrial political economy. This development has tended to overlook the salience and the contribution to value of the dynamic service economy. This new context effectually requires a call for a new emerging paradigm of global economics in the global social process.

“Many economists liberated from the old paradigm had in fact anticipated the problems of the housing bubble. These economists suggested that the crisis was not rooted in meta-physical animal spirits, but in a financial sector devoid of meaningful regulatory standards.”

Conventional economics has tended to ignore insights and criticisms that are particularly trenchant and touch on the question of fairness and collective wellbeing. At the turn of the last century in 1899 for example, Thorstein Veblen, the American economist, published a book. The book is titled *The Theory of the Leisure Class*. This book may well qualify as Veblen’s insightful dig at the one percent at the top which constitutes the leisure class. Indeed, since Veblen’s time this class may well constitute itself as a global plutocracy. Veblen’s central thesis is that the activities of the successful leisure class amounted to “the winning of wealth by force.”⁵ But this form of winning wealth was sold as honorable and dignified. On the other hand, labor was denigrated and tainted with indignity. In Veblen’s view, the leisure class in the modern economy was not far removed from barbarian ancestors. Veblen’s detailed description of economic life at that time underscored the point that conventional economics served to justify and serve the taking class, and the leisure class.

Later, Veblen wrote another book, which has a curiously important message for our time. This book is called *The Theory of Business Enterprise* (1904). In Veblen’s view, the businessman is not the wealth creator but rather the saboteur of the system.⁶ One of the important insights in this book is Veblen’s description of the divorce of finance from manufacturing.⁷ He uses an example from US Steel. Businessmen came together to construct the manufacturing plant. Actually, their real interest was not manufacturing but how the plant could be leveraged in the financial markets. That was where the real profits lay. The company’s assets were \$682 million. Against this was sold \$303 million in bonds, \$510 million in preferred stock, and \$508 million in common stock. The financial company in other words was twice as wealthy as the manufacturing plant. In short, the investors made a vast amount of upfront money from the financial sector. The manufacturing sector was really only an incident of their interests.

Carrying Veblen's meditations into the contemporary context we find that these insights have a curiously contemporary relevance that are best illustrated in the context of the financial crisis of 2008. Alan Greenspan, a leader in the force of conventional economics and a powerful spokesman for its legitimacy, admitted publicly, "Virtually no one foresaw the U.S. financial crisis."⁸ He suggested that certain irrational "animal spirits" were the root cause of the crisis. In short, the real blame for the financial mess was not to be found in the conventional approach, which had not anticipated the crisis. Rather, the root cause of the crisis was some unaccounted external force of economic animal spirits. To this extent, the conventional theory itself is flawless and bears no blame for the financial crisis.

"The management of political economy is a matter of human choice and decision and not a matter of meta-physical speculation."

It should be noted that many economists liberated from the old paradigm had in fact anticipated the problems of the housing bubble. These economists suggested that the crisis was not rooted in meta-physical animal spirits, but in a financial sector devoid of meaningful regulatory standards. Therefore, we could explain that these so-called animal spirits were freed in the crazy financial world of unregulated derivatives. These derivatives are highly complicated financial instruments whose value is derived from an underlying asset somewhat analogous to the U.S. steel example cited above. It was in the housing market that the imaginative derivative innovations of paper value ran amuck. Financiers bundled millions of toxic loans using mortgage income as an ostensible stabilizer. They then creatively generated a second layer of derivatives based on the value they assigned to the first set of derivatives and continued the layering process. The outcomes of these layered packages of derivatives produced a distinguishing if incomprehensible nomenclature such as "synthetic collateralized debt obligations" and "naked credit default swaps." The paper of face value of these manipulations was in excess of \$35 trillion. In effect, fourteen times the value of the mortgages supporting them.

Warren Buffet, the billionaire, described these exotic financial instruments as financial weapons of mass destruction. Other economists saw these novel instruments of value as being created by perverse incentives. The thesis of the conventional paradigm is that blame rests with meta-physical irrational spirits. It is incapable of recognizing the flaw of radical deregulation. A process that contributed to the destruction of the financial markets. It avoids the importance of human choice in the financial mess. A new paradigm at the very minimum must be able to assign responsibility to finite decision makers and to clearly recognize that the management of political economy is a matter of human choice and decision and not a matter of meta-physical speculation. In short, a new paradigm must generate a method and procedure that lead to economic accountability and improved choices for the common good.

The central elements that implicate a new paradigm of economic thinking rest in the acknowledgement of the centrality of human capital as the prime concern of responsible economics. Second, there must be recognition of the facts and conditions of great economic transformations and an understanding of the balance between the freedom of contract and

responsible social regulation to guide the freedom of contract in constructive ways. By constructive ways we are talking about the fundamental values of liberty, equality, security, and social justice. Deep concerns are expressed at the great gulf that divides finance from productive economic processes. WAAS theorists maintain that “money is not the root of all evil that it has been blamed for. But the cancerous growth of unregulated speculative financial activity may be a good candidate.” They also insist that there is an important role for law in managing political economy, especially when law is based on human rights, human wellbeing and social justice.

The common challenges, which provide the challenges for a new paradigm, are generally speaking the following:⁹

1. They all transcend narrow disciplinary boundaries.
2. They are interrelated, interdependent and defy solution by partial, sectoral approaches.
3. They are all global in nature and cannot be fully addressed without coordinated actions by the international community.
4. Approaches to resolving these challenges are subject to conflicting claims, priorities and interests.

The central problems that are a current global priority and which cry out for new paradigm thinking include inter alia the following:¹⁰

1. *Economy & Employment*: How can global food security, full employment, and abolition of poverty be achieved within a decade?
2. *Energy & Ecology*: How can global living standards be raised to middle class levels without depleting or destroying the environment or depriving future generations of the capacity to sustain these achievements?
3. *Human Capital – Education, Health and Welfare*: How can global levels of education and public health be raised to OECD level?
4. *Money & Finance*: How can the necessary financial resources be generated and mobilized to achieve the goals described in the first three questions?
5. *Security*: How can we permanently eliminate war and WMD that threaten to destroy all other development achievements?
6. *Global Governance*: How can we design and implement systems of global governance capable of implementing necessary measures to achieve the other five goals for the welfare and wellbeing of all?

4. The Necessary Elements of a New Paradigm¹¹

If we are searching for a global economic theory important to the entire global community, there would appear to be three things that the approach to a new paradigm should develop.

These four characteristics are as follows:¹²

1. It must be contextual, i.e., it must perceive all features of the social process of immediate concern in relation to the manifold events comprising the relevant whole.
2. It must be problem-oriented.
3. It must be multi-method.
4. It must be interdisciplinary with a focus on the dynamics of global interdependence and global inter-determination.

A new paradigm must have a focus that accounts for the social process context of the global economy and contextualize an orientation to the global processes specialized to the generation of “wealth.” It should clarify the concepts of reciprocity, barter, and money and examine the process from the perspectives of the participators including their perspectives regarding capital accumulation, surplus and the fundamental myths surrounding capitalism, socialism, and cooperativism. It must examine the concepts of free market and command economies. It should clarify the base values, which underlie the wealth process. It should examine the strategies relating to the conservation, production and distribution of wealth, introducing particularized strategies that relate to finance, production development and research, procurement and services, as well as aggregate strategies that for example are required in a money economy which in order to operate smoothly must generate a stable monetary unit and an adequate monetary supply. It must account for particular and aggregate outcomes and effects. In particular, the indicators of national wealth. Attention is given briefly to the gross national product, net national income, money supply, and the role of the government sector.

As a background to the evolving international norms of political economy, it is useful to consider the crisis of the great depression of the early 1930s. One of the great myths of the period was that the market was a completely autonomous, self-regulating entity. The great challenge to this form of economic orthodoxy was that the Great Depression was caused by human choices and could be resolved by human choices. Additionally, one of the struts of the belief in an absolute market was that it was the only appropriate guarantor of liberty. Again, Roosevelt challenged this idea by suggesting that necessitous human beings experienced diminished liberty. The central role of law invalidating the invisible hand of the market was the law’s construction of the meaning of property and contract in particular. The question that emerged juridically was whether property was essentially an aspect of liberty and was juridically absolute. This required a deconstruction of the notion of property itself.

The role of the New Deal in regulating the legal foundations of its economic emphasis permitted government intervention to restrain the unlimited power of the private sector often validated by fundamental law. Two of the most important consequences of the victory of the New Deal were reflected first in the Atlantic Charter, which articulated the war aims of the allies. In the war aims of the allies was a future in which there would be freedom from want. These ideas found expression in post-war efforts to give direction to global economic

development. The economic foundations of international human rights were expressed in the Universal Declaration as well as several important UN documents culminating in the Declaration of the Right to Development. These developments confronted the emergence of neo-liberal political economy, with a claimed global reach.

One of the important limits on the conventional paradigm of political economy is its stress on excluding certain segments of reality that are generally seen as inconvenient externalities. This approach essentially is excluding the relevant social universe of human interaction which involves the broadest possible range of economic activity. Excluding such activity excludes its economic value and distorts the outcomes of economic inquiry. Let me provide an illustration from the fields of law and economics that provide some promise in bringing in the context to inquiry about the interrelationship of law and economics.

Professor/Judge Posner provides a model of economic social process based on wealth. He believes that wealth is a defensible value.* The model runs as follows: Human beings pursue wealth through institutions based on wealth to achieve more wealth. In this model wealth is a desired goal and wealth at the same time is a base of power to acquire more wealth. The problem with this model is that there are other social values universally identifiable based on either human needs or basic human claims. This is a model that would limit the focus of the economic inquirer.

Now let me recommend a more comprehensive model of social process that includes a comprehensive range of value institutional relationships. Here the model may be stated as follows: Human beings pursue all social values through institutions based on resources. We may now consider the relevance of the other values to a realistic theory of political economy. First, we have indicated that wealth may be sought as an economic value. We may have omitted the fact that wealth may serve as a base of power to acquire more wealth. Wealth may also serve as a base of power to acquire other important values in social process. For example, wealth as a base of power may be used to acquire power, to acquire respect as well as enlightenment, health and wellbeing, skill, affection, rectitude and aesthetics. However, all these other values may be used to acquire wealth. In short, power may be a base to acquire more wealth. Respect may be a base to acquire more wealth as might be the case of enlightenment, health and well-being, skill, rectitude and aesthetics. This picture of value processes interacting with each other to reproduce themselves or to reproduce other value processes is almost an indispensable focus for a realistic global foundation of a new paradigm of political economy. This is a useful way to underscore the relevance of both interdependence and inter-determination in the global social process.

We now provide elements of the context especially relevant to a new paradigm that is comprehensive and particular in its focus.

5. The Context of Ecological Values

There was a time when the conventional wisdom in economics was that nature and related environmental resources were unlimited. Today, the reality of climate change challenges this

* There are limits to this defense of wealth accumulation when we ask what wealth is for. Does it satisfy greed, or entrenchment of plutocracy?

earlier altruism. A new economics must consider both the potentials and the limits of the ecology of the planet. The ecology of the planet, therefore, is a crucial factor of context for a new political economy.

6. The Context of Global Social Interaction

Global social interaction involves the shaping and sharing of all values. The outcomes of this process generate the aggregate statistics of human development or the lack of human development. One of the most important problems that emerges from global social interaction is the problem of effective power and social conflict. However, the new economic theory must have a useable model of the global social process in order to fully appreciate the problems it generates on a global basis for all values.

7. The Global Process of Effective Power

The global social process reproduces the institutions and imperfections of the production and distribution of global power. It is well understood that the outcomes of global power represent conflict and competition. Additionally, the expression of global power in society is done through the process of decision-making itself. We can call this decision-making according to naked power. Since power expresses itself in terms of conflict, war and often violence, it will be obvious that peace and security are critical foundations for a social process that seeks to maximize its human capital resources. In short, war consumes human capital resources, and does not enhance or reproduce it. The new economic theory must, therefore, account for the global processes that generate and sustain human conflict, since these processes generate deficits in development.

8. The Evolution of Power into Behavioral Constitutional Processes

Conflicts about power do not always endure indefinitely. Indeed, there are periods when the power broker contestants in conflict may see that the continuance of conflict may only result in zero sum losses. This realization may generate the elements of inter-elite collaboration from which understandings may emerge about how to manage power in ways that avoid conflict and promote collaboration. If this happens, a society may emerge with a series of understandings about how power is to be distributed, indeed allocated among the power broker contestants. This level of institutionalization of power will reflect the emergence of the power dynamics constrained by distributions, which have the support of the authority of community members. When there is a form of constitutional process, we effectually have expectations about institutionalizing the forms of authorized decisions about decision-making itself. This is the foundation for the establishment of a system of public order in which all the values are distributed and produced via the authorized institutions of society. It would, therefore, be appropriate that the new economic theory develop and map the constitutive process (local to global) because it provides the framework of authorized decision-making regarding all the basic values in society including wealth. In this sense, a constitutional order that has a working capacity has an approximation to the idea of the rule of law. And the constitutive process is made operative by the constitutive functions

of decision-making. Thus, constitutive decision-making may both directly and indirectly influence development and progress. Additionally, a theory of economic novelty would have to account for the decision-making functions.

“New economic theory must ensure the termination of dysfunctional traditional standards and embrace new thinking.”

9. The Functions of Decision-making relevant to a New Economic Paradigm

1. **Intelligence.** Intelligence, which includes gathering information relevant to making decisions and its processing, storage, retrieval, and distribution to all participators performing decision functions.
2. **Promotion.** The decision-making function of promotion requires agitation and recommendation of certain policies, which in the form of prescription have the quality of law. In this sense, promotion is a critical component in decision for directly changing the common interest. It is in this sense that we cannot look at economics as value-free.
3. **Prescription.** This decision function implicates the formulation and adoption of certain policies as authoritative pronouncements in appropriate sectors of the social process.
4. **Invocation.** This function of decision-making is essentially a provisional decision function that characterizes behavior as incompatible with the law and goals of the community. Those who perform the invocation function raise the question of what initiatives enhance or violate community prescriptions.
5. **Application.** This is the authoritative characterization of conduct as lawful or unlawful. To secure lawful ends, the applier must use tools of some form of sanction to secure appropriate application. In terms of the objectives of development, the consequences of development may be critically related to the actual applicative performance. The new economic initiative must, therefore, give careful attention to the idea of application if development goals are to be real.
6. **Termination.** The decision function of termination means the termination of something in the status quo and its replacement by something that changes the status quo. New economic theory must ensure the termination of dysfunctional traditional standards and embrace new thinking.
7. **Appraisal.** The theory of decision-making as applied to economic policy requires that there be constant measures that may be appraised in terms of advancing toward progressive economic goals and avoiding the regression to the opposite.

10. New Economic Thinking, Development and Social Change

The new economic thinking has its focus on development in terms of human capital and its potentials for improving the human prospect. It would have to identify a plurality of commu-

nity systems that are inter-dependant and inter-determining and range from the local to the global. What we observe are territorial communities who know what they want and where they need to go but lack resources and skills. An extreme example is “cargo cults”. If placed on a continuum, we may see the socio-pathological condition of hyper development. There are a multitude of problematic circumstances in between. For us to develop an approach that permits us to identify where we are and where we want to go, we would have to measure development in terms of the existent state and potentials for transformation of at least the following nine values:¹³ power, wealth, enlightenment, skill, well-being, affection, respect, rectitude and aesthetics.

1. **Power.** The most important expression of power as decision is the understanding of the institution within which it expresses itself. For example, globally, power is significantly decentralized. This means an economic paradigm of global salience runs into the problem of the degree of lack of institutionalization of power. It is probably true that the most power-deprived are the least well off in global society. The new theory must be able to map global power and to appreciate its capacity to be mobilized for rational developmental objectives.
2. **Wealth.** In general, this refers to the aggregate volume and composition of what a society produces. It may refer to income in the community and also to the notion of an aggregate resource base. In general, when wealth is developed, the outcome is an increase in the volume and composition of products without depleting the resource base. $(P+I) \div R$
3. **Enlightenment.** What we mean by enlightenment is the prescription and application of education in social and economic development. The nature of enlightenment as a social capital is evident when education in a society leads to development. A society with an increased education-knowledge base uses enlightenment to extend development through informed decision-making. Decision-makers would make decisions based on informed enlightenment.
4. **Well-being.** Well-being including health refers to the state or condition of a society and its members. The well-being of a society is directly proportional to the level of “life expectancy” and indirectly proportional to the expectancy of disease occurrence in that society. The optimum level of well-being, however, is dependent on other values in that society.
5. **Skill.** Skill is the ability to perform tasks (especially employment or professional tasks), as a function of human capital development. The skill value is for the benefit of society. Skill development is a consequence of an increase in the strength of the “skill pool” in a society where skills are directed towards development. Skill is a critical component of individual and social capital.
6. **Affection.** Affection is a form of positive sentiment and underlines the loyalty of individuals and associations to the group. Being a basic value, it has tremendous

social capital. The increase in scope of positive sentiments in a society increases developmental achievements and goals.

7. **Respect.** Showing regard for other individuals within a society is crucial to development. A lack of respect gives rise to discrimination, which in turn becomes a direct cause of retarded development.
8. **Rectitude.** Rectitude drives moral behavior in society. When rectitude of individuals within a society matches its development goals, there emerges what we call rectitude development.
9. **Aesthetics.** Aesthetics is rooted in human creativity and in human creative capacity. A culture of strong aesthetics will inspire economic development objectives.

These values are the critical components of a theory of global political economy. They are also implicated in the development and enhancement of human and social capital. The system of mapping the global social, power, constitutive and public order processes represents the essential contextual background for a political economy that focuses its theoretical foundations on the development of human and social capital. Essentially, the repository of human and social capital should be focused on the value institutional context and the framework of decision-making that shapes this context in ways that maximize the human and social capital capacity in society. The values approach gives us a shorthand method of understanding that human and social capital are clearly implicated in at least nine values that a cross cultural world can be observed with appropriate tools of investigation. The challenge for theory is to understand the divergent institutions respecting the cultural values and their level of efficacy in practice. We could start with the first challenge of theory, which is to establish the appropriate goals of human and social capital development.

Here, the challenge is to generate procedures and practices, as well as a theory to explain and justify this, which has the task of maximizing the production, distribution and sustainability of every value institutional process in order to maximize the structure, understanding and deployment of human capital. As a consequence we want to maximize the production, distribution and sustainability of power, wealth, respect, skill, enlightenment, wellbeing, affection, rectitude and aesthetics. In developing this framework we will be alert to the interdependence and inter-determination of functioning value systems. This means that power may be sought for its own sake but it may also be used to maximize value shaping and sharing and sustainability with regard to every other value listed above. Wealth may be sought for its own sake but may serve as a base of power to acquire power and all other values. In short, every value may be sought for its own sake and may also serve as a base of power to shape, share and sustain every other value. This approach requires us to see economics not as a disembodied field from human relations, and if we see in the value processes the repositories of human and social capital, we bring a sense of realism required for a durable new economic theory.

It will be obvious that these value institutional relationships that we identify are sought to contextualize what happens in the context of the global social, power and constitutive

processes. The central feature of power and constitutive process is the centrality of decision-making. We can expand this idea further by suggesting that the centrality to the development and uses of human and social capital is the capacity for the human agents of capital formation and use, to be active and important decision makers in the very processes through which human beings generate value through human capacity. We therefore suspect that the mechanistic approach to economics represents a dramatic failure in its omission to understand the role of decision as a critical component of human and social capital. We now will proceed to provide a few practical examples of these theoretical possibilities.

11. Human and Social Capital in Development: The Vicos Experiment

The Vicos Experiment is a form of intellectual inquiry that also sought to induce a form of constructive, evolutionary social change in development. The inspiration for the experiment emerged from a view that peasants were incapable of modernization. An anthropologist, Allen Holmberg, and a former president of WAAS, Harold D. Lasswell, led the project. The project was located in the Uplands of Peru and included the village of Vicos. The project leader, Professor Holmberg, understood that the Vicosinos were the occupiers of land owned by an absentee landlord. Their position on the land was defined as the status of serfdom. With a small grant from the Ford Foundation, Holmberg purchased the land and the hacienda and essentially became the patron.

The farming practices of the village were unproductive because they had no incentive to produce crops that would be expropriated by an absentee landlord. This involved the project leaders in providing incentives to improve the village economy via farming. That also meant a movement away from near survival to a circumstance of modest prosperity. The incentive was that if the villages cooperated in farming operations, they could keep the profits for community purposes and if the profits were sufficient, they could purchase the land and become landowners. The project leaders found that the initiatives of the serfs with their intimate knowledge of farming capacity and climate, etc., supplemented by some technical expertise, essentially produced a significant sequence of crops and upon marketing, funds as well. It was important that the villages were participating in the decisions about agricultural production.

This initial initiative raised questions about how to exercise decision making in managing the profits from farming activity. This permitted the interveners to promote the idea that maybe decision making should be shared with the community and decisions eventually evolved to issues about healthcare, in particular, healthcare of women, schooling, including schooling for women, and the project evolved with a self-conscious direction of training in the processes of decision making and an awareness of appropriate goal values. One significant event was when the community decided they would invest in a truck to transport their products directly to the metropole and increase the value of their products by direct marketing.

The model pursued in Vicos attracted external attention. Some of the Peruvian elites were particularly concerned about what they saw as an incipient process of empowering the underclass. Other Indian communities saw Vicos as a model that they would try to emulate.

The Vicos leadership were willing to transfer skills to other Indian communities as well. Unfortunately, a delegation of Indian leaders on the way to Vicos to retrieve the recipe were attacked by hired goons. Several were killed. This gave the sovereign Peruvian state an excuse to terminate the project on the basis that it was disruptive of social peace. Although the project was ended technically, enough seeds of change and the processes of decision making to enhance human capital had been transferred. This village is still an example illustrating the importance of developing human capital on the basis that it is sustainable over time. The idea behind Vicos was recently of interest to the World Bank. One of the participants in the project presented the Bank with a broad prototypical framework of how this could be replicated elsewhere. The World Bank has also developed a more limited version of this idea in its projects that have dealt with micro-enterprise finance. It would seem that bank theorists would prefer to focus on a narrower framework of value institutional capital. The Vicos project combines elements of macro theory, intermediate macro theory and micro theory. The theoretical value of the Vicos experiment is that it can be simplified in terms of a useable development prototype. In this sense, it could have some value for new economic theory to focus on the multitude of possible prototypes that might be given operational effect worldwide. Several years ago, we discovered that there were several women from the village of Vicos who had completed advanced doctorates in the United States.

12. Indices of Value Accumulation in the New Paradigm

We have given an overview of the problems inherent in conventional economic theory and method; we have also proposed a radical new way of approaching a new paradigm for economic theory and practice. We have illustrated that a new paradigm must have a focus that is global and comprehensive and yet have the dexterity to be problem-oriented and solution-directed. In this sense, a new paradigm must also be decision- or choice-oriented in focus. To this end, we have outlined the architectural or decision functions, which could enrich the level of economic discourse and practice. We have also provided the Vicos illustrations of the comprehensive global and local fora.

We conclude with a more specific explanation of the evolution of wealth and capital in economic discourse to the challenges of a newer “wealth” epistemology, we would submit that the approach we recommend will be well-suited to properly account for the omission using conventional economic measures of such vital value generating indicators as found in the service sector of the economy in social process.

Hence, it may be useful to start with the problem of the housing bubble and the “\$35 trillion” of “value” generated by it. The critical questions are, are these new value instruments such as credit default swaps and related instruments a real indicator of value in social process, or are these really an illusion of real value? Adam Smith, for example, saw the production of value in industrialization. This represented a closer focus for the creation of real value, than the tracks of the financial markets have taken. In our time, importance of a framework of more realistic indices of value in social processes lies in Veblen’s thesis about the parasitical leisure class. Marx’s analysis of the importance of political economy and class stressed, inter

alia, the value of the building and control of capture, which facilitated the generation of the monetization process. This, in turn, facilitated the emergence of the states controlling the political economy (the command economy), by elites who controlled the state.

The rise of the new liberal economy validates the role of the private sector's control over the political economy. Here, the private sector corporately exercised, generates a tendency to plutocracy. Neither of these perspectives solves the problem of realistic indicators of economic value, how to measure it, and how to make it serve the common interests. In short, the old paradigm distorts reality. It does not help.

The important economic theorists insist that salient transformations are happening in a world of economic value and we need a more comprehensive focus of inquiry to understand their social process impact and consequences. For example, Orio Giarini has indicated that global economic relations today are largely shaped by the emergence of a global service economy.¹⁴ Giarini states that,

“At his time, rightly, Adam Smith underlined the priority of industrialization, which was in between agriculture (an important sector, but which of course had to improve) and services (depending on “dedicated” people, but with no recognized economic relevance).

The point is that services tend today to provide about 80% of all the “productive” activities. The higher levels of technology, in most cases, become more and more efficient every day and the tools are becoming cheaper. But they require more and more services to conceive, manufacture, distribute, finance, control etc.

Some economists (see those who were involved in the GATT discussions) tried to include in the “normal” economic theory, the evidence of the growth of services, saying that they are simply products that you don’t feel even when they fall on your feet.”

A proper appreciation of development of services in the nature of their real economic value is linked to the notion of risk management in time. This suggests that an aspect of value is linked to the future. This has profound implications for the science behind the notion of a service economy. According to Giarini,

“Uncertainty and probability are the rules of the game (a little like going from Newtonian physics to Quantum physics). The economic value depends largely on the period of utilization, which also includes costs. At the beginning of the whole process, research is also based on managing probabilities, as well as market success, maintenance and security up to disposal costs. Value is necessarily linked to the notion of performance (in time). Entrepreneurs know this.”

Unfortunately, conventional theory underappreciates the salience of service-related value as an indication of producing wealth in society. If our focal lens about epistemology of other wealth generating forms of activity such as the service sector were made a central indication

of the emergence of the new property, we would in effect be taking steps towards a new social reality, which implies a realistic optimization of wealth and a better distribution of it. A better distribution of wealth would also be an indication of social empowerment. Social empowerment would probably be in a progressive direction and the new property and its distribution would stimulate important developments for strengthening the global rule of law and global governance as processes generating a more enlightened regulatory scheme, which promotes and defends human rights law.

It would also be appropriate to examine important legal forms that new property might take.

Property as a form of wealth is one of the most enduring of legal institutions. Its chief characteristic has been its conservative nature. The legal myth is that stability mandates changes in the nature of property are slow and incremental. This myth still has vitality in legal culture. However, in the real world property is actually one of the most dynamic institutions in social process. The forms of new property are often far ahead of normal legal regulation of its creation, uses and termination. In fact, very few property lawyers would effectively describe the nature, functions and boundaries of the new financial property institutions. Additionally, new property forms are liberally incubated in the human imagination and emerge through complex social and technological processes into new forms of property such as intellectual property. A new paradigm must account for real conditions of property creation, duration, and termination no matter how contingent these processes are and also the value of human capital and its relation to social capital as well as the dynamic role of technological innovation generated by human and social capital and how it impacts on the social and economic consequences on society.

13. Conclusion

We conclude this paper encouraging the reader to appreciate the relevant economic and political markers and their interdependence and interrelationships. We have stressed that we need a comprehensive contextual approach that permits a focus on problem particularity and permits the use of multiple methods cutting across disciplinary lines.

The contextual map below represents the idea of a comprehensive global social, economic, and political process with the capacity to link a multitude of markers and pointers of relevance to economic theory and policy.

We hope our contribution facilitates the further exploration of the appropriate boundaries of political economy guided by the normative imperative of universal human rights and universal human dignity.

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Notes

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11. To explore the necessary elements of a new paradigm, we have branched out into advanced international law theory and used concepts developed in that theoretical quest to advance, hopefully the foundations of a new economic paradigm. The following references may be of use: Myres S. McDougal, Harold D. Lasswell and Michael Reisman, "Theories About International Law: Prologue to a Configurative Jurisprudence," *Virginia Journal of International Law* 8 (1968): 188-196. A development of some of these ideas in contemporary context by WAAS scholars is reflected in Garry Jacobs and Ivo Šlaus, "In Search of a New Paradigm for Global Development," *Cadmus* 1, no. 6 (2013): 1-7.
12. Myres S. McDougal, Harold D. Lasswell and Michael Reisman, "Theories About International Law: Prologue to a Configurative Jurisprudence," *Virginia Journal of International Law* 8 (1968): 188-196. A development of some of these ideas in contemporary context by WAAS scholars is reflected in Garry Jacobs and Ivo Šlaus, "In Search of a New Paradigm for Global Development," *Cadmus* 1, no. 6 (2013): 1-7.
13. See Garry Jacobs & Winston P. Nagan, "The Global Values Discourse," *Eruditio* 1, no.1 (2012): 136-49; Winston P. Nagan & Aitzia M. Haddad, "Individuality, Humanism & Human Rights," *Eruditio* 1, no. 2 (2012): 2-22.
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The Double Helix of Learning and Work*

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Editors' Note

The Double Helix of Learning and Work by Orio Giarini and Mircea Malitza is a report to the Club of Rome first published by UNESCO in 2003. It advances fundamental paradigm-changing ideas in the field of education. Drawing inspiration from the double helix structure of DNA, the authors seek to strengthen the relationship between education and employment in order to bring 'The Knowledge Society' within reach. This article is an abridged version of the second chapter of the report. Successive chapters will be carried in subsequent issues of *Cadmus*.

Chapter 2

The Modular Approach

2.1. Dismantling the Disciplines

Whenever knowledge experienced a boom following a scientific breakthrough or a dramatic assimilation of novelty in society and the economy, a feeling arose that the new acquisitions had to be ordered, controlled, and better organized for more effective use and broader distribution. Looking back, it seems that such moments of stocktaking tended to occur once in every century, always during the first half.

Without going too far back in history, it is possible to suggest that in the Eighteenth Century such a moment of truth was the project of the Great French Encyclopaedia (1750), which was preceded by the earlier English Chambers's *Cyclopaedia...* (1728). The era was that of the Enlightenment that followed Newton's spectacular achievements in science. In the Nineteenth Century, Auguste Comte engaged in a classification of all sciences (1830) in an attempt to cover the entire sphere of knowledge, with the resulting emergence of positivism. He also contemplated the project of an Encyclopaedia that would stand for a "philosophical system of all knowledge in general". The progress of education was also one of his concerns.

* All content being used from the book *The Double Helix of Learning and Work* – a Report to the Club of Rome – by Orio Giarini and Mircea Malitza, published in 2003, is copyrighted to UNESCO. The full book is available online for download at <http://unesdoc.unesco.org/images/0013/001307/130713eb.pdf>

In the Twentieth Century, starting from the same premises, the Vienna Circle initiated a daring programme comprising the preparation of a new comprehensive Encyclopaedia (only one volume was published at the time, in 1937) and the establishment of an International Institute of Unified Science (1936). Both projects had to be abandoned right before the outbreak of the Second World War.

It is to be noted that a philosophical approach took pride of place in all these projects. Comte represented the unity of science as a tree (all sciences having a common root). The Vienna Circle saw logical empiricism as the basis of a science that tended to apply a single unifying methodology and to eliminate those branches that they were not capable of being used.

Each of those displays of unlimited trust in the power of knowledge, as incorporated in the sciences, elicited reactions and gave rise to protests. *L'Age des Lumières* was contested by Romanticism. After Comte, the sciences of the spirit were separated from the common trunk of the natural sciences by the “great schism” of Dilthey. Historicism and the axioms of the Vienna Circle were challenged in their very logic by statements indicating the limits of formalization or the untranslatability of language (Gödel, Quine). What should be noted is that crises of overproduction in the sciences generate projects aimed at ordering and classification. It is as if people of vision were looking for systematic methods to store knowledge goods so that those goods could be retrieved easily and rapidly. In the Twenty-First Century, the problem has resurfaced with a much greater sense of urgency. No wonder that it has not waited until 2030 simply to be in harmony with historical experience.

The knowledge boom occurred in the second half of the past century. Its magnitude defies conventional description. Books become obsolete as soon as they come off the press. This phenomenon explains, at least in part, the emergence of thousands of learned journals devoted to a single domain, such as medicine. Even so, no sooner are the magazines printed than research may advance considerably. The Internet has provided a much more rapid vehicle for registering and spreading knowledge. And yet, not even the new science of “information retrieval” has been able to cope effectively with the growing mass of unordered information.

The problem is that classification methods are still rigid and antiquated. They have not changed much with the passage of time. Geometry, arithmetic, astronomy, and physics have stayed, each in one piece, ever since Aristotle. All they did was to multiply by division, but broadly they are the same. During the Middle Ages, universities taught liberal arts in two groups: the *trivium* (grammar, rhetoric, and logic) and the *quadrivium* (arithmetic, music, geometry, and astronomy). Auguste Comte also counted only seven basic sciences: astronomy, mathematics, physics, chemistry, biology, sociology, and ethics.

As soon as a science acquired more advanced methods, it was made into a model. According to the Neurath and the Vienna Circle, the unity of science was suggested by “physicalism”. Galileo in the Seventeenth Century and the school of quantitative models in the Twentieth Century chose mathematics. These days they seem to have been dethroned by biology.

“The classical education system was dominated by theory. Now, emphasis is being laid on learning through experience and on work-based learning.”

Broadly speaking, the administration of knowledge has been undertaken by individual disciplines for centuries, no matter how diverse and specialized their subdivisions may have become. The disciplines have been institutionalized in higher education institutions: a comprehensive area of knowledge has a corresponding faculty, while its sub-branches are covered by departments and chairs. The university provides a common roof for all and ensures the implementation of legal requirements. It awards graduation diplomas for accepted disciplines that are so

described under the relevant law or other act issued by the national educational authority. In some countries, degree diplomas (BA, MA, PhD) in international relations are not awarded. Very few countries award formal degrees in mathematical linguistics or bioelectronics.

Now that the file on the organization of knowledge is finally reopened, it becomes obvious that the approach, based on a strict compartmentalization of disciplines, is the most serious barrier to innovative solutions. Teachers as a professional group display the greatest amount of inertia; they fiercely defend their own disciplines with a dedication that reminds one of the way large predators assert control over their hunting grounds. The classical pyramidal scheme, school-teacher-disciplines-students, has endured for centuries.

It would still be unfair to regard the university of today as a medieval fortress. Spatial unity in a confined sanctuary of learning is no longer the rule. In a modern campus faculty, buildings are often scattered, sometimes even located in different cities. The teaching staff has become considerably more mobile than in the past. Guest lecturers or visiting professors are quite common in most universities. Students move to other countries for a semester and come back with credits obtained from other universities. Optional courses are advertised for those who may be interested in them. During lectures or seminars, students frequently ask for additional explanations on pieces of information they pick up on the Internet. Distance learning competes with day courses. Professors and students alike carry their auxiliary memories in their laptops. Lectures are given using PowerPoint multimedia techniques with visual demonstrations and even musical accompaniment. Mass education has replaced latter-day elitism: universities have become crowded places offering a variety of events, always dynamic and heterogeneous. Informality and casual dress codes are the latest fashion.

At least, that is what one sees from the outside. More importantly, one must note that, on the inside, the university, which used to be the most conservative of institutions of learning, is now engaged in a serious debate on innovation. Myriads of circles, associations, and groups are dedicating their work to innovative teaching and learning in order to absorb the impact of IT. From here to examining the very mechanisms of change there is only one step to take.

Networking has transformed the world's leading universities into a huge laboratory of experimentation, innovation, and change. Which issues are the most topical? The classical education system was dominated by theory. Now, emphasis is being laid on *learning* through *experience* and on *work-based learning*. The traditional school focused on the development of intellect; now, the spotlight is aimed at *skills* and the acquisition of *core skills* or *key skills*.

Such concerns are living proof of the fact that education is moving a step closer to the world of work.

These concerns are announcing further spectacular developments in the Twenty-First Century. Both *experience-based* and *work-based learning* and the rediscovery of the importance of *skills* have been the result of pressing demands from knowledge users in the social and economic environment. Satisfactory answers have not yet been provided. Which disciplines are able to meet those growing concerns? Who is going to teach them? The disciplinary teachers ponder.

The basic tactic that the universities have used in their approach to change is to adopt the new techniques while still retaining the disciplinarity structure. The least problematic were the audio-visual methods that have been on the agenda since the 1950s. Audiovisual laboratories were created, but they served only as additional teaching aids to supplement traditional courses, which remained unchanged. The same happened with the use of television in schools.

The challenge of interdisciplinarity was even more remarkable. A new generation of universities emerged in Europe, in the 1960s, mostly as a reaction of worried governments when confronted with student unrest. The modernity of such new universities was expressed in the first re-wrapping of knowledge. Interdisciplinary faculties and schools were established to cope particularly with complex environmental matters. The response of the universities to the challenge of interdisciplinarity was not the weakening of disciplines but their multiplication. Those new rooms added to the old building “rapidly began to behave like conventional subject departments with the traditional means to maintain boundaries and to discourage the permeability of the staff, students, or resources through them” (Bridges, 2000).

The same tactics were applied to the assimilation of information technology, even though it proved to be more difficult to tame. The computer was viewed as a useful, even indispensable, instrument in educational practice, but still no more than an appendix to the disciplines. That attitude was a mistake. As James Bosco (1994) put it, the new technology does not fit into the old picture as a touch of color, but as an active element that establishes connections with each and every component of the structure, thus altering it. We should remember the words of Marshall McLuhan (1965); “the medium is the message”. IT takes a central place among the issues brought forth by the innovative trend in education and learning.

Increasingly, the Internet is a working space within which knowledge can be co-constructed, negotiated and revised in our time; where disparate students from diverse locations and backgrounds, even internationally can engage one another in learning activities; where collaborative projects can be developed; where communities of inquiry can grow and thrive; and where simulations, models and visually based prospects can be created that allow real interactions within vivid and complex environments that span sensory experiences. [...] Such activities are not just supplements to the classroom experiences; they are unique and irreplaceable learning opportunities themselves; and often they exist only online, not in real classrooms (N. C. Burbules and T. A. Callister, “Universities in Transition”, 1999).

There is an item in the innovators' programme that not only provides solutions for the others but also becomes the kernel of the new structure of educational systems: *modularity*. It has the appearance of a most benign and technical methodological approach, but it is the first-ever coherent attempt to break the compact block of the disciplines. Shy and prudent, experimental and local, it has come up with the best way to alleviate the suspicions of disciplinarians: it looks like a mere method to emphasize the individuality of various chapters in a discipline-based course. Modularity actually behaves like the computer: once seen as an instrument, it becomes the generator of total reform.

2.2. Modularization: The Era of Beginnings

Our definition of a *module* describes a unit of knowledge that has:

- i. coherence;
- ii. reduced dimensions and is easy to handle;
- iii. the capacity to be part of a general system;
- iv. the possibility to be classified and retrieved from the stock;
- v. the ability to combine with other modules and to form a strictly consecutive string with them;
- vi. the capacity to provide a content link with the other modules in the string and to provide support for independent learning;
- vii. the quality of clearly indicating what other modules have to be consulted in order to assimilate it and to which other modules it may lead
- viii. the quality of being selected by the user from several possible options according to an individual strategy aimed at a professional goal or at acquisition of new knowledge (research).

The modules may have different levels of development, most often (i) and (ii), but the number of these levels is not limited. Owing to the general and introductory character of the first level, it will register the highest degree of connections and will be resorted to in many variants of the personal curriculum. Interdisciplinary and applied modules follow suit. Here are some examples of modules: "Graph theory" (i), (ii), (iii), and (iv): "Graph theory in the Social Sciences"; "Graph Theory in Management"; "Graph Theory in Transport", the latter primarily involving "Graph Theory (i)" or "Graph Theory (ii)".

As seems to be the case for all great modern ideas, it is difficult to determine with certitude when and where the notion of modularity actually originated. Having followed with interest the constructivist pedagogical experiments of Weizsäcker (2000) in Germany who used the notion of "bricks", Botkin, Elmandjra, and Malitza, the authors of *No Limits to Learning: Report to the Club of Rome* (1979) wrote: "To encourage innovative social learning, true participation must enable people to open and inspect the 'black boxes' of knowledge, to question their relevance and meaning, and to re-design, re-combine, and re-order them when necessary". They also called for a reorganization of academic structures, "to combine university departments according to issues rather than only and always according to disciplines".

The term, “module”, came to be used in non-formal education, upgrading courses, summer courses, and evening courses, in which, to a great extent, interdisciplinary issues and applications were tackled. Those who organized such courses responded to the needs of the users (industrial units, company managers, etc.) by producing *ad-hoc* packages of modules, each comprising several lessons. Before becoming part of the formal education system, modularity amounted to simply walking around several workplaces along the production line.

The best known and the most dynamic of distance learning universities is the Open University of the United Kingdom. It involves more than 200,000 people of whom some 160,000 are enrolled in programmes lasting three to six years leading to undergraduate or graduate university degrees. Although the need to secure acknowledgement for these degrees still compels the University to observe traditional curricula, the number of innovations is considerable: virtual tutorials, discussion groups, electronic submission of assignments, computer mediated conferences, and more.

The following is a successful sample of a module, or “unit”, as it is called at the Open University: a one-hundred-page booklet comprising two modules titled “Towards a Mechanistic Philosophy, Block 1 I, Units 4-5, Science and Belief: From Copernicus to Darwin”. It is included in the chapter on Arts/Mathematics/Science/Technology as an Inter-Faculty Second Level Course in the History of Science. The topics suggested for discussion, the quotations and bibliographical references, the required comments on excerpts from classical works, the images and illustrations, the scientific rigour and elegant style – all these are qualities that make the two modules examples of excellence.

The turning point for modules was reached when they had to face the established structures of disciplinary institutions. In the current era of beginnings, one witnesses the emergence of a host of varied and uncoordinated experiments. Their goals and languages may still be insecure, but they are all brought together by their avowed intention to build curricula on modules rather than on disciplines.

In all cases, modularization began in the final stage of a given educational programme, at the point at which goals were established. It invariably went backwards, from the complex to the simple, up to the starting level of introductory or basic modules. The occupational profiles pursued by the students (*i.e.*, the answers to questions like “What would you like to be?” or “What would you like to do?”) were the most powerful magnets that caused the modular filings to settle in the map of knowledge. The concerns of those who want “knowledge for the sake of knowledge” would be met by resorting to the numerous terminals indicated as “research” in various fields. There are fewer reservations today about asserting the importance of the profession and its requirements, once educational authorities have set “enhancing employability” as their top priority.

The exploration of the theoretical aspects of the modular approach has been the object of several praiseworthy works. Warwick (1987, 1988) provides a concise definition: “A module is a unit of curricular material, complete in itself, to which further units may be added for the achievement of larger tasks or more long-term goals”. He emphasizes two broad tendencies, one “which begins with the established subject matter of a course” and the other that

“takes the students as its starting points”. The students would thus build programmes for their individual needs by choosing modules from a larger menu. The next steps are “the complementary approach (no predetermined order, complete freedom of choice), the sequential modules (minimal amount of modular prestructuring to ensure progression towards specified goals), the concentric model (integrity of subject matter maintained through linking modules to a common core), and modular stratification (precise order to be followed). Even the designers can be identified by their different styles.

Traditionalists, for example, give direction to their work by breaking its contents down into cognitively meaningful sections. Progressives permit students to construct personnel programs from a large number of free-standing, independent modules or even to generate epistemological patterns of their own. The behaviorist shapes the learning process by a gradual progression through carefully sequenced units, rewarding success with a series of credits whilst the devotee of experiential learning looks to modules to rescue creativity from the tyranny of the timetable.

All these distinctions are pertinent insofar as modules, especially in the experimental phase, are created for specific, immediate, or short-term purposes. Most of them originate from the applied, vocational, and technical sector; they are extracurricular and non-formal, especially designed for small and *ad-hoc* tasks. However, when dealing with an all-embracing pattern of formal education, all approaches are valid and non-exclusive. The approach of the main programme combines “core modules” (which are indispensable), direction (even though it may change), personal constructions (that pursue further linkages), and contents sequence constraints together with the advantages of a series of successes that are easier to obtain by taking smaller steps.

2.3. The Double Helix of Learning and Work: A Major Project

While the cumulative and gradual pace of science and knowledge is a datum, there are times when the pressure of problem-solving requires a focused effort, based on a plan and consistent guidance, spanning a long interval of time, and involving numerous research centers and considerable investments. In the area of the physics of particles and of nuclear physics, CERN (Geneva) is one such international center. In recent years, the Human Genome Project (HGP), which was developed in the 1990s, was a most spectacular and ambitious venture. It also had the structure, organization, and other characteristics of a major project.

The Human Genome Project overlaps partially, at least metaphorically, and for the second time, with the topic of this study. At first, the joining of the two complementary helixes – Learning and Work – suggested the double helix structure discovered by James Watson and Francis Crick. In the second instance, both the Human Genome Project and Learning and Work use the same key word to define their stated goal: *mapping the genome* by resorting to DNA markers and *mapping knowledge* in terms of its constituent parts. Both cases involve daring attempts to master complexity.

For quite some time, the human genome has been estimated as consisting of 50,000 to 100,000 genes based in 23 pairs of chromosomes. Two reports published in early 2001 came

up with smaller figures (31,000 and 26,000 respectively), but some biologists are still convinced that further research will show that the stock of genes that it took to carry the blueprint for human beings is something between 65,000 and 75,000.

Each chromosome contains a DNA molecule, in which four bases – A, T, G, and C – form opposite couples. The order of the four bases on a strand is what determines the information content of genes, which are nothing but pieces of DNA of different lengths made up of 2,000 to 2,000,000 base pairs. When the project started, only 2 percent of the human genes had been mapped. The chromosomes were numbered, and every time the physical mapping of one of them was accomplished (no. 3 or no. 4), the media hailed the event. In genetic mapping, the idea is to determine the position or spacing of genes on the chromosome, thus obtaining clues concerning those genes associated with genetic diseases. A matrix was introduced into the physical maps. At the beginning, the complete DNA sequence was determined for a virus (170,000 basic pairs). A bacterium has 4,500,000 basic pairs. The human genome consists of 3 billion DNA base pairs, about 1,000 times larger than the bacterial genome.

One might be tempted to say that there is hardly any basis for comparison, in terms of complexity, between the genome and knowledge as expressed in the disciplines that are taught at a university. We still remember the timetables that we used to pin on the wall when we were children. The picture is no longer that simple when we open the course yearbook of a university. Let us take, for example, the *Annuaire général*, Vol. 2, (Faculté des études supérieures de l'Université de Montréal, 1998-1999). The 167 programmes listed there offer more than 6,000 courses (or other activities such as seminars, brainstorming sessions, tests), each indicating the credits awarded. The courses are grouped according to major disciplinary categories, from *Aménagement* to *Art et Science*, to Educational Sciences and Theology, to High Medical Studies, to Music and to Polytechnic studies. The yearbook is remarkable in its attempt to offer optional or *à choix* courses, to focus on practical work and laboratories, to invite lecturers from outside the University, to provide openings towards other fields.

In most universities, such a drive for innovation is at work. Buildings are enlarged or subdivided; new halls are opened, with new corridors to connect them, and wings and laboratories are added. Only the disciplinary structure remains untouched, even though it may now look like a labyrinth.

But, one might argue, will the complexity not increase when a far larger map of modules replaces the disciplinary courses? For a cautious experiment in a technological faculty, 160 modules will have to be introduced instead of 40 courses – four times as many. Since a student has to cover 100 to 200 modules in order to qualify for graduation, the choice of modules is limited by content and sequence constraints. In other faculties, the module/course ratio can exceed a factor of 10.

Moving from disciplines to modules does not amount to discarding the merits of an educational system that has functioned for centuries. Rather, it aims at introducing some radical measures in order to enhance the existing parameters and to improve results. The forty-hour week of a student, now generally divided into twenty-four classes and sixteen hours of individual study, is maintained in reversed proportion: sixteen classes and twenty-four

hours of individual study. If we consider part-time or distance education, this proportion is but a minimal indicator. Given the variety of practice in higher education, let us give another example of a comparative diagram. Five courses per semester would correspond to twenty modules. In terms of reading material to be covered, a one-semester course would normally have around 200 pages. A module averages fifty pages. One course would then correspond to four modules. The figures add up nicely.

Complexity only becomes obvious when we take into account the number of distinct itineraries that may be covered in a modular system. Theoretically speaking, there are quite a few ways of choosing 100 modules out of 1,000 that are on offer. Of course, the number of choices will become smaller when we consider the conditioning that is inherent to a network of constraints: access to a module essentially implies covering some others.

The Learning and Work project introduces the second phase of modularity, following the experimental phase. It may take a decade for the educational system to introduce the modular method into this first phase, to build it up to a critical mass, and to become aware of its benefits, which multiply in relation to the growing number of applications. Thus, a large university that offers degrees in both medicine and technical sciences will receive more benefits than a smaller one. And a consortium of universities will score even higher. Also, in the experimental phase, it is crucially important to elaborate modules that are tailored to suit the entire active life scale. Such modules can be offered early on to adult users who either turn intermittently to educational cycles or cover them while working.

The Learning and Work project has as a main goal the mapping of knowledge according to the practical criteria of education distribution and use, learning, and training, for which it attempts to produce a modular sequencing operation. The project tends to cover everything that an individual can and must know in order to perform professions and roles, while also accomplishing the traditional goals of education (personal fulfillment, dignity, productive activity, social roles, conscience).

The Learning and Work map starts at the points at which the educational system transfers individuals to the sphere of work. Those, obviously, are the terminus points of job-oriented education, technical schools, and higher education. However, the map is built according to the principle that an individual can join the sphere of work at any point and then return from the helix of work to the helix of education at any time.

In an ideal university, as I conceive it, a man should be able to obtain instruction in all forms of knowledge, and discipline in the use of all methods by which knowledge is obtained. In such a University, the force of living example should fire the students with a noble ambition to emulate the learning of learned men, and to follow in the footsteps of the explorers of new fields of knowledge. And the very air he breathes should be charged with that enthusiasm for truth, that fanaticism of veracity, which is a greater possession than much learning; a nobler gift than the power of increasing knowledge; by so much greater and nobler than these, as the moral nature of men is greater than the intellectual; for veracity is the heart of morality (Aldous Huxley, *Brave New World*, 1933).

Still, where is the epistemological debate? It is all about knowledge, and we first need agreement on its definition. It may well be that knowledge can no longer be represented by a single tree. But it then becomes a forest, as each discipline advances according to specific laws. How can one account for the intermingling branches since the roots are distinct? The issue is deeper than such metaphorical interrogations may suggest.

It is an acknowledged fact that the ages-old philosophical questions regarding the nature and uniqueness of science, which defied classification and allowed the answers to emerge from free practice, have a certain justification. One way to produce a comprehensive mapping of science might be suggested, from time to time, by the methodological approach. Another way might be offered by logical criteria. But the need for a practical scheme is so compelling that, at the start of the Twenty-First Century, there is no time to wait for complete answers.

It is difficult to visualize the completion schedule for an enterprise such as Learning and Work in concrete terms. For one thing, global educational authorities do exist. The most active and productive one is UNESCO. Next to it, the International Labour Office (ILO) is equally busy insofar as work issues are concerned. The two of them initiated the EFA (Education for All) programme together with the United Nations Development Programme (UNDP). Regional organizations should be vitally interested in the project. Some also have considerable means such as the European Union and the Council of Europe.

Powerful nations support major education programmes that reach far beyond their borders. The United States, Japan, France, and the United Kingdom have dynamic and open educational systems that can yet play an important part in the launching and development of the Learning and Work programme. These countries can be assumed to be very sensitive to the Learning and Work potential, for their policy statements frequently mention unemployment, the aging of the population, the knowledge economy, and competitive pressures as their major areas of concern.

The envisaged programme largely depends on meaningful international co-operation. Mixed groups of experts with related profiles and then intergroup teams will have to do most of the job. The largest groups will be those on medical, technical, and natural sciences, on economics, law, literature, arts, and other humanities. Those enclaves of experts will keep their doors open to representatives of commerce and industry, public authorities and services, human resources managers, and NGOs. The media will need to keep the public informed. Permanent centers and periodical meetings will examine developments in the area of relevant technologies. The software industry will need to encourage a more extensive use of artificial intelligence methods. The lead partner, or perhaps the owner, of the programme will possibly be a consortium of several ICT companies that are the engine of today's exponential development of this industry. They owe everything to knowledge and training, so they are in a better position to understand their value.

One effect of, and also a condition for, the implementation of Learning and Work will be that of changing most of the existing legislation on education, work, insurance, and social services along with possible constitutional adjustments. Legal experts and legislators will be

kept busy for almost a generation. They are likely to take pride in breaking new ground in the development of adequate doctrines and procedures.

The map of knowledge or the module scheme differs from that of the genome at the point where the latter strives to master a set, albeit a large one, of fixed mechanisms. Knowledge, however, is perpetually moving. Among other reasons, modules are created because they can be refreshed. The fact that they will always compete is the best way to keep them awake. Will a student choose a module suggested by his tutor if he can find a better one on the Internet? The observance of certain standards must still be provided by people of acknowledged competence. That is why the administration of the worldwide system of the map of knowledge will require new global institutions. At least three will be needed, not necessarily as central institutions but rather as peer networks: (i) to supervise quality; (ii) to ensure compatibility with the existing systems; (iii) to acknowledge credits.

The evaluation of studies and the issuance of appropriate certification are more complicated tasks, but ones that are not insurmountable for the modular system. The association of the modular system with the system of credits is organic from the very beginning. Without such a link, the cumulative character of learning could not be maintained. There are several crucial points that should not be overlooked: the social value and prestige attached to a diploma or to a learned title; the “label” resulting from a certain type of education, which will eventually stick to one’s visiting card and private identity; the avenues it opens into the world of employment and practical activity.

An individual accumulates credits throughout a lifelong learning system. At each moment in life, one does not rely on compact years of study at a precise university or college but rather on the credits that one may have obtained in a genetically indicated direction (engineering, medicine, education, arts, etc.). If during studies that correspond to today’s higher education one earns about 300 credits, in the following years, one might earn about 30 additional credits per year, which leads to over 1,000 by the age of 76.

What happens to diplomas? Our suggestion is that for every 200 credits earned, an individual should be awarded a “star”. According to that system, a high school diploma would be equivalent to one star; college, to two stars; university, to three; the PhD, to four; further specialization and applications to five or six stars, respectively, and so on. Today’s PhD, which entails the obligation to make an original contribution to knowledge, and hands-on experience in scientific research might be assimilated to bonuses. In any case, prestige incentives or rewards should not be inferior to those awarded under the existing system. One of the goals of modularization is to keep alive and to motivate the effort of going a long way toward the acquisition of useful knowledge.

2.4. The Computer as Consultant and Provider

A project that pursues goals of the magnitude of the Learning and Work project could not be imagined or accomplished before the ICT revolution. Without the computer, the mapping of knowledge in the form of learning modules could not be undertaken. The computer provides the necessary programmes for the listing, positioning, and stockpiling of the modules in

a huge database. The retrieval and combinatorial techniques are already familiar to most users. But here comes the big surprise! The map of knowledge cannot be represented as a linear text. Commonly used texts and graphics cannot accommodate its complexity. Computer screens can reveal only partially the multitude of the links, and, at best, three-dimensionally. The structuring technique has to be that of hypertext, already used in the building of a homepage.

The map of knowledge has nothing to do with a geographical map one can hang on a wall. Neither is it a projection of some physical area. It is a list of links among entities represented by terms pertaining to each of those entities. The programme provides access to those entities and the possibility to select one and to establish further possible links. The entire process is subordinated to a goal that only the user can determine. The final result of the selection procedure can be represented as a linear or bi-dimensional sequence of modules connected in series or in parallel. This itinerary is the final one that resulted from a succession of numerous selections. Several possible itineraries can be provided as the menus for an ultimate choice. However, even a deliberately final choice is still, in essence, tentative. After going part of the way (one or several modules), the user may revise his or her itinerary and choose new paths.

The technique of the hypertext goes beyond the familiar techniques used in advanced libraries for the indexing of an enormous number of books or scientific periodicals that contemporary readers must consult. If one needs to know which modules refer to a particular issue or use a certain method or even connect to other issues and methods, one will receive one's answer after performing a series of clicks.

What follows is the first sample of a computer at work in the Learning and Work scheme. It draws up a map of knowledge in its own style and then administers it. Since one of the main goals of the system is to create a personal learning itinerary (*i.e.*, the string of modules to be covered), the computer becomes the personal consultant and the monitoring tool of the covering process. The modular path is a twisted one, with many crossroads and turnings. It is not like the disciplinary road, with no turns or side streets, which once embarked upon cannot be abandoned before the final destination is reached. For all the paths that open at the end of a module, the computer is both a guide and an adviser for decision-making.

Meanwhile, the computer demonstrates its effectiveness by searching for, and finding, the basic sources of learning. It opens unimagined possibilities to consult library catalogues and great collections, even to identify the necessary chapter or passage in a book or an article. It is now possible for a student to browse through the rare manuscripts of the Vatican, to search the Library of Congress of the United States, to visit the exhibition halls of the Louvre or the Hermitage, to wander through the Forbidden City of the Chinese emperors, or to climb the heights of Machu Picchu – all from the solitude of a campus room. A laptop is the student's link to global science and to the infinite variety of cultures. The offer is so massive, so prompt, and so varied on the computer screen that the student has to master the art of orientation and selection.

For centuries, students and researchers alike had to work hard to gain access to the sources of learning and to pin down the current state of knowledge so that they could move on. It was

common in the old days for students to walk for months before they reached a university in Bologna or Paris in order to pick the brains of a distinguished scholar. Nowadays, updated information is readily available. All one has to do is to obtain the professor's e-mail address. The time-consuming and labour-intensive effort to search for sources has been replaced by the ability to discern the right ones – a superior intellectual quality. The measure of history is given by the progress from the ox-driven plough to the tractor, from the sweatshop to the automated production line, from the horse to the car or the airplane, from sail to steam to diesel. It is also illustrated by the monk writing on parchment *versus* a student reading and writing with his laptop.

When Marshall McLuhan wrote *The Gutenberg Galaxy: The Making of Typographic Man* (1962), he was correct in noting the watershed between a phase of civilization based on the linear and analytical writing of books and the other phase that is submerged in the synthetic and global television image. The immediate inference is that a culture that can use such devices has to be of a different kind, just as the human mind has to function differently in a changed environment. Several decades later, one observes that the written text has not gone out of use; the computer has not caused the total abandonment of paper; and books are still being published. It is only that children now can go to a *médiathèque* (which in France has almost replaced the *bibliothèque*) in the neighbourhood, where they can read onscreen, listen to recordings, and watch videotapes. We have entered the era of multimedia, a splendid mixture of text, sound, and image.

The written text seems to have won the battle after all. The computer has reduced it to a two-symbol succession. The digital revolution has made it possible to mesh sound and image in the same procedure, thus going beyond the analogue techniques. Images have become digital, and so has music reproduction: multimedia is *multi-* only in terms of expression, but it is *uni-* in terms of digital support. Digitalization has made it possible for the main general-use devices to converge: the computer, the telephone, the television set. The miniaturization of information technologies has made all of them portable. It is reasonable to assume that, when competition eventually prevails over the narrow specialization of major companies in the field, a single device will substitute for all of them. When that happens, it will introduce new elements of enhancement into the practice of computer-based learning. The reverse influence is also possible. The new market catering to the Learning and Work system might very well call for new technological and service requirements.

Orbital links via satellite and the hugely efficient optic fibers have caused the information technologies to also become communication technologies. Hence ICT. The past decades have focused on communication, and the improvement process has been subordinated to that particular function.

An immediate consequence has been the emergence of distance education, a new chapter in modern education. It questions the spatial identity of the university. Originally, it was developed to serve the needs of non-formal education that offered adults a form of distance learning using the available media (correspondence, radio, television). In time, distance education gained in efficiency and attendance due to the introduction of new technologies.

Large universities, which had opened far-off branches in the meantime, started to use distance learning as a means of making one and the same course available on several campuses. In Vancouver, Washington (USA), a complete set of distance learning equipment, donated by the Ford Foundation, allows Washington State University to provide courses for a campus in Seattle, almost 500 kilometers away. The 150-university network around the Baltic Sea broadcasts two-hour lectures by satellite, according to an established schedule, to the member universities registered at Uppsala, the headquarters of the Baltic University. In Madrid, a distance university functions according to a regular university scheme of faculties and disciplines.

However, distance education does not go beyond the “school-based teacher learning” formula in the current experimental phase. Even so, it has been welcomed with interest as a variant of the regular university, one in which physical attendance is not required. Universities that have created special distance-learning sections to replace or supplement evening, part-time, or low-attendance courses suddenly find themselves overbooked.

An attempt to define distance learning led to the following list of characteristics: (i) modular courses; (ii) courses privately funded by students or sponsored by an employer; (iii) part-time and flexible study; (iv) flexibility of entry requirements and levels of entry; (v) diversity of subject range inside degree courses (student-choice); (vi) independent but not necessarily student-centered courses; (vii) resource-based; (viii) limited face-to-face contact with the tutor.

The fact that modularization sits at the core of that list is not accidental. The inadequacy of block-courses in distance communication is avoided by means of the reduced volume and enhanced flexibility of the modules. Example: four major pharmaceutical companies initiated a modularly designed course that can be completed in one to two years on “Structure-Based Drug Design”. The complete course runs on the Internet with the aim of creating an “interactive learning community”. The students are all enrolled at post-graduate level and are gainfully employed. In Scotland, four universities launched a project on the reciprocal and collaborative authority of tutorial units exchanged via the Internet (MANTCHI – Metropolitan Area Network Tutoring in Computer Human Interaction). Each tutorial had a typical load of one week of work for the student, which corresponds to our definition.

How do students, who have been questioned about the use of ICT in the teaching and learning process, respond? They say they enjoy it. It enhances their responsibility for self-help. It opens new avenues to specialist subjects, to the use of experts, and to the latest scientific data. It broadens collaborative opportunities, and it provides a chance to enable others.

Once the “friendly” machine was created, its performances registered spectacular improvements. Consequently, it is possible to assume that, in the Twenty-First century, artificial intelligence will spread over the vital areas of reasoning, choice, analogy, and metaphor, thus becoming what it is meant to be: a thinking tool that produces reflection, creation, and knowledge. The Twenty-First Century is also expected to witness significant advances in understanding the mechanism of the human brain. What hidden operations of the “black box”

lie behind learning processes? Centuries of educational theory and practice as well as long series of learning concepts have failed to greatly enrich knowledge of the mental operations that produce learning. The progress of the machines that assist human learning and a better understanding of the mental processes involved in it will reveal the specificity, potential, and limits of these processes and will facilitate man-machine and man-man interaction.

The resulting learning and work environment will be different from the one in which people operate today.

The University could also develop models which show the universities solving global issues and problems, not only models which transmit the skills and knowledge necessary to be a global citizen. For example, an interesting model would offer a true vision of what the university can contribute to globalization and the language necessary to make this vision understood and accepted even by those whose major interest is not the breakfast, but the dinner menu preferred by Francis Bacon. In the eighteenth century, an age of exploration and discovery, Buffon, in his *Histoire naturelle*, wrote that the human mind has no limits and that it expands as the universe unfolds before it. Today our minds and our institutions remain strong, in part because of the stimulation of the global inquiry. The Bible reminds us that without vision, the people perish (Proverbs, 29:18). The responsibility for a vision for universities in the next century belongs not only to the students, the alumni, the teachers, researchers, and administrators, but to each one of us. The future is ours to share and to improve by our combined efforts (Roseann Runte, "Globalization and the University", 1999-2000).

2.5. The New Environment of Learning and Work

The United Nations Millennium Summit in September 2000 may have heralded the advent of a new era. The conventional rhetoric that is specific to such solemn assemblies was widely replaced by sound reflection and down-to-earth realism. The debates illustrated the new way in which the international community chose to rank its major issues according to their importance and the amount of anxiety they might cause. The report of the United Nations Secretary-General, Kofi A. Annan, began with three issues of special significance: (i) opportunities for the young; (ii) employment; and (iii) education.

The United Nations acknowledged that globalization "offers great opportunities, but at present its benefits are very unevenly distributed while its costs are borne by all" and that "the central challenge we face today is to ensure that globalization becomes a positive force for all the world's people". Good governance was presented as the only rational way to prevent and to manage the negative effects of globalization. And the very substance of good governance lies in the ability of societies, not just governments, to adapt flexibly to the necessary changes that technological advances have made inevitable. Rather than "adaptable", the word, "prepared", better describes that particular ability to cope with change in the new circumstances.

Education and employment are probably the areas that are the most vulnerable to increasing inequality. According to foresight studies, those areas are also the most exposed to negative developments, were we to pursue the track we have trodden so far. The United Nations report places education and work together. The chapter on employment states that “Education is the first step. Creating employment opportunities is the next”. Still, the barriers between education and work are not mentioned. The report does not suggest that the two areas should be addressed simultaneously with a view to providing joint solutions.

The message we are trying to convey in this study is that the next step is to consider education and work together. The Learning and Work approach aims at significant changes in the organization of education and work. In addition to the practical solutions that the new system offers to the two fields, it also enhances the preparedness of society to cope with the challenges of globalization. It is meant to bring an element of flexibility into the entire institutional structure of society, from legislation to finance.

The following combination of features characterizes the system outline:

- It brings knowledge acquisition and its use closer together;
- It provides a unitary vision of life by combining lifelong education and lifelong work;
- It suggests an individual-centered single lifetime Learning and Work strategy, with plenty of opportunities to choose new paths according to one’s own evolution and aspirations;
- It shifts the main activity of the university as a manager of discipline-teaching to that of a custodian of module-based tutoring and lifelong learning;
- It offers everybody unlimited chances to enter the system, thus reducing the waste of human resources in the fields of both education and work;
- It enhances the incentives to learning and work, and it proposes a coherent system of recognition based on merits;
- It uses as inputs the most relevant strands of knowledge and continuously refreshes the content of learning, adding the skills and the worldview demanded by modern work;
- It gives to the two main spheres in which human life is spent, learning and work, the possibility to be not only complementary and in harmony with each other but also to stabilize and bring into balance the flow of people moving from one field into another.

All these features are acquired owing to the modular system, whereby units of learning or work have the capacity to combine in a meaningful way. They have connectors for branching inside the learning and working systems, and also between the two systems.

In this process, new professions are likely to be born. The designer of a module is different from its author (a professor, a scientist, or an expert). The planner of modules is different from the designer. Producing modules will become a booming industry, comparable in magnitude with the production of music CDs. The co-operative aptitudes and habits of various institutions and branches and the practice of teamwork and taskforces and of *ad hoc* and temporary synergies will undoubtedly increase.

We have to note that had the corporations had tighter links with higher education, their requirements would have been known and could have generated adequate responses in a system with sufficient managerial flexibility to avoid the rigidity of disciplinary blocks. The corporate universities are now better equipped and financed, freer of constraints, than their counterparts in the regular system, and they can undoubtedly be more innovative and more open to change. Still, are they not, at the same time, liable to enhance inequality of chances? The parent corporations will mostly hire graduates of their own universities, while other graduates will see their chances of employment diminish.

Another attempt to bridge the gap between the enterprise and the educational system was the initiative to create a “university for industry” (Ufi). Similar to the Open University, the university for industry accepts total flexibility. It aims to “tell you what learning is available and offer advice if you need it, and provide you with a course that meets your needs, whether full-time, part-time, or through study at home, at work, or at a local center”.

At this point, it is quite legitimate to ask ourselves: Should the polytechnic universities not be the industrial universities? Should they not make the changes that have already been assimilated by the industrial university?

In any event, the two initiatives – the corporate university and the university for industry – are clear symptoms of the perceived need to link the two domains of learning and work that are still separated and distant from each other.

For those who doubt the advantages of the Learning and Work project, it may not be such a bad idea to analyze the possible objections or even adverse attitudes to it.

First, scientists might say that, since it is the production of science and not its distribution that matters to them, the map of knowledge is not really necessary because it simply records what is already known. Science is interested in open issues that act as a magnet for the vocational profiles on the educational map. So far as research is concerned, the desired applications are also listed among the goals that would organize the knowledge units backwards. Theoretical or practical problem solving necessitates units or modules that exceed the scope of Learning and Work. The objection is valid and welcome. But it is still socially preferable that, instead of suggesting an alternative mapping, scientists should provide their advanced research modules to all those who are willing to join research activities. This can easily be combined with the present or future profiles of researchers. Scientists may wish to work on a parallel mapping of open issues. Such an attempt was already made by Ronald Duncan and Miranda Weston-Smith (1977) when they compiled and published their *Encyclopaedia of Ignorance*.

Another objection might come from the staff of the teachers of disciplines. Although their reticence may be caused by an immediate interest in keeping their jobs, they have to be listened to when they express concern about declining quality standards and loss of academic rigour or specific ethos resulting from the solidarity of the servants of a discipline. The answer lies in the established fact that the major divisions of knowledge (*i.e.*, the natural sciences, the social sciences, and the humanities; the medical and the biological sciences;

formal sciences such as logic and mathematics; and arts, music, and sports) will continue to provide the guidelines for the formation of researchers and for the first approximation of the areas of vocational profiles. The mathematician does not disappear either as a researcher and a competent author of modules or as a tutor for a large class of modules when mathematics is predominant.

“The systems of education and work are not those systems most naturally inclined to change. Provided they become more flexible and modular early on in this century, they still have a chance not to miss out on the future.”

The third category of persons who might have reservations about the modular system is represented by those who warn about the overwhelming responsibilities we may prematurely place on the shoulders of young people. A young person is likely to be faced with the lack of preparation of society itself to function in an environment of greater uncertainty and risk. Much of that situation can be blamed on the bankrupt determinism of the past. The market economy requires alert and mobile people, capable of coping with increasing competition. The image of a young person sitting comfortably under the roof of a discipline as his or her only way in life, complacent and indifferent to the opportunities of choice or change, is being replaced by the picture of a new young person who moves along the channels linking the modules, heading towards a promising star and suddenly changing course as he or she sees another, even more attractive, target. This effort will offer a much higher probability of living a rewarding life compared to the prospects offered by the rigid systems, which are already cracking under the strain of change.

To all of the above, one can add the inertia of those systems in which stability is translated by immobility: bureaucracies, institutions, legislation, and conventional and conveniently smug thinking. Such bastions of procrastination are unlikely to survive the sweeping changes that are being brought about by the new century. Human society discovered the merits of flexibility decades ago. Long before flexible approaches were included in Learning and Work, enterprises were using them in industrial production.

Meanwhile, most industries have adopted the modular method using subassemblies that enter different combinations to produce a broad range of finite products, which can be rapidly harmonized, with the demands of customers. Tailor-made or customized products are now being turned out at mass industrial speed.

The systems of education and work are not those systems most naturally inclined to change. Provided they become more flexible and modular early on in this century, they still have a chance not to miss out on the future.

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Towards a New Paradigm in Education: Role of the World University Consortium*

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Abstract

A new paradigm in human development must be founded upon a new paradigm in education. A human-centered educational system is needed whose aim is the fullest development of the capacities of each individual. Today humanity is on the cusp of a major transition in education, our most powerful instrument for conscious social evolution. Quality education can now be made universally accessible and affordable. Equally important, future education must be made relevant to the rapidly changing needs of society, the increasingly sophisticated demands of the labor market, the growing shortage of attitudes and skills need to promote entrepreneurship and full employment, the values needed for social harmony and problem solving, and the individuality needed for leadership, independent thinking and creativity. The coming revolution in education spurred by the breakthrough in online learning has made all of these goals achievable. New technology can facilitate a shift from the drudgery of passive knowledge transfer and memorization to the exhilaration of active learning that fosters curiosity, discovery and original thinking. It can also help break down the intellectual boundaries between disciplines, making possible a more comprehensive, transdisciplinary, integrated approach to knowledge. A revolution in higher education is upon us.

Education is the most sophisticated instrument yet fashioned by society for its own conscious social evolution. Yet, ironically, evolution of the instrument itself lags far behind the evolution of the society it strives to promote. This lag is a natural result of the fact that human progress is largely a subconscious process occurring by trial and error. Conscious knowledge of the process usually dawns only after many repetitions of the actual accomplishment, just as great athletes acquire skills for proficiency long before they acquire the capacity to consciously transfer their knowledge to others. However, social change has now become so rapid that it is imposing severe pressure which the existing social fabric is unable to effectively absorb and assimilate, leading to fissures and fractures that retard smooth social transitions and threaten to undermine the stability of the existing structure. The multiple crises now confronting humanity during a period of rapid globalization are symptomatic of this widening gap. Therefore, there is greater need than ever before for conscious evolution of the instruments of education required to support the general evolution of society as a whole.

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Analogies are inadequate, but it may not be inappropriate to say that the current system of higher education is akin to driving 1914 Model T Fords down modern superhighways. The Model T was the first mass produced automobile in the world. Until then cars were assembled one at a time in workshops the same way horse-drawn coaches were made in earlier centuries. Ford was the first to automate the process on moving assembly lines to produce a million a year instead of a few thousand produced by the old method. But the capabilities and quality of the Model T remained largely the same as its hand-crafted, custom-assembled predecessors.

“The movement of rapid change in global higher education is already underway and it is unstoppable.”

The massification of education like the mass production of automobiles a century ago will transform global society in ways that are difficult to even conceive today. The democratization of motorized transport activated and energized all aspects of society, ushering in the rise of the Middle Class and the century of the common man. The democratization of education is having equally dramatic impact now. As the right to vote became the symbol of democratic freedom in earlier times, the right to education has become a symbol of the right of all to a life of opportunity and prosperity.

Since 1914 the dirt and gravel roads for which the Model T was designed have been gradually replaced by four and eight lane motorways connecting major cities and production centers around the world. In parallel, the automobile has gradually been transformed from a functional horse carriage driven by an internal combustion engine into a highly sophisticated, computerized, electronic vehicle providing a range of capabilities and a level of quality inconceivable during the early days of the automobile. In contrast, both the methodology and content of higher education remain largely unchanged since the 19th century. Granted that the range of specialized subjects has increased enormously and the range of information available to instructors and students has grown exponentially, the basic conception of education and pedagogy still closely resembles what it was in the universities of old. Today we have lightning fast superhighways for transmission of information and dissemination of knowledge, but we are plying these highways of cyberspace with pedagogical methods and concepts suited to a bygone age. Open access to lecture notes, audio and video on the web, and the production of highly fragmented, capsulized Massive Open Online Courses represent the Model Ts of future education. They are welcome pioneering initiatives and an indication of the vast opportunity that has emerged, but they are only rudimentary first steps in the remarkable journey of education that we have yet to clearly envision and have only just begun to traverse.

1. Challenge to Higher Education

Scientific knowledge and the technology for processing and transmitting information are not the only things that have changed during the last hundred years. Radical changes have occurred in all aspects of human life – the aspirations, knowledge, values, skills and the practical organization of society for production, commerce, finance, employment, healthcare,

governance, law, entertainment and recreation have evolved commensurately in range, variety, quality, interconnectedness, richness and depth. Each of these changes imposes new demands on higher education, if it is to continue to serve as an effective instrument for rapid, harmonious evolution of global society.

While it is relatively easy to imagine the next incremental steps that can be immediately taken to improve on what prevails today, envisioning the future of higher education is itself a great challenge and a great adventure with limitless boundaries and potentials. Indeed, the pace and range of innovation based on existing models are so rapid and varied that it is very difficult to even monitor all that is happening and likely to unfold in the coming days. It is easy to forget that the first really successful MOOCs are just two years old, and since then the number of universities offering online education as well as the number of courses available and students enrolled have grown exponentially. Disseminating information on these initiatives and facilitating multiplication of institutions, courses and students involved are valuable services to the field of global higher education. This was one of the objectives with which the World University Consortium's website (www.wunicon.org) was conceived.

But this is not the only challenge that needs to be addressed, nor perhaps the most vital and important for the World University Consortium (WUC). Regardless of what organizations such as WUC may do to support it, the movement of rapid change in global higher education is already underway and it is unstoppable. A more fundamental question concerns whether the present direction of the movement is the very best course for the future development of this field or whether present circumstances present both the need and the opportunity for a more radical change based on a new, wider and more insightful perspective regarding the potential contribution of education to the future evolution of human society.

For this reason, it is worthwhile pausing to reflect on the essential nature of education as a human activity and the fundamental role it plays in human development. A discussion of first principles may appear to be an unnecessary distraction or indulgence in intellectual speculation at a time when there are so many practical steps that can be taken to improve on the status quo. However, it may turn out that pausing to reflect on more fundamental issues at this stage may reveal the potential for catalytic actions that can radically accelerate and alter the trajectory of future progress to arrive in a few years at a point which may otherwise be reached only after many decades. Such critical tipping points are all too familiar. In retrospect it is evident that the end of the Second World War provided an opportunity for founding institutions for global governance of a more far-sighted nature than the UN system that emerged, which lacks the power needed to further the evolution of global society. Another great missed opportunity occurred in the early 1940s when US President Franklin D. Roosevelt laid plans to introduce immediately after the war a second Bill of Economic Rights in America, which included the right of every American citizen to remunerative employment; but he died before he could realize that goal. So too, at the time of the founding of the Bretton Woods institutions in 1945, a proposal was tabled by Keynes and seriously considered by both the USA and UK, before being eventually rejected, for introduction of a world currency as a common reserve fund for global development. Farsighted action then could have saved decades of global financial instability and dramatically accelerated world economic progress. Similarly,

we can now look back a quarter century and see that a great opportunity was missed at the end of the Cold War to completely eradicate nuclear weapons from the face of the earth. Instead, we have seen the proliferation of nuclear powers and the extension of nuclear doctrines to re-legitimize possession and possible use of these weapons for the foreseeable future. Therefore, in our eagerness to focus on the imminently doable, let us not overlook the possibilities of a quantum leap forward for a new paradigm in global education.

2. Motives for Education

Obviously our conception of education varies with the purpose for which it is intended. That purpose has changed radically since the time when only a handful of clerics and aristocrats enjoyed the luxury of more than a rudimentary education. After the Reformation, Protestant religious leaders in Europe recognized, as their Hindu and Jewish predecessors had many centuries earlier, that education is a powerful instrument for acquisition and dissemination of religious teachings. Therefore, many Protestant nations spurred the spread of primary education to impart reading and writing skills to every member of the community and encouraged the development of universities to train members of the clergy. The rise of commerce in Europe stimulated the spread of numeracy for accounting and literacy for entering into commercial contracts. The growth of scientific knowledge during and following the Enlightenment fostered development of new scientific disciplines. The explosive growth of technology during the Industrial Revolution gave rise to applied technical education in agriculture and various fields of engineering as well as technical training to impart vocational skills. The development of modern corporations and sophisticated markets drove the need for those with specialized knowledge in business and finance as well as for many more people with a broad general education needed to fill positions in government and business administration. Rising levels of prosperity stimulated demand for an ever expanding range of professional services. The increasing formalization and technological sophistication of modern economies have further increased the demand for educated and trained personnel, effectively converting the college degree from a symbol of social status into a passport for employment and higher income.

“Education is the process by which society consciously passes on the accumulated knowledge and wisdom of the past to future generations in a concentrated and abridged form.”

All these motives continue to drive the spread of education today. But beyond the obvious utility which higher education serves, it also serves two more fundamental purposes. First, the political, economic and social success of modern society depends to a very large extent on the education of its citizenry. The type, level and quality of education have become important determinants of the quality of the citizenry and its capacity to function in increasingly democratic social environments, where external authority and pressure for social conformity are replaced by greater freedom for individual freedom, choice and initiative. Second, the

capacity for individual achievement, welfare and well-being in modern society depends to a very great extent on education as well. The type, level and quality of education have also become important determinants of individual accomplishment – of the capacity to compete and cooperate with others economically, adapt to technological advances, and adjust mentally and socially to the challenges and opportunities of rapid social change.

3. First Principles

Education is ubiquitous in modern society – at home, in schools, in the workplace and in the media. It is one of the highest priorities and most prevalent activities of individuals, families, organizations and countries. Yet the essential nature of education, its rightful role in human life, the process by which it occurs, the most appropriate goals, methods, content, duration and applications are far from self-evident. Like the artists' conception of beauty, it is easier to recognize than define or explain. Like the proverbial six blind men who touched different parts of the same elephant and described very different discoveries, we each tend to see a part of what education is rather than the potential of the whole of what it can and should become. Therefore, it may be appropriate to start with the most fundamental of all questions on the subject: What is Education? What is its purpose? Who is to be educated? What is its process? These questions readily evoke a wide range of valid answers, appropriate to different applications and contexts.

“The essence of education is the capacity to learn and the fundamental process of education is the process by which human beings acquire knowledge.”

At the most fundamental level, we may say that education is the process by which society consciously passes on the accumulated knowledge and wisdom of the past to future generations in a concentrated and abridged form, so that the youth of today can start off at the furthest point that earlier generations have attained, rather than having to rediscover the same knowledge over and over again in each generation. In this sense, education is the social institution that most clearly distinguishes human societies from those of other species, whose acquisition of knowledge is confined to the experience of a single lifetime or passed on subconsciously through heredity rather than consciously through an ever increasing breadth and depth of organized knowledge.

The life of society evolves by increasing consciousness of the challenges and opportunities presented by individual and collective life and increasing organization of its activities to effectively channel its energies and capacities to meet those challenges and opportunities. Education fosters the awakening of consciousness in the individual and the internal organization of each individual's personality as capacity for accomplishment. Society provides the external organization needed to catalyze the spread of that awakening until it saturates the whole society and to organize all its activities to support higher accomplishment by the collective. The individual and the collective are two poles, two inseparable, mutually interacting and interdependent components of the process of social development. Education is a principal means for the integration of individual capacity with social needs and opportunities.

This definition describes the social role of education, but not the process of education itself. All too commonly we confine our conception of education to that which takes place within the walls of university classrooms and results in the awarding of a certificate of achievement. But education is not an activity confined to the classroom and the textbook. Nor does it depend on whether knowledge is delivered by a live lecturer, obtained from a textbook, acquired from an on-line course or newspaper or life experience. In its widest sense, all life is a field for education and every human activity provides opportunities to learn. *The essence of education is the capacity to learn and the fundamental process of education is the process by which human beings acquire knowledge.*

4. Dimensions of Higher Education

As there are many purposes and social applications for education, so too education can take place at multiple levels that are not directly dependent on the number of years spent in formal learning. There was a time when the basic skills for reading and writing were considered clear evidence of education, or even of genius. One principal aim of education is to develop a wide range of skills – physical skills for reading, writing and mentation; social skills for instruction, communication, relationship, teamwork and leadership; and psychological skills for understanding, judging and managing oneself, other people and social situations.

“True rationality only commences when we are able to set aside the prevailing beliefs and accepted wisdom, be it scientific or religious, to see and think freshly from first principles and new perspectives.”

The capacity to recall a wide range of memorized *facts* or to recite long passages from literature was a prominent attribute of the educated in previous centuries when both learning and scholarship were largely associated with the capacity for memorization. Memorization still remains a major component of education at all levels. The exponential growth of information combined with the exponential expansion of capacities for storage and retrieval have progressively shifted the emphasis from the capacity to memorize to the capacity to understand what one can recite. Understanding is a higher order faculty than memorization. It arises by coordinating two or more facts and relating them to one another as *thought*. At a more abstract level, the coordination and relating of two or more thoughts give rise to *ideas* that are several steps removed from observable fact. Most education today stops with analysis and evaluation of facts and ideas at the level of understanding. The development of other mental faculties such as observation, discrimination, comparison, and judgment is given less emphasis.

Beyond these, education can serve a still more profound purpose. It is the principal means for fostering the development of three characteristics that are essential for the future development of both society and its members – independent thinking, creativity and individuality. Although we may flatter ourselves that we are thinking all the time, most of what we are

doing is observing and coordinating facts or ideas and organizing them within the perceptive mass of previously accepted understanding. Real thinking is far more rare and rarefied. It arises from a fresh perception and inquiry into the validity of facts, concepts and perspectives that form part of humanity's commonly accepted body of knowledge. True rationality only commences when we are able to set aside the prevailing beliefs and accepted wisdom, be it scientific or religious, to see and think freshly from first principles and new perspectives, as Einstein did in challenging the reality of absolute space and time and Darwin did with respect to biological evolution. The capacity to question originally is a far more powerful form of mentation than to recite or understand with facility, a more difficult faculty to acquire but one that can still be prepared and consciously fostered through education.

The grades of purely mental education from memorization to understanding to independent thinking can be extended to include other capacities which are normally attributed only to genius, but which also can be actively fostered through education. The inordinate preoccupation of modern education with specialization, classification and analysis neglects development of higher mental capacities essential for effectively addressing the challenges and opportunities confronting individuals and societies today, including the capacity to view things as aspects of a greater totality, to perceive the complexities of interrelatedness, to synthesize and reconcile apparent contradictions and to integrate disparate aspects of reality within a greater whole.¹

“A truer measure of education is the awakening of the student’s capacity to actively seek and acquire knowledge on one’s own, to question and think independently, creatively and even originally.”

The conscious development of individuality and creativity is also largely neglected by current educational systems. In practice we tend to regard education in a manner similar to mass production of goods, as a process of gathering together raw materials (people and knowledge), applying energy (physical and mental effort) and fabricating finished products (knowledgeable people). We tend to measure the efficiency and effectiveness of this process in terms of the quantity and quality of information transmitted from instructors to students, rather than in terms of enhancement in the capacity of students to learn. For most people education is synonymous with a degree, irrespective of what has been learned. But the acquisition of a degree may be a poor measure of the true quantum and quality of knowledge acquired. A truer measure of education is the awakening of the student's capacity to actively seek and acquire knowledge on one's own, to question and think independently, creatively and even originally.

The transmission of values has always been one of the central aims of education. Values relate to all levels and aspects of life – physical, social, mental, psychological, ethical and spiritual. They represent the quintessence of cultural knowledge for survival, accomplishment and harmonious living, which society has acquired over centuries. Family life, religious training, formal education, work and life experience all present opportunities for the trans-

mission and acquisition of values. The advent of modern secular, scientific education has increasingly restricted the conscious transmission of values to mental, organizational and work values, leaving the transmission of core human values to informal social learning. The effort to be purely objective has stripped education of its most valuable essence.

Education legitimately encompasses this full range of objectives – training of physical, social and psychological skills; absorption of factual information; understanding of subject-related knowledge; development of higher mental faculties for thinking and creativity; and acquisition of values for social accomplishment and personal fulfillment. Beyond them all lies the more fundamental objective of awakening and fostering the latent capacity of each person to fully develop his or her own unique individuality.

5. Person-centered Education

Education as it is conceived and practiced today focuses on the transmission of information, knowledge and skills from one generation and one person to another. Yet the century that is emerging is one in which information is ubiquitous and available at our fingertips (or eyelids). Technology is rapidly eliminating the demand for many physical and mental skills that were once deemed essential for survival. The compartmentalized, fragmentary knowledge of the past is increasingly inadequate to meet the needs of a society that is rapidly changing and multiplying in complexity. The essential knowledge, skills and facts needed for survival in the 19th or 20th century are insufficient for the 21st. The capacity to adapt has become far more important than the capacity to repeat what has already been learned. The capacity to innovate, invent and imagine is of greater practical utility than the capacity to retain and recall. The capacity to relate socially and organizationally to an ever-expanding physical and virtual network of others requires a shift in values from acquisition and competition to cooperation and sharing, from hierarchy and authority to freedom and equality. How far does the present and emerging system of global higher education answer the needs of humanity in the 21st century? Far less than is needed, far less than is desirable, far less than is possible.

The need for a new paradigm in education calls for a shift similar to that which is required in every other dimension of modern society, a shift from quantity to quality, from impersonal massification to personalized customization, from mechanism to live interactivity, from things to people, from collective conformity to individual innovation, from conventional wisdom to independent thinking. Fortunately, recent developments are creating opportunities to freshly conceive, design and orchestrate a radical shift to a new person-centered paradigm. The shift to a new paradigm in education involves a change in focus, emphasis and methodology in at least five dimensions:

1. **Development of capacities:** There needs to be a shift in objective and emphasis from the transfer or transplantation of information and understanding to the awakening and development of the capacity to inquire, search, learn and think for oneself.
2. **Active Learning:** As every good teacher knows, we learn most by sharing our knowledge with others. It is time to extend that privilege and opportunity to everyone.

There needs to be a shift in reliance from passive learning by listening and receiving to active learning that comes from sharing, communicating and teaching others. As Wikipedia shifted responsibility for encyclopedic knowledge from a few specialized experts to the reservoir of knowledge and experience possessed by millions of people, education should enlist the interest, release the energy and actively engage the faculties of each student to learn for oneself and also help others learn.

3. **Life-Centered Knowledge:** There should be a shift from the emphasis on narrow fields of specialized knowledge related to a specific career to a more inclusive knowledge that encompasses major dimensions of human life, including the social skills and psychological attitudes needed for adjustment and achievement in a networked society, knowledge of the increasingly complex organization which modern society has become, values that promote cooperation with others and harmony with the world around us.
4. **Integration:** There needs to be a shift in emphasis from classification and analysis to synthesis and integration, from studying the parts to discovering the interrelationships and interdependences between them, from contrasting apparent opposites to reconciling contradictions within a wider perspective and conceptual framework.
5. **Individuality:** The greatest, most important type of integration needed is to relate and integrate education and its accumulated knowledge with the real needs of society and the individual, to impart to each person capacities for wider adaptation, initiative, self-reliance, leadership, cooperation, innovation, independent thinking, imagination, creativity and harmony.

6. Conclusion

Society does not advance in a homogenous manner. New paradigms do not emerge in a day or supplant existing paradigms overnight. The new emerges under cover of the old and gradually grows in prevalence until it becomes dominant. The old persists long after it has lost its supremacy and may long continue to serve a functional purpose. Today we have arrived at a critical juncture where perpetuation and extension of the existing paradigm in education and other fields are grossly inadequate to meet the needs of humanity. Emerging technology has created the opportunity for a rapid extension of the existing paradigm in education to many who, until now, lacked sufficient access. That quantitative extension is both essential and inevitable.

“There is also a pressing need to move beyond existing concepts and models to conceive and implement a system more capable of tapping the rich human potential that remains largely undeveloped and neglected by the existing system.”

New paradigms build on the old, as Einstein built on Newtonian thought. Saturation of achievement at the previous level is a condition for evolution to a new level, as agricultural

revolution is an essential precondition for industrialization. Universalization of the existing system of education is a necessary basis for elevating the quality, content and nature of education, and can be of immense practical benefit. But at the same time, there is also a pressing need to move beyond existing concepts and models to conceive and implement a system more capable of tapping the rich human potential that remains largely undeveloped and neglected by the existing system. The World University Consortium can play an important role in promoting advances in both spheres, facilitating more rapid extension of the old paradigm while creatively catalyzing the emergence of a new one.

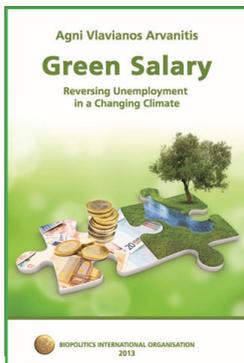
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Notes

1. Ivo Šlaus and Garry Jacobs, "Recognizing Unrecognized Genius", *Cadmus* 1, no.5 (2012): 1-5.

Green Salary – Reversing Unemployment in a Changing Climate – by *WAAS Fellow Agni Vlavianos Arvanitis*



Following the international success of the first publication of the Biopolitics International Organization (B.I.O) on “Green Salaries” issued in 2008, a new and improved edition is now ready to hit the press. *Green Salary – Reversing Unemployment in a Changing Climate* is now available online in e-book and pdf format. Addressing the dual problem of unemployment and climate change mitigation, the book presents a range of development strategies promoting new thinking for environmental stewardship.

The climate change crisis is above all a crisis in leadership. Decision-makers from all walks of life need to create new potential to reverse unemployment by engaging everyone in environmental action. The “New Deal,” introduced almost a century ago to transform America’s economy which had been shattered by the great depression, referred to employment as a fundamental human right. Employment in environmental protection is the vehicle with which to solve the dual environmental and economic crisis plaguing our planet today.

The new book aims to inform people everywhere of the endless possibilities for employment and job creation that environmental efforts have in store. It reviews the emerging face of environmental employment by providing examples of green job creation in areas as diverse as energy, information and communication technologies, architecture, finance, agriculture, forestry, the transport sector, tourism, arts and culture. Examples are drawn from around the world, and experiences from different sectors are reviewed and analyzed.

The book is available for download at <http://biopolitics.gr/green-salary-download/>

Lessons from World War I

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Abstract

The history of World War I is reviewed, starting with a discussion of the development of nationalist movements in Europe. It is pointed out that the global disaster started with a seemingly small operation by Austria, which escalated uncontrollably into an all-destroying conflagration. A striking feature of the war was that none of the people who started it had any idea of what it would be like. Technology had changed the character of war, but old patterns of thought remained in place. We also examine the roots of the war in industrial and colonial competition, and in an arms race. Finally, parallels with current events, and the important lessons for today's world are discussed.

1. The Rise of Nationalism in Europe

There is no doubt that the founders of nationalism in Europe were idealists; but the movement that they created has already killed more than sixty million people in two world wars, and today it contributes to the threat of a catastrophic third world war.

Nationalism in Europe is an outgrowth of the Enlightenment, the French Revolution, and the Romantic Movement. According to the philosophy of the Enlightenment and the ideas of the French Revolution, no government is legitimate unless it derives its power from the will of the people. Speaking to the Convention of 1792, Georges-Jacques Danton proclaimed that “by sending us here as deputies, the French Nation has brought into being a grand committee for the general insurrection of peoples.”

Since all political power was then believed to be vested in the “nation”, the question of national identity suddenly became acutely important. France itself was a conglomeration of peoples – Normans, Bretons, Provencaux, Burgundians, Flemings, Germans, Basques, and Catalans – but these peoples had been united under a strong central government since the Middle Ages, and by the time of the French Revolution it was easy for them to think of themselves as a “nation”. However, what we now call Germany did not exist. There was only a collection of small feudal principalities, in some of which the most common language was German.

The early political unity of France enabled French culture to dominate Europe during the 17th and 18th centuries. Frederick the Great of Prussia and his court spoke and wrote in French. Frederick himself regarded German as a language of ignorant peasants, and on the rare occasions when he tried to speak or write in German, the result was almost incomprehensible.

The same was true in the courts of Brandenburg, Saxony, Pomerania, etc. Each of them was a small-scale Versailles. Below the French-speaking aristocracy was a German-speaking middle class and a German or Slavic-speaking peasantry.

The creators of the nationalist movement in Germany were young middle-class German-speaking students and theologians who felt frustrated and stifled by the narrow kleinstädtisch provincial atmosphere of the small principalities in which they lived. They also felt frustrated because their talents were completely ignored by the French-speaking aristocracy.

This was the situation when the armies of Napoleon marched across Europe, easily defeating and humiliating both Prussia and Austria. The young German-speaking students asked themselves what it was that the French had that they did not have. The answer was not hard to find. What the French had was a sense of national identity. In fact, the French Revolution had unleashed long-dormant tribal instincts in the common people of France. It was the fanatical support of the Marseillaise-singing masses that made the French armies invincible.

The founders of the German nationalist movement concluded that if they were ever to have a chance of defeating France, they would have to inspire the same fanaticism in their own people. They would have to touch the same almost-forgotten cord of human nature that the French Revolution had touched. The common soldiers who fought in the wars of Europe in the first part of the 18th century were not emotionally involved. They were recruited from the lowest ranks of society, and they joined the army of a king or prince for the sake of money.

“The soldiers in Napoleon’s army were not fighting for the sake of money, but for an ideal that they felt to be larger and more important than themselves.”

2. Nationalism, a False Religion

All this was changed by the French Revolution. In June 1792, the French Legislative Assembly decreed that a Fatherland Alter be erected in each commune with the inscription, “The citizen is born, lives and dies for la patrie.” The idea of a “Fatherland Alter” clearly demonstrates the quasi-religious nature of French nationalism.

The soldiers in Napoleon’s army were not fighting for the sake of money, but for an ideal that they felt to be larger and more important than themselves – Republicanism and the glory of France. The masses, who for so long had been outside of the politics of a larger world, and who had been emotionally involved only in the affairs of their own village, were now fully aroused to large-scale political action. The surge of nationalist feeling in France was tribalism on an enormous scale – tribalism amplified and orchestrated by new means of mass communication.

This was the phenomenon with which the German nationalists felt they had to contend. One of the founders of the German nationalist movement was Johan Gottlieb Fichte (1762-1814), a follower of the philosopher Immanuel Kant (1724-1804). Besides rejecting objective criteria for morality, Fichte denied the value of the individual. According to him, the individual is nothing and the state is everything. Denying the value of the individual, Fichte compared the state to an organism of which the individual is a part:

“In a product of nature”, Fichte wrote, “no part is what it is but through its relation to the whole, and it would absolutely not be what it is apart from this relation; more, if it had no organic relation at all, it would be absolutely nothing, since without reciprocity in action between organic forces maintaining one another in equilibrium, no form would subsist... Similarly, man obtains a determinate position in the scheme of things and a fixity in nature only through his civil association... Between the isolated man and the citizen there is the same relation as between raw and organized matter... In an organized body, each part continuously maintains the whole, and in maintaining it, maintains itself also. Similarly the citizen with regard to the State.”

Another post-Kantian, Adam Müller (1779-1829) wrote that “the state is the intimate association of all physical and spiritual needs of the whole nation into one great, energetic, infinitely active and living whole... the totality of human affairs... If we exclude for ever from this association even the most unimportant part of a human being, if we separate private life from public life even at only one point, then we no longer perceive the State as a phenomenon of life and as an idea.”

The doctrine that Adam Müller sets forth in this passage is what we now call Totalitarianism, i.e. the belief that the state ought to encompass “the totality of human affairs”. This doctrine is the opposite of the Liberal belief that the individual is all-important and that the role of the state ought to be as small as possible.

Fichte maintains that “a State which constantly seeks to increase its internal strength is forced to desire the gradual abolition of all favoritisms, and the establishment of equal rights for all citizens, in order that it, the State itself, may enter upon its own true right – to apply the whole surplus power of all its citizens without exception to the furtherance of its own purposes... Internal peace, and the condition of affairs in which everyone may by diligence earn his daily bread... is only a means, a condition and framework for what love of Fatherland really wants to bring about, namely that the Eternal and the Divine may blossom in the world and never cease to become more pure, perfect and excellent.”

Fichte proposed a new system of education which would abolish the individual will and teach individuals to become subservient to the will of the state. “The new education must consist essentially in this”, Fichte wrote, “that it completely destroys the will in the soil that it undertakes to cultivate... If you want to influence a man at all, you must do more than merely talk to him; you must fashion him, and fashion him, and fashion him in such a way that he simply cannot will otherwise than you wish him to will.”

Fichte and Herder (1744-1803) developed the idea that language is the key to national identity. They believed that the German language is superior to French because it is an “original” language, not derived from Latin. In a poem that is obviously a protest against the French culture of Frederick’s court in Prussia, Herder wrote:

*“Look at other nationalities!
Do they wander about
So that nowhere in the world they are strangers
Except to themselves?
They regard foreign countries with proud disdain.
And you, German, alone, returning from abroad,
Wouldst greet your mother in French?
Oh spew it out before your door!
Spew out the ugly slime of the Seine!
Speak German, O you German!”*

Another poem, “The German Fatherland”, by Ernst Moritz Arndt (1769-1860), expresses a similar sentiment:

*“What is the Fatherland of the German?
Name me the great country!
Where the German tongue sounds
And sings Lieder in God’s praise,
That’s what it ought to be
Call that thine, valiant German!
That is the Fatherland of the German,
Where anger roots out foreign nonsense,
Where every Frenchman is called enemy,
Where every German is called friend,
That’s what it ought to be!
It ought to be the whole of Germany!”*

“The German nationalist movement was not only quasi-religious in its tone; it also borrowed psychological techniques from religion.”

It must be remembered that when these poems were written, the German nation did not exist except in the minds of the nationalists. Groups of people speaking various dialects of German were scattered throughout central and eastern Europe. In many places, the German-speaking population was a minority. To bring together these scattered German-speaking

groups would require, in many cases, the conquest and subjugation of Slavic majorities; but the quasi-religious fervor of the nationalists was such that aggression took on the appearance of a “holy war”. Fichte believed that war between states introduces “a living and progressive principle into history”. By war he did not mean a decorous limited war of the type fought in the 18th century, but “...a true and proper war – a war of subjugation!”

The German nationalist movement was not only quasi-religious in its tone; it also borrowed psychological techniques from religion. It aroused the emotions of the masses to large-scale political activity by the use of semi-religious political liturgy, involving myth, symbolism, and festivals. In his book *German Society* (1814), Arndt advocated the celebration of “holy festivals”. For example, he thought that the celebration of the pagan festival of the summer solstice could be combined with a celebration of the victory over Napoleon at the Battle of Leipzig.

Arndt believed that special attention should be given to commemoration of the “noble dead” of Germany’s wars for, as he said, “...here history enters life, and life becomes part of history”. He advocated a combination of Christian and pagan symbolism. The festivals should begin with prayers and a church service; but in addition, the oak leaf and the sacred flame of ancient pagan tradition were to play a part.

In 1815, many of Arndt’s suggestions were followed in the celebration of the anniversary of the Battle of Leipzig. This festival clearly exhibited a mixing of secular and Christian elements to form a national cult. Men and women decorated with oak leaves made pilgrimages to the tops of mountains, where they were addressed by priests speaking in front of alters on which burned “the sacred flame of Germany’s salvation”. This borrowing of psychological techniques from religion was deliberate, and it was retained by the Nazi Party when the latter adopted the methods of the early German nationalists. The Nazi mass rallies retained the order and form of Protestant liturgy, including hymns, confessions of faith, and responses between the leader and the congregation.

In 1832, the first mass meeting in German history took place, when 32,000 men and women gathered to celebrate the “German May”. Singing songs, wearing black, red, and gold emblems, and carrying flags, they marched to Hambach Castle, where they were addressed by their leaders. By the 1860s the festivals celebrating the cult of nationalism had acquired a definite form. Processions through a town, involving elaborate national symbolism, were followed by unison singing by men’s choirs, patriotic plays, displays by gymnasts and sharpshooters, and sporting events. The male choirs, gymnasts and sharpshooters were required to wear uniforms; and the others attending the festivals wore oak leaves in their caps.

The cohesion of the crowd was achieved not only by uniformity of dress, but also by the space in which the crowd was contained. Arndt advocated the use of a “sacred space” for mass meetings. The idea of the “sacred space” was taken from Stonehenge, which was seen by the nationalists as a typical ancient Germanic meeting place. The Nazi art historian Hubert Schrade wrote: “The space which urges us to join the community of the Volk is of greater importance than the figure which is meant to represent the Fatherland.”

Dramas were also used to promote a feeling of cohesion and national identity. An example of this type of propagandist drama is Kleist's play *Hermann's Battle* (1808). The play deals with a Germanic chieftain who, in order to rally the tribes against the Romans, sends his own men, disguised as Roman soldiers, to commit atrocities in the neighboring German villages. At one point in the play, Hermann is told of a Roman soldier who risked his own life to save a German child in a burning house. Hearing this report, Hermann exclaims, "May he be cursed if he has done this! He has for a moment made my heart disloyal; he has made me for a moment betray the august cause of Germany!... I was counting, by all the gods of revenge, on fire, loot, violence, murder, and all the horrors of unbridled war! What need have I of Latins who use me well?"

"British nationalism later found an outlet in colonialism."

At another point in the play, Hermann's wife, Thusnelda, tempts a Roman Legate into a romantic meeting in a garden. Instead of finding Thusnelda, the Legate finds himself locked in the garden with a starved and savage she-bear. Standing outside the gate, Thusnelda urges the Legate to make love to the she-bear, and, as the bear tears him to pieces, she faints with pleasure.

Richard Wagner's dramas were also part of the nationalist movement. They were designed to create "an unending dream of sacred volkisch revelation". No applause was permitted, since this would disturb the reverential atmosphere of the cult. A new type of choral theater was developed which "...no longer represented the fate of the individual to the audience, but that which concerns the community, the Volk... Thus, in contrast to the bourgeois theater, private persons are no longer represented, but only types."

We have primarily been discussing the growth of German nationalism, but very similar movements developed in other countries throughout Europe and throughout the world. Characteristic of all these movements was the growth of state power, and the development of a reverential, quasi-religious attitude towards the state. Patriotism became "a sacred duty." According to Georg Wilhelm Friedrich Hegel, "The existence of the State is the movement of God in the world. It is the ultimate power on earth; it is its own end and object. It is an ultimate end that has absolute rights against the individual."

Nationalism in England (as in Germany) was to a large extent a defensive response against French nationalism. At the end of the 18th century, the liberal ideas of the Enlightenment were widespread in England. There was much sympathy in England with the aims of the French Revolution, and a similar revolution almost took place in England. However, when Napoleon landed an army in Ireland and threatened to invade England, there was a strong reaction towards national self-defense. The war against France gave impetus to nationalism in England, and military heroes like Wellington and Nelson became objects of quasi-religious worship. British nationalism later found an outlet in colonialism.

Italy, like Germany, had been a collection of small principalities, but as a reaction to the other nationalist movements sweeping across Europe, a movement for a united Italy

developed. The conflicts between the various nationalist movements of Europe produced the frightful world wars of the 20th century. Indeed, the shot that signaled the outbreak of World War I was fired by a Serbian nationalist.

War did not seem especially evil to the 18th and 19th century nationalists because technology had not yet given humanity the terrible weapons of the 20th century. In the 19th century, the fatal combination of space-age science and stone-age politics still lay in the future. However, even in 1834, the German writer Heinrich Heine was perceptive enough to see the threat: “There will be”, Heine wrote, “Kantians forthcoming who, in the world to come, will know nothing of reverence for aught, and who will ravage without mercy, and riot with sword and axe through the soil of all European life to dig out the last root of the past. There will be well-armed Fichtians upon the ground, who in the fanaticism of the Will are not restrained by fear or self-advantage, for they live in the Spirit.”

3. A Small Operation to Punish Serbian Nationalists Escalates out of Control

In 1870, the fiercely nationalistic Prussian Chancellor, Otto von Bismarck, won revenge for the humiliations which his country had suffered under Napoleon Bonaparte. In a lightning campaign, Prussia’s modern army overran France and took Emperor Napoleon III prisoner. The victorious Prussians demanded from France not only the payment of a huge sum of money – five billion francs – but also the annexation of the French provinces of Alsace and Lorraine. In 1871, Kaiser Wilhelm I was proclaimed Emperor of all Germany in the Hall of Mirrors at Versailles. The dreams of the German nationalists had been realized! The small German-speaking states of central Europe were now united into a powerful nation dominated by Prussia.

Bismarck had provoked a number of wars in order to achieve his aim of the unification of Germany under Prussia; but after 1871 he strove for peace, fearing that war would harm his new creation. “I am bored”, Bismarck remarked to his friends, “The great things are done. The German Reich is made.”

In order to preserve the status quo in Europe, Bismarck now made alliances, not only with Austria-Hungary and Italy, but also with Russia. To make alliances with both Austria-Hungary and Russia required considerable diplomatic skill, since the two empires were enemies – rivals for influence in the Balkan Peninsula. Several small Balkan states had broken away from the decaying Turkish Empire. Both the Hapsburg Emperors and the Romanoff Czars were anxious to dominate these small states. However, nationalist emotions were even more frenzied in the Balkans than they were elsewhere in Europe. Nationalism was a cause for which 19th century Europeans were willing to kill each other, just as three centuries earlier they had been willing to kill each other over their religious differences.

Serbia was an independent state, but the fanatical Serbian nationalists were far from satisfied. Their real aim was to create an independent Pan-Serbia (or Yugoslavia) which would include all the Slavic parts of Austria-Hungary. Thus, at the turn of the century, the Balkans were a trouble spot, much as the Middle East is a trouble spot today. Kaiser Wilhelm I was a

stable monarch, but in 1888 he died and the German throne passed to his son, Frederick III, who was incurably ill with cancer of the throat. After reigning for only 90 days, Frederick also died, and his 29 year old son became the new German Emperor, Kaiser Wilhelm II.

Wilhelm II had been born with a withered arm, and as a boy he had been constantly told that he must become a great warrior. His adult behavior sometimes showed tendencies towards both paranoia and megalomania. In 1890, Wilhelm dismissed Otto von Bismarck (“dropping the pilot”). Bismarck was now on the side of peace, and he might have guided Germany safely through the troubled waters of European politics if he had been allowed to continue; but Wilhelm wanted to play Bismarck himself.

Wilhelm’s first act was to break off Germany’s alliance with Russia. Czar Alexander III, against his principles, then formed an alliance with republican France. Realizing that he had blundered, Wilhelm tried to patch up relations with the Czar, but it was too late. Europe was now divided into two armed camps – Germany, Austria-Hungary and Italy, opposed by Russia and France.

Wilhelm’s government then began to build a huge modern navy, much to the consternation of the English. The government of England felt that it was necessary for their country to have control of the sea, since England was a densely-populated island, dependent on imports of food. It was not only with respect to naval power that England felt threatened: After being united in 1871, Germany had undergone an industrial revolution; and German industries were pouring out steel and high-quality manufactured goods that threatened England’s dominance of world trade. Commercial and naval competition with the rising German Empire drove England into an informal alliance with Russia and France – the Triple Entente.

Meanwhile the situation in the Balkans became increasingly troubled, and at the end of July 1914, the Austrian Foreign Minister, Count Berchtold, used the assassination of Archduke Francis Ferdinand and his wife as a pretext for crushing the Serbian Pan-Slavic movement. Russia mobilized against Austria in defense of the Serbs, and the Austrian government interpreted the mobilization as a declaration of war. Germany was linked to Austria by an alliance, while France was linked to Russia. In this way, both France and Russia were drawn into the conflict.

On August 2, Wilhelm demanded free passage of German troops through Belgium. The Belgians refused. They gave warning that an invasion would be resisted, and they appealed to England for support of their country’s neutrality. On August 4, Britain sent an ultimatum to the Kaiser: Unless he halted the invasion of Belgium, Britain would enter the war. The invasion of Belgium rolled on. It was now too late to stop the great death-machine, and as it gained momentum, Sir Edward Grey spoke the sad and prophetic words. “The lamps are going out all over Europe; we shall not see them lit again in our lifetime.”

4. Science Changes the Character of War

None of the people who started the First World War had the slightest idea what it would be like. The armies of Europe were dominated by the old feudal landowning class, whose

warlike traditions were rooted in the Middle Ages. The counts and barons who still ruled Europe's diplomatic and military establishments knew how to drink champagne, dance elegantly, ride horses, and seduce women. They pranced off to war in high spirits, the gold on their colorful uniforms glittering in the sunshine, full of expectations of romantic cavalry charges, kisses stolen from pretty girls in captured villages, decorations, glory and promotion, like characters in "The Chocolate Soldier" or "Die Fledermaus". The romantic dreams of glory of every small boy who ever played with toy soldiers were about to become a thrilling reality!

But the war, when it came, was not like that. Technology had taken over. The railroads, the telegraph, high explosives and the machine gun had changed everything. The opposing armies, called up by means of the telegraph and massed by means of the railroads, were the largest ever assembled up to that time in the history of the world. In France alone, between August 2 and August 18, 1914, the railway system transported 3,781,000 people under military orders. Across Europe, the railways hurled more than six million highly armed men into collision with each other. Nothing on that scale had ever happened before, and no one had any idea of what it would be like.

At first the Schlieffen Plan seemed to be working perfectly. When Kaiser Wilhelm had sent his troops into battle, he had told them: "You will be home before the leaves are off the trees", and at first it seemed that his prediction would be fulfilled. However, the machine gun had changed the character of war. Attacking infantry could be cut down in heaps by defending machine gunners. The war came to a stalemate, since defense had an advantage over attack.

On the western front, the opposing armies dug lines of trenches stretching from the Atlantic to the Swiss border. The two lines of trenches were separated by a tangled mass of barbed wire. Periodically the generals on one side or the other would order their armies to break through the opposing line. They would bring forward several thousand artillery pieces, fire a million or so high explosive shells to cut the barbed wire and to kill as many defenders as possible, and then order their men to attack.

The soldiers had to climb out of the trenches and struggle forward into the smoke. There was nothing else for them to do. If they disobeyed orders, they would be court-martialed and shot as deserters. They were driven forward and slaughtered in futile attacks, none of which gained anything. Their leaders had failed them. Civilization had failed them. There was nothing for them to do but to die, to be driven forward into the poison gas and barbed wire and to be scythed down by machine gun fire, for nothing, for the ambition, vanity and stupidity of their rulers.

At the battle of Verdun, 700,000 young men were butchered in this way, and at the battle of Somme, 1,100,000 young lives were wasted. On the German side, the soldiers sang "Lili Marleen" – "She waits for a boy who's far away..." and on the other side, British and American soldiers sang:

*“There’s a long long trail a-winding
into the land of my dreams
where the nightingale is singing
and the pale moon beams.
There’s a long long night of waiting
until my dreams all come true,
’til the day that I’ll be going
down that long long trail with you.”*

For millions of Europe’s young men, the long, long trail led only to death in the mud and smoke; and for millions of mothers and sweethearts waiting at home, dreams of the future were shattered by a telegram announcing the death of the boy for whom they were waiting.

When the war ended four years later, ten million young men had been killed and twenty million wounded, of whom six million were crippled for life. The war had cost 350,000,000,000 1919 dollars. This was a calculable cost; but the cost in human suffering and brutalization of values was incalculable.

5. World War I Prepares the Ground for World War II

It hardly mattered whose fault the catastrophe had been. Perhaps the Austrian government had been more to blame than any other. But blame for the war certainly did not rest with the Austrian people nor with the young Austrians who had been forced to fight. However, the tragedy of the First World War was that it created long-lasting hatred between the nations involved; and in this way it led, only twenty years later, to an even more catastrophic global war.

The First World War brought about the downfall of four emperors: the Russian Czar, the Turkish Sultan, the Austro-Hungarian Emperor and the German Kaiser. The decaying and unjust Czarist government had for several years been threatened by revolution; and the horrors of the war into which the Czar had led his people were enough to turn them decisively against his government. During 1915 alone, Russia lost more than two million men, either killed or captured. Finally the Russian soldiers refused to be driven into battle and began to shoot their officers. In February 1917, the Czar abdicated; and on December 5, 1917, the new communist government of Russia signed an armistice with Germany.

The German Chief of Staff, General Ludendorff, then shifted all his troops to the west in an all-out offensive. In March 1918, he threw his entire army into a gigantic offensive which he called “the Emperor’s Battle”. The German army drove forward, and by June they were again on the Marne, only 50 miles from Paris. However, the Allies counterattacked, strengthened by the first American troops, and using, for the first time, large numbers of tanks. The Germans fell back, and by September they had lost more than a million men in six months. Morale in the retreating German army was falling rapidly, and fresh American troops were landing in France at the rate of 250,000 per month. Ludendorff realized that the German

cause was hopeless and that if peace were not made quickly, a communist revolution would take place in Germany just as it had in Russia.

The old feudal Prussian military caste, having led Germany into disaster, now unloaded responsibility onto the liberals. Ludendorff advised the Kaiser to abdicate, and a liberal leader, Prince Max of Baden, was found to head the new government. On November 9, 1918, Germany was proclaimed a republic. Two days later, an armistice was signed and the fighting stopped.

During the last years of the war, the world, weary of the politics of power and nationalist greed, had looked with hope towards the idealism of the American President, Woodrow Wilson. He had proposed a "peace without victory" based on his famous "Fourteen Points". Wilson himself considered that the most important of his Fourteen Points was the last one, which specified that "A general association of nations must be formed... for the purpose of affording mutual guaranties of political independence and territorial integrity of great and small states alike."

When Wilson arrived in Europe to attend the peace conference in Paris, he was wildly cheered by crowds of ordinary people, who saw in his idealism new hope for the world. Unfortunately, the hatred produced by four years of horrible warfare was now too great to be overcome. At the peace conference, the aged nationalist Georges Clemenceau was unswerving in his deep hatred of Germany. France had suffered greatly during the war. Half of all French males who had been between the ages of 20 and 32 in 1914 had been killed; much of the French countryside had been devastated; and the retreating German armies had destroyed the French coal mines. Clemenceau was determined to extract both revenge and financial compensation from the Germans.

In the end, the peace treaty was a compromise. Wilson was given his dream, the League of Nations; and Clemenceau was given the extremely harsh terms which he insisted should be imposed on Germany. By signing the treaty, Germany would be forced to acknowledge sole responsibility for having caused the war; it would be forced to hand over the Kaiser and other leaders to be tried as war criminals; to pay for all civilian damage during the war; to agree to internationalization of all German rivers and the Kiel Canal; to give France, Belgium and Italy 25 million tons of coal annually as part of the reparations payments; to surrender the coal mines in Alsace-Lorraine to France; to give up all foreign colonies; to lose all property owned by Germans abroad; and to agree to Allied occupation of the Rhineland for fifteen years.

The loss of coal, in particular, was a death-blow aimed at German industry. Reading the terms of the treaty, the German Chancellor cried: "May the hand wither that signs such a peace!" The German Foreign Minister, Count Ulrich von Brockdorff-Rantzau, refused to sign, and the German government made public the terms of the treaty which it had been offered. French newspapers picked up the information, and at 4 a.m. one morning, a messenger knocked at the door of the Paris hotel room where Herbert Hoover (the American war relief administrator) was staying, and handed him a copy of the terms.

Hoover was so upset that he could sleep no more that night. He dressed and went out into the almost deserted Paris streets, pacing up and down, trying to calm himself. "It seemed to me", Hoover wrote later, "that the economic consequences alone would pull down all Europe and thus injure the United States." By chance, Hoover met the British economist, John Maynard Keynes, who was walking with General Jan Smuts in the pre-dawn Paris streets. Both of them had received transcripts of the terms offered to Germany, and both were similarly upset. "We agreed that it was terrible", Hoover wrote later, "and we agreed that we would do what we could... to make the dangers clear."

In the end, continuation of the blockade forced the Germans to sign the treaty; but they did so with deeply-felt bitterness. Describing the signing of the Versailles treaty on June 28, 1919, a member of the American delegation wrote: "It was not unlike when in olden times the conqueror dragged the conquered at his chariot wheel."

While he participated in the peace negotiations, Wilson had been absent from the United States for six months. During that time, Wilson's Democratic Party had been without its leader, and his Republican opponents made the most of the opportunity. Republican majorities had been returned in both the House of Representatives and the Senate. When Wilson placed the peace treaty before the Senate, the Senate refused to ratify it. Wilson desperately wanted America to join the League of Nations, and he took his case to the American people. He traveled 8,000 miles and delivered 36 major speeches, together with scores of informal talks urging support for the League. Suddenly, in the middle of this campaign, he was struck with a cerebral thrombosis from which he never recovered.

Without Wilson's leadership, the campaign collapsed. The American Senate for a second time rejected the peace treaty, and with it the League of Nations. Without American participation, the League was greatly handicapped. It had many successes, especially in cultural and humanitarian projects and in settling disputes between small nations; but it soon became clear that the League of Nations was not able to settle disputes between major powers.

Postwar Germany was in a state of chaos – its economy in ruins. The nation was now a republic, with its capital in Weimar, but this first experiment in German democracy was not running smoothly. Many parts of the country, especially Bavaria, were swarming with secret societies led by former officers of the German army. They blamed the republican government for the economic chaos and for signing a disgraceful peace treaty. The "war guilt" clause of the treaty especially offended the German sense of honor.

In 1920 a group of nationalist and monarchist army officers led by General Ludendorff staged an army revolt or "Putsch". They forcibly replaced the elected officials of the Weimar Republic by a puppet head of state named Dr. Kapp. However, the republic was saved by the workers of Berlin, who turned off the public utilities. After the failure of the "Kapp Putsch", Ludendorff went to Bavaria, where he met Adolf Hitler, a member of a small secret society called the National Socialist German Workers Party. (The name was abbreviated as "Nazi" after the German pronunciation of the first two syllables of "National"). Together, Ludendorff and Hitler began to plot another "Putsch".

In 1921, the Reparations Commission fixed the amount that Germany would have to pay at 135,000,000,000 gold marks. Various western economists realized that this amount was far more than Germany would be able to pay and in fact, French efforts to collect it proved futile. Therefore France sent army units to occupy industrial areas of the Ruhr in order to extract payment in kind. The German workers responded by sitting down at their jobs. Their salaries were paid by the Weimar government, which printed more and more paper money. The printing presses ran day and night, flooding Germany with worthless currency.

By 1923, inflation had reached such ruinous proportions that baskets full of money were required to buy a loaf of bread. At one point, four trillion paper marks were equal to one dollar. This catastrophic inflation reduced the German middle class to poverty and destroyed its faith in the orderly working of society.

The Nazi Party had only seven members when Adolf Hitler joined it in 1919. By 1923, because of the desperation caused by economic chaos, it had grown to 70,000 members. On November 8, 1923, there was a meeting of nationalists and monarchists at the Bürgerbräu Keller beer hall in Munich. The Bavarian State Commissioner, Dr. Gustav von Kahr, gave a speech denouncing the Weimar Republic. He added, however, that the time was not yet ripe for armed revolt.

In the middle of Kahr's speech, Adolf Hitler leaped to the podium. Firing two revolver bullets into the ceiling Hitler screamed that the revolution was on: it would begin immediately! He ordered his armed troopers to bar the exits, and he went from one Bavarian leader to the other, weeping with excitement, a beer stein in one hand and a revolver in the other, pleading with them to support the revolution. At this point, the figure of General Ludendorff suddenly appeared. In full uniform, and wearing all his medals, he added his pleading in addition to Hitler's.

The Bavarian leaders appeared to yield to Hitler and Ludendorff; and that night the Nazis went into action. Wild disorder reigned in Munich. Republican newspapers and trade union offices were smashed, Jewish homes were raided, and an attempt was made to seize the railway station and the post office. However, units of policemen and soldiers were forming to resist the Nazis. Hitler realized that the Bavarian government officials under Kahr had only pretended to go along with the revolution in order to escape from the armed troopers in the beer hall.

At dawn, Hitler grouped his followers together for a parade to show their strength and to intimidate opposition. With swastika flags flying, the Nazis marched to the main square of Munich. There they met troops of Bavarian government soldiers and policemen massed in force. A volley of shots rang out, and 18 Nazis fell dead. Many other Nazis were wounded, and the remainder scattered. Hitler broke his shoulder diving for the pavement. Only General Ludendorff remained standing where he was. The half-demented old soldier, who had exercised almost dictatorial power over Germany during the last years of the war, marched straight for the Bavarian government troops. They stepped aside and let him pass.

Adolf Hitler was arrested and sentenced to five years in prison. After serving less than a year of his sentence, he was released. He had used the time in prison to write *Mein Kampf*.

6. Lessons from the First World War

We are now approaching the 100th anniversary of the outbreak of the First World War. It is important for society to look back at this catastrophic event, which still casts a dark shadow over the future of human civilization. We must learn the bitter lessons which it has to teach us, in order to avoid a repetition of the disaster.

As we have seen, World War I had its roots in the fanatical and quasi-religious nationalist movements that developed in Europe during the 19th century. Nationalism is still a potent force in today's world, but in an era of all-destroying weapons, instantaneous worldwide communication, and global economic interdependence, fanatical nationalism has become a dangerous anachronism. Of course, we should continue to be loyal to our families, our local groups and our nations. But this must be supplemented by a wider loyalty to the human race as a whole.

Hearing Beethoven's 9th Symphony, with Schiller's words, most of us experience a feeling that resembles patriotism, but is broader: "All men are brothers!" Not just some, but all. The choral movement of the symphony is like a national anthem of humanity. All humans are brothers and sisters! All! All nations and races have contributed to the great monument of human civilization. It is a treasure that we all hold in common. We must join hands and work together for our common future. Human unity has become more and more essential, because of the serious problems that we are facing, for example climate change, vanishing resources, and threats to food security. The problems are soluble, but only within a framework of peace and cooperation.

Secondly, we can remember that the First World War started as a small operation by the Austrian government to punish the Serbian nationalists; but it escalated uncontrollably into a global disaster. Today, there are many parallel situations, where uncontrollable escalation might produce a world-destroying conflagration.

Israel's Prime Minister, Benjamin Netanyahu, has frequently stated that, with or without US backing, Israel intends to bomb Iran, an act that would be not only criminal but also insane. Why criminal? Because it would violate both the UN Charter and the Nuremberg Principles. Why insane? Because the Middle East is already a deeply troubled region, and a military attack on Iran could escalate uncontrollably into a general war in the Middle East. Perhaps it could even escalate into World War III. Netanyahu has told the people of Israel that the attack would involve only about 500 Israeli deaths and that it would be over in a month. One is reminded of Kaiser Wilhelm's words to his departing troops: "You will be home before the leaves are off the trees!"

In general, aggressive interventions, in Syria, Ukraine, the Korean Peninsula and elsewhere, all present dangers for uncontrollable escalation into large and disastrous conflicts, which might potentially threaten the survival of human civilization.

Another lesson from the history of World War I comes from the fact that none of the people who started it had the slightest idea of what it would be like. Science and technology had changed the character of war. The politicians and military figures of the time ought to have known this, but they didn't. They ought to have known it from the million casualties produced by the use of the breach-loading rifle in the American Civil War. They ought to have known it from the deadly effectiveness of the Maxim machine gun against the native populations of Africa, but the effects of the machine gun in a European war caught them by surprise.

"Each year the world spends roughly 1,700,000,000,000 US dollars on armaments, almost 2 trillion."

Today, science and technology have again changed the character of war beyond all recognition. In the words of the Nobel Laureate biochemist, Albert Szent Györgyi, "The story of man consists of two parts, divided by the appearance of modern science.... In the first period, man lived in the world in which his species was born and to which his senses were adapted. In the second, man stepped into a new, cosmic world to which he was a complete stranger.... The forces at man's disposal were no longer terrestrial forces, of human dimension, but were cosmic forces, the forces which shaped the universe. The few hundred Fahrenheit degrees of our flimsy terrestrial fires were exchanged for the ten million degrees of the atomic reactions which heat the sun.... Man lives in a new cosmic world for which he was not made. His survival depends on how well and how fast he can adapt himself to it, rebuilding all his ideas, all his social and political institutions."

Few politicians or military figures today have any imaginative understanding of what a war with thermonuclear weapons would be like. Recent studies have shown that in a nuclear war, the smoke from firestorms in burning cities would rise to the stratosphere where it would remain for a decade, spreading throughout the world, blocking sunlight, blocking the hydrological cycle and destroying the ozone layer. The effect on global agriculture would be devastating, and the billion people who are chronically undernourished today would be at risk. Furthermore, the tragedies of Chernobyl and Fukushima remind us that a nuclear war would make large areas of the world permanently uninhabitable because of radioactive contamination. A full-scale thermonuclear war would destroy human civilization and much of the biosphere.

Finally, we must remember the role of the arms race in the origin of World War I, and ask what parallels we can find in today's world. England was the first nation to complete the first stages of the Industrial Revolution. Industrialism and colonialism are linked, and consequently England obtained an extensive colonial empire. In Germany, the Industrial Revolution occurred somewhat later. However, by the late 19th century, Germany had surpassed England in steel production, and, particularly at the huge Krupp plants in Essen, Germany was turning to weapons production. The Germans felt frustrated because by that time there were fewer opportunities for the acquisition of colonies.

According to the historian David Stevenson (1954-), writing on the causes of World War I, “A self-reinforcing cycle of heightened military preparedness... was an essential element in the conjuncture that led to disaster... The armaments race... was a necessary precondition for the outbreak of hostilities.”

Today, the seemingly endless conflicts that threaten to destroy our beautiful world are driven by what has been called “The Devil’s Dynamo”. In many of the larger nations of the world a military-industrial complex seems to have enormous power. Each year the world spends roughly 1,700,000,000,000 US dollars on armaments, almost 2 trillion. This vast river of money, almost too large to be imagined, pours into the pockets of weapons manufacturers, and is used by them to control governments. This is the reason for the seemingly endless cycle of threats to peace with which the ordinary people of the world are confronted. Threats are needed to justify the diversion of such enormous quantities of money from urgently needed social projects into the bottomless pit of war.

“The problem of building a stable, just, and war-free world is difficult, but it is not impossible.”

7. What is to be Done?

“In the long run, the survival of human civilization can only be ensured by abolition of the institution of war.”

No single person can achieve the changes that we need, but together we can do it. The problem of building a stable, just, and war-free world is difficult, but it is not impossible. The large regions of our present-day world within which war has been eliminated can serve as models. There are a number of large countries with heterogeneous populations within which it has been possible to achieve internal peace and social cohesion, and if this is possible within such extremely large regions, it must also be possible globally.

In the long run, the survival of human civilization can only be ensured by abolition of the institution of war.

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The Riches of the Ocean for Humankind: Rethinking Value in Economics and Development

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Abstract

We acknowledge the inadequacy of the ancient model to develop the wealth of nations and the recognition that both economics and ecology are the best possible ways to manage world and human resources to achieve a better wealth of nations. The rebuilding of economics and of a credible strategy for increasing the wealth and well-being of nations is today at the center of the problem of providing a sound basis for the legitimacy and credibility of public institutions and governments. If the dichotomy between traditional economic goals and new ecological and environmental requirements for sustainable development will not credibly combine, the political consensus and the legitimacy of governments at the local, national, and international levels will have a tendency to produce on the new liberalizing world disaggregation effects that could be as extensive as those witnessed in former Marxist countries.

The oceans are a fundamental part of this patrimony and Elisabeth Mann should be remembered for her very important dedication on this issue.*

1. Introduction

I had the privilege of knowing Elisabeth Mann Borgese for over 20 years. I first met her on the occasion of the conferences of the Club of Rome. She was clearly one of those persons who provides you with an example of how human beings, from time to time and thanks to exceptional individuals, are capable of creating a better standard for the civilized part of our human history.

I am still so grateful to her for having been interested in my efforts to better understand “in the present world” the search for the wealth of nations that is really going on. Over 50 years of experience in the chemical industry, industrial and technological research, the financial sector studying the management of risks and uncertainties, teaching my subject (service economics) at university, and having even some political experience within the European Federalist Movement, have served as references to build up some hypotheses and ideas. I have also drawn on the views expressed in relevant economic and social literature. But it is clear that my views have grown somewhat diverted from those of the economic establishment.

* Elisabeth Mann Borgese was an internationally recognized expert on maritime law and policy and the protection of the environment.

Elisabeth was in fact looking for a better answer to the question “What is the value of the oceans?” Value in conventional economics – as it was borne of a consequence of the development of the Industrial Revolution – is linked to the basic notion of scarcity of resources and to their pricing in the market system. Resources that are not scarce and are not exchanged have in principle no theoretical value. But what about those resources that are not scarce in the beginning, but which become scarce when over-exploited or polluted?

Adam Smith wrote the fundamental starting text of economics over two centuries ago – *The Wealth of Nations*. What about the economic price-value of goods and services that have become scarce after having been available at no cost?

Furthermore, at the macroeconomic level, the average educated person is not conscious that a measure of the gross national product is a measure of the flow, whereas talking, for instance, of the value of the oceans and of any other resource on earth is a matter of evaluating a stock. That is, a stock that can become scarcer and therefore more and more costly and “valuable” and where sometimes technology and advancement in research are capable of creating a situation of such abundance that the products of services become almost free, as could be the case in the telecommunications sector. All this is linked to what I have tried to describe in a few books as the passage from the industrial economy, which is the basis for modern economics, to a service-based economy where the notion of stock, performance, and uncertainty in time replaces day-by-day equilibrium-based traditional economic theory.

I am a sea and ocean lover, but I am not an ocean expert. Nevertheless, the question of identifying the economic and social value of the oceans has inevitably to do with the identification and measurement of a stock (i.e., in terms of price and indicators), whatever its nature.

I was always very thankful to Elisabeth for having grasped the essence of my attempts to enter and develop this debate. As a consequence, she made reference to my writings in many of her books and articles.¹ In one of her last writings,² she even went on to the issues of risk and uncertainty that are inevitably linked to the new service economy and to the identification and discussion of any policy that has to do with the performance and sustainability of any stock – and even more so the oceans – in the future. In the following paragraphs, I insist on two key issues: the economics of common heritage and the notion and strategy of sustainable development.

2. The Economics of Common Heritage

2.1. The Concepts of Common Heritage of Mankind and Dowry and Patrimony: In Quest of an Adequate Notion of Economic Value

The concept of Common Heritage of Mankind as developed by its principal author, Arvid Pardo, Ambassador of Malta to the United Nations in the 1960s, is characterized by the following:

- the non-appropriability of the common heritage;
- a system of management in which all users share;

- an active sharing of the profit and benefits derived from shared management and transfer of technologies;
- the reservation of ocean space for peaceful purposes; and
- its reservation for future generations.

As Elisabeth Mann Borgese stated in her report to the Club of Rome, *The Future of the Oceans*,³ there are some startling similarities between the concepts of Common Heritage and Dowry and Patrimony (D&P) developed in the report to the Club of Rome.⁴ In fact, a lot of work has been done in the last few decades by private research centers, as well as by international organizations, to define the value of so-called non-economic goods.* Although I respect and take into account all these efforts, I feel the necessity to become more provocative and to say that conventional economic wisdom does not fundamentally provide instrumental measures that are adequate to evaluate the real economic value of oceans as common heritage.

This article therefore will be very risky for its author. Firstly it will try to prove that conventional economics does not provide the necessary tools for what is needed. Secondly, it has to explain why the fundamentals of conventional economics have been developed in quite another context and with other objectives for measurement that are now out of context. Thirdly, this short article has to open some avenues to find other plausible and useful references.

The reader will admit that such tasks are almost equivalent to intellectual suicide. I have a little excuse in the fact that these ideas are based on more than 40 years of research and practical testing in economic activities, both in industry and services. Perhaps the most demanding element of this article is to try to explain how and why a conventional economic theory functions as it does today, and why it is theoretically inadequate.

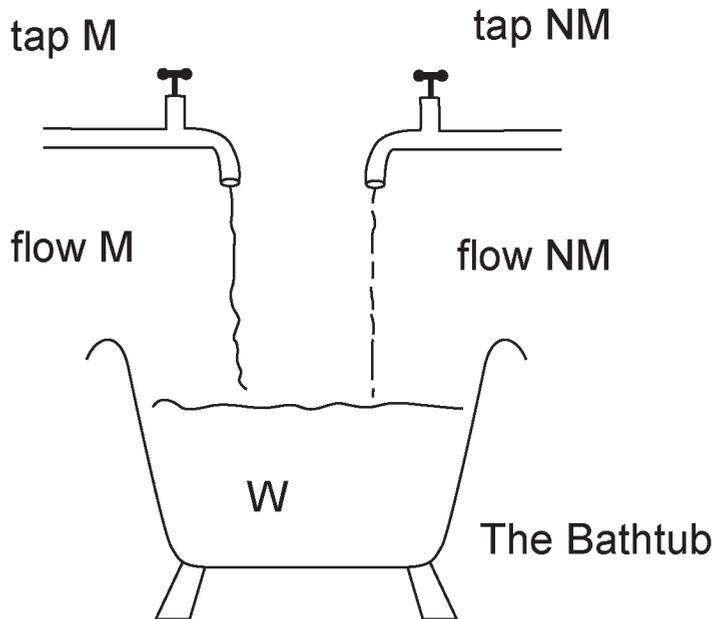
3. Measuring Value in the Industrial Revolution: The Monetized Flow

It is essential to understand that the measurement of value in economics refers to the measurement of a flow. This can best be explained as a bathtub with two taps, as shown in Figure 1. The bathtub contains a certain amount of water W , representing a stock of wealth that we use for our needs and pleasure. This stock of water W is fed by two taps:

- the tap M represents the flow of monetarized production, which pours additional wealth into our stock W ;
- the tap NM symbolizes the flow of goods and services that also increase our wealth, but the production of which is nonmonetarized. It refers for instance to free, unpaid human contributions, or free goods like air.

* Many of the research centers and international organizations are listed in Annex 14 of the paper "The Contribution of Oceans and Ocean Development to Wealth and Welfare," by O. Giardini and M. Borlin (presented to the International Centre for Ocean Development [ICOD] in Halifax, Nova Scotia, Canada, 2nd December 1988).

Figure 1: The Bathtub of Economic Wealth



Flow M: The flow of monetarized goods and services including money itself.

Flow NM: Flow of goods and services that also increase wealth but the production of which is nonmonetarized: unpaid human contributions, or free goods such as air.

W: The stock of wealth that we use for our needs and pleasure; the utilization value of this stock depends on the quality and quantity available.

When reading about economic indicators, many problems arise in our mind from the lack of distinction between what relates to our stock of wealth W (monetarized or not) and what refers to the flow F (monetarized or nonmonetarized). The value added in economics is essentially a measurement of the *monetarized flow*.^{*} It measures how much monetarized production is passing through tap M to increase the stock of wealth W . The underlying assumption rooted in the Industrial Revolution is that any additional flow represents an equivalent increase of the stock W (i.e., a value added).

The first reason for choosing the monetarized flow FM instead of the stock of wealth W as the measurement reference is that the statistical measurement of the flow is easier to do. The measurement of the stock, in contrast, appears much more complex because all sorts of nonmonetarized production that inevitably intervenes may not be noticed and because, in the

^{*} Monetarized refers to any goods or services exchanged, monetarized or not. Nonmonetarized refers to goods or services with no relation to exchange.

case of the sale of a part of our stock, a definite reference value to refer to the loss in stock or wealth may not be available. However, the fundamental assumption of this reasoning still is that the production of the monetarized flow FM is equivalent to an increase in wealth W !

Over the last 20 years, we have perceived the emergence of a new type of problem linked to environmental and ecological constraints, which strongly suggests that the monetarized flow is not always an addition to wealth; the monetarized flow contains a nonnegligible part of pollution that does not add to, but destroys wealth.⁵ Part of the “added value” is then in fact a “deducted value.” The measurement of growth as expressed in the gross national product is precisely and only the measurement of such a monetarized flow at the macroeconomic, national level. It excludes the standard accounting practice used by all industrial companies and individuals: an accounting of total assets or stock available, and total liabilities incurred (the balance sheet), of which the analysis of the flow of activity performed during a given period of time (the statement of income and expenses) is an integral part. At the microeconomic level, it is a matter of common knowledge and common sense that the differential in total value of assets (e.g., stock) does not necessarily coincide with the volume of activity performed over a given period of time. The accounting of assets is a process that determines the accumulation of an activity during a longer period of time, rather than simply measuring if the monetarized flow during this same period of time has increased or decreased, but remaining always by definition bigger than 0!

During the classical Industrial Revolution, it could be assumed that the amount of monetarized flow largely corresponded to increases in the stock of wealth. In the modern economy,⁶ this is no longer true; the real level of wealth (i.e., the stock) depends also on nonmonetarized contributions and deducted values. In the first phase of the industrial revolution, value added coincided largely with the real utilization value and as such became the primary indicator of the growing wealth. The notion of utilization value itself refers to the assets (stock) and the way it is used in time, in contrast to the notion of added value referring to the flow of monetarized production.

The measurement of such stock can of course only be approximate and will be partly subjective: this means that the decision of what has value partly becomes a matter for political consensus. The future choice may well be between a system of flow measurement that is quantitatively precise but is increasingly losing its significance, and systems of asset measurements that might be less precise but will be more relevant to the real world. The quantification of nonmonetarized wealth elements can be achieved by adequate indicators. This is a crucial topic, as any method of asset accounting would also enable a better definition of riches and poverty, and this avoids the perpetuation of a system accounting a misleading level of wealth, as the nonmonetarized contributions to the wealth of one country may be higher than the one of another country.⁷

4. Old and New Shortcomings: Wealth and Riches

Classical economists, and in particular, Ricardo, were well aware that the accounting of economic wealth that they were elaborating was not really comprehensive of the real level of wealth of an individual or a country. A clear distinction was made between the notion of

riches, on the one side, and of wealth, on the other.⁸ There was even an implicit admission that an increase in wealth could eventually correspond to an increase in riches.

However, these considerations remained secondary because the main problem during the Industrial Revolution was to identify the most dynamic system of increasing the wealth of nations, that is, the industrialization process, and to concentrate on its development. Inconveniences and discrepancies between wealth and riches were considered to be of minor importance. The writings in classical economics and some of the later commentators⁹ were a consequence of the fact that the first formalization of economic theory was a description of the industrialization process; the priority was to measure a flow of goods and the value added.

In the modern economy,¹⁰ when the industrialization process, although important per se, is no longer identified as the prime mover to increase the wealth of nations, the problem is quite different and the contradiction between wealth and riches becomes much more important. The divergence of the notion of riches versus the notion of wealth corresponds to what can be called the development of deducted values in the modern economy. The increase of these deducted values stems from the increasingly higher allocation of economic resources to activities that do not add to the real level of wealth or of riches, but which are in fact absorbed by the rising costs of the functioning of the economic system (e.g., the costs for waste management).

5. The Global Stock of Our Riches: The Dowry and Patrimony

The stock of riches, which provides all the resources and the environment for our life on Earth, can be summarized in the following table (See Figure 2). We call this stock Dowry and Patrimony (D&P) and we would like to underline the fact that it is the ultimate source of economic value. Within these different types of riches, there is one, the monetarized patrimony, which represents the contribution of the Industrial Revolution to the overall accumulation of wealth.

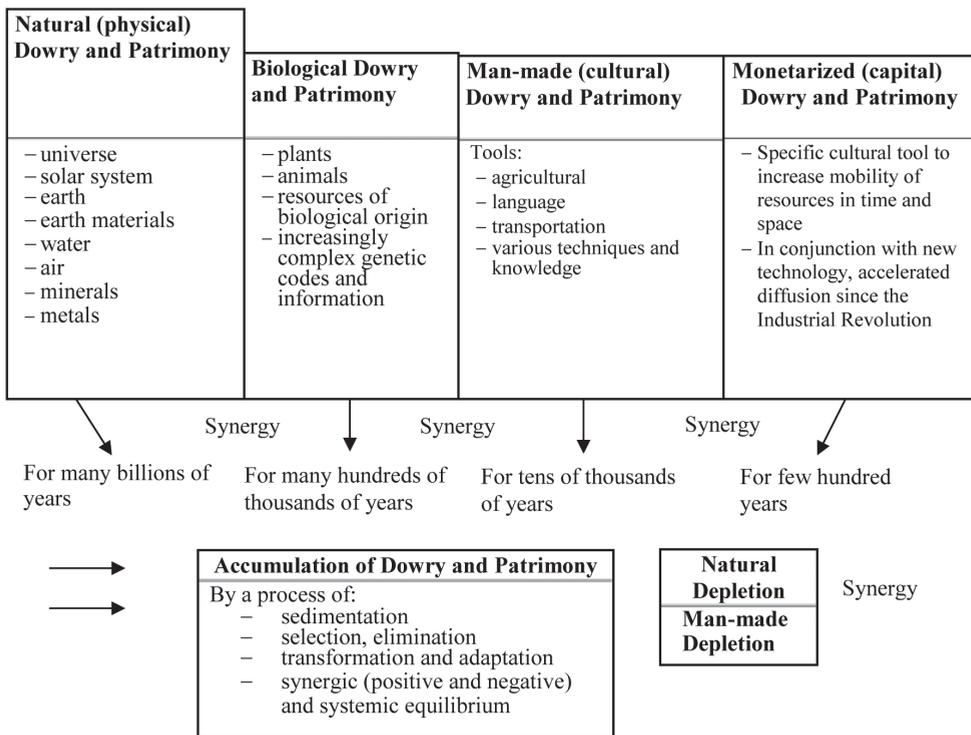
Obviously the oceans, as any other Earth resource, are a combination, in terms of riches, of the various types of D&P mentioned in Figure 2.

6. Assessing Riches, Wealth and Welfare

In the previous paragraphs we have already tried to point out two key elements that make conventional economics an inadequate tool to evaluate the economic value of common heritage and of the oceans in particular. The first concerns the very notion of value, which relates to a flow of monetarized (or implicitly monetarized) goods and services. This flow is always supposed to be positive, but in fact it is also negative in terms of wealth accumulation. Secondly, it is a measurement that is very partial with regards to both the nonmonetarized flows and the results of all flows on the level of riches or D&P. All this intellectual construction of classical economics rests upon the assumption that the flows of added values are adding to wealth, at least as a priority tool, and as such remain the major reference for economic policy.

We contend that although the management and stimulation of value added in this sense is still very important, it tends to be of secondary importance, at least in the terms conceived during the Industrial Revolution, in an economy where one has to evaluate the final results on the level of the riches on the one side, and where the very process of the production of added value depends more and more on service activities.¹¹ The real problem we have to face at this stage is to reformulate a definition of value so that we can elaborate a system of indicators more appropriate to evaluate, monitor, and establish economic policies, and to complement the single indicator of the monetarized value added.

Figure 2: Dowry and Patrimony (D&P): The Accumulation Process of Resources¹²



At this stage we have to go back to consider all the indicators that have been provided for the last decades to measure various aspects of economic activities. Many indicators have been proposed and used in both a socioeconomic context (“social accounting”), in an institutional company context (“social audit”), and even in an individual context (“satisfaction indices”). The World Bank has made in the last few years consistent steps in our direction by publishing reports integrating various welfare indices. The problems and criticism against such indices vary.

The first criticism, coming from economists, is that social indicators are sociological tools that do not directly concern economics. This criticism derives once more from the identification of economics with the monetarized economy. In fact, it should be recognized that these indicators are related to the definition of and search for wealth and welfare, and that their existence and even proliferation are a sign of the growing dissatisfaction with the traditional tools of economic measurement, precisely in view of economic goals (i.e., developing the wealth of nations) and research objectives.

“The traditional concept of value in economics may constitute an unacceptable factor because it presupposes a world in which living conditions, constraints, and appreciations are uniform.”

The second criticism is that the indicators are very often too qualitative and difficult to quantify. This is obvious; however, there are also clearly many cases in which quantification is, in reality, a meaningless process. For example, because value added entails certain deducted values, it can no longer be considered a reliable indication of wealth and welfare even though it can be measured relatively easily. The first requirement is to be sure that the measurement in question has the expected significance. To select factors in a system on the basis of their direct measurability and not in terms of the behaviour of the system in itself and its goals clearly leads to aberrations.

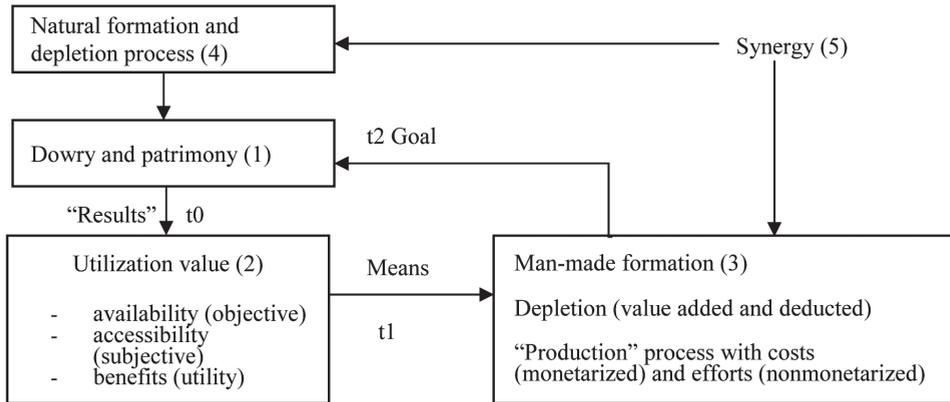
The third criticism relates to the multiplicity and variety of these indicators. The “indicators” movement may seem to be the outcome of different situations; it leads to very different types of motivation. Two types of answers can be discussed. The first is that wealth and welfare can be differently defined in different places and cultures, as well as in different moments in time. It is the very inflexibility of the traditional concept of value in economics that may constitute an unacceptable factor, because it presupposes a world in which living conditions, constraints, and appreciations are uniform. The diversity which, in fact, exists should not be taken as evidence of any lack of consistency and logic of the “indicator” movement. On the other hand, the earlier-mentioned lack of any adequate theory of wealth and welfare has probably impeded a more successful use of such indicators.

A more comprehensive theory of wealth and welfare of the kind proposed here tries to provide a basis for a more consistent approach and actually encourages utilization of the indicators. In fact, the whole target of this article can be defined in the following way:

- first define a new theory of value (utilization value);
- then devise the most appropriate methods and possibilities of measurement and the judgment (selection of indicators);
- in this way open the possibility of defining new operational economic policies, for instance, in the fiscal and monetary field as well as in the preservation and development of nonmonetarized resources.

We will therefore bring together the various ideas on D&P, utilization value, and deduct- and added value in an attempt to set out a systematic reference framework for assessing wealth and welfare on the basis of figure 3. Figure 3 proposes a logical sequence of D&P formation and use in time and space, a prerequisite for any research on its general structure.

Figure 3: The Dynamics of Dowry and Patrimony and the Classification of Indicators



Central to the notion of wealth and welfare is the concept of Dowry and Patrimony (D&P, box 1), including every available resource and asset, material and nonmaterial, monetarized or nonmonetarized. Economists have taken a timid partial step in this direction when they talk of human capital, including qualitative indicators. D&P, as we have already indicated has a *utilization value* (box 2), which represents the (objective) availability of D&P (e.g., apples on a tree, the music of Beethoven, a bank account) and the (subjective) accessibility to it (i.e., both material and cultural: I appreciate Beethoven, I am in a position to use my bank account and to get the apples from the tree). It represents, to use a keyword much in favour with economists, the notion of utility in its widest sense.

Utilization value allows humankind to live and therefore to produce (i.e., positive and negative yields, and added and deducted values in their monetary and nonmonetary sense). Box 3 relates to *man-made formation and depletion* of D&P, and box 4 indicates the *natural D&P formation and depletion process*, which influences directly the total D&P, but which develops in synergy (point 5) with the man-made process. Boxes 3 and 4, in their synergy (point 5) determine the level of total D&P. Utilization value is then the reference for identifying the economic value of a stock, which in fact in our case would also refer to common heritage and the oceans.

If we take the notion of utilization value from another angle, we can identify this notion with the contemporary “service economy,” which we have tried to identify in another context.¹³ We are here, in fact, confronted with another fundamental crossroad: the manufacturing

“If you are used to driving a car, you do not simply fly an airplane applying the same rules as those used for driving.”

industry, the producer *par excellence* of value added, has become in a modern economy more and more based on service functions (70 percent to 80 percent of their total “production” costs). Within the industrial system, this is transforming the notion of value from a reference related to the instant encountering of supply and demand in a given moment in time, to a notion of value incorporating performance of systems in future time. Whereas, uncertainty becomes a key issue for management and the idea of equilibrium in economics is replaced by the notion of dynamic disequilibrium. In other words, the reality and the evolution itself of modern industry on the one side, constraints of the environment on the

other side, are converging in a way to put in evidence what are the key concepts for the economics of common heritage:

- acknowledgment of the value of a stock;
- the identification of its economic value in terms of performance or utilization in time (i.e., in a probabilistic setting).

In a theoretical sense, what it is at stake here is in fact the development of a general new economic theory that will provide the basic groundwork to mobilize researchers on issues related to indicators. This is to have a consistent frame of reference that can be used and managed for the purpose of efficiently managing our common heritage, our stock of riches, and the use of resources of all sorts in a new context. Many fundamental questions and some of the answers of traditional economics are still valid, but the frame of reference for their application has changed too much today to be used as simple adaptations. If you are used to driving a car, you do not simply fly an airplane applying the same rules as those used for driving.

“It is on the very notion of scarcity that economic science was founded more than 200 years ago.”

Our final pledge would then be that to establish the economics of common heritage, it is essential today to stimulate fundamental research in economics on which depends the development of adequate measurement tools for applicable economic policies.

7. Sustainable Development: At the Crossroads between Economics & Ecology

7.1. The Basic Problem for Development

The basic problem that development has to tackle is scarce resources. Such resources are of a material, human, technological, and cultural nature. It is on the very notion of scarcity that economic science was founded more than 200 years ago. It was then that Adam Smith wrote his book on the wealth of nations as a strategy to overcome the limitations to development due to scarce resources.

The Industrial Revolution successfully concentrated for over two centuries on the possibilities of increasing the manufacturing sectors to reduce scarcity of products. The key issue has been the mobilization and improvement of all available resources to make them more abundant and apt to produce wealth. One cannot deny the great overall successes of the Industrial Revolution, thanks to which life expectancy of human beings has increased at an unprecedented pace, mainly in the industrialized countries, but also, very largely, in the less industrialized ones.

7.2. The Political Aspect of the Industrial Revolution: A New Basis for Legitimacy, Credibility, and Governability

For the last two centuries, the legitimacy and the credibility of governments have centred around the methods and ideas proposed concerning the building and development of the “wealth of nations” through the development of the manufacturing systems, that is, the political management of the industrial revolution. The process of industrialization has been the key reference for building political consensus. The long-lasting competition between a liberal and a Marxist system has finally come to an end by the failure of Marxist methods to efficiently control and stimulate this process. Such a failure has resulted in a total loss of the political consensus and has therefore given way to political disaggregation. Even if the liberal system has shown many shortcomings and has experienced very great crises during the last two centuries, both political and economic, it has finally proved to be the least imperfect of the systems and the most efficient one, in the era of the Industrial Revolution.

7.3. The Ecological Movement and the Crisis in the Traditional Notion of the Wealth of Nations: In Quest of Sustainable Development

The Industrial Revolution, after its great successes in developing the wealth of nations, has come to a point at which there is a growing doubt in its capability of pursuing the goal of developing the wealth of nations without some very strong and in-depth adaptations. The ecological and environmental movements in the world are critical of the point that the industrialization process is in fact the right way to improve welfare and well-being of humanity in present conditions. Hence, the efforts of all those involved in promoting economic activity to integrate as far as possible the ecological and environmental requirements not only as an economic opportunity, but above all to reintegrate the very reference upon which the political consensus has been built in the past.

The notion of “sustainable development” refers precisely to the major problem of development that was at the very core of preoccupations of the pioneers of industrialization: the mobilization and development of scarce resources. The word “sustainable” refers essentially to the fact that the industrialization process, in certain cases, instead of increasing wealth tends to produce scarcity of resources. This happens in particular when those resources that were once available in an unlimited quantity (e.g., air, water, land) are themselves submitted to a process of progressive increase of scarcity. In this case, the entry of resources into the market-priced system that were once not taken into account because they were available in an unlimited quantity, is indicative of a growing level of scarcity and therefore of poverty.

The question of “sustainable development” has to do finally with the necessity to cope with the danger of producing scarcity, making resources more and more rare. A particular connotation of this phenomenon is its tendency to be of medium, long, and very long term. This contrasts in particular with an industrial economic process that is strongly conditioned by the market operations in the short term. Sustainability means in the end that resource development has to be mastered simultaneously in the short and long term, and this implies also concentrating on the issue of uncertainty.

“The integration of wisdom from two centuries of economic thinking and the legitimate requirements of the ecological and environmental needs and demands should naturally find their synthesis in a new notion of value.”

8. Acting for Sustainable Development

We acknowledge the inadequacy of the ancient model to develop the wealth of nations and the recognition that both economics and ecology are the best possible way of managing world and human resources to achieve a better wealth of nations. The rebuilding of economics and of a credible strategy for increasing the wealth and well-being of nations is today at the center of the problem of providing a sound basis for the legitimacy and credibility of public institutions and governments. If the dichotomy between traditional economic goals and new ecological and environmental requirements for sustainable development will not credibly combine, the political consensus and the legitimacy of governments at the local, national, and international levels will have a tendency to produce on the new liberalizing world disaggregation effects that could be as extensive as those witnessed in former Marxist countries.

Hence, the strategic priority consists of reviewing the meaning of the wealth of nations today and in finding the best economic methods to promote it in a credible and adequate way, with a vision aimed at strengthening the credibility and the legitimacy of the democratic economic systems. In terms of sustainable development, it means to find a reasonable compromise between the short and the long term to reduce scarcity now and in the future, avoiding the undermining of the patrimony composed by earth resources.

9. The Way to Sustainability

We recognize the fact that a modern industrial economy is essentially a service-based one and that the notion of value has shifted from the production of goods to the production of performances. Service activities of all sorts have today become dominant in every “manufacturing” sector. Services are about performances measured by results expressed in terms of level of health, wealth, well-being, happiness, and pleasure, *et cetera*. These levels of well-being do not depend only on the quantities of goods available, but on the way in which

they are used and they affect the quality of life of human beings in time. This is what is meant by “performance,” which also must integrate the cost of depleting resources and the management of waste (a service activity) in the long term. From this point of view, the integration of wisdom from two centuries of economic thinking and the legitimate requirements of the ecological and environmental needs and demands should naturally find their synthesis in a new notion of value. This is a notion of value where the basis for both economy and ecology is recognized as being the same; the best possible utilization and maintenance of human and natural resources for the well-being and for the wealth of nations. A clear strategy for sustainable development depends largely on the vision generated by the combination of economic and ecological views attacking together the problems of scarcity.

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Notes

1. E. Mann Borgese, “Integrating Development and Environment Concerns: New Economic Theories,” in *Ocean Governance and the United Nations* (Halifax: Centre for Foreign Policy Studies, Dalhousie University, 1995), 246; E. Mann Borgese, “The Economics of Common Heritage,” *Ocean and Coastal Management* 43 (2000): 763-779.
2. Borgese, “Economics of Common Heritage,” 2000.
3. E. Mann Borgese, *The Future of the Oceans: A Report to the Club of Rome* (Montreal: Harvest House, 1986), 144.
4. O. Giarini, *Dialogue on Wealth and Welfare – An Alternative View of World Capital Formation* (Oxford: Pergamon Press, 1980).
5. See the notion of “deducted values” in Giarini, *Dialogue on Wealth and Welfare*, 121.
6. The modern economy which in fact we call the “service economy” for reasons described by O. Giarini and W. R. Stahel, “The Limits to Certainty—Facing Risks in the New Service Economy,” in *International Studies in the Service Economy Series*, vol. 1, ed. Kluwer Academic Publishers (Dordrecht: Kluwer Academic Publishers, 1993), 294.
7. A. Tevoedjre, *La Pauvreté, Richesse des Peuples* (Paris: Les Éditions Ouvrières, 1977).
8. W. A. Weisskopf, *The Psychology of Economics* (Chicago: University of Chicago Press, and London: Routledge & Kegan Paul, 1955, also University of Chicago Press, Midway Reprint, 1975), 52.
9. Weisskopf, *The Psychology of Economics*.
10. Giarini and Stahel, *The Limits to Certainty*.
11. *Ibid.*
12. *Ibid.*
13. See Chapter 3 of Giarini, *Dialogue on Wealth and Welfare*.

BOOK-REVIEWS

by Michael Marien

Fellow, World Academy of Art and Science;
Director, Global Foresight Books

Sixteen Worldviews: A Summation of Recent Reviews

Where is humanity headed? What are the major problems that must be addressed, and what should be done?

Recent Book of the Month (BOM) selections for Global Foresight Books, especially for 2013, have focused on these important questions. Now is the time for a brief summary and preliminary analysis—a rough mapping—of their similarities and differences. Reviews of virtually all of the books summarized here have appeared in recent issues of *CADMUS*, *Eruditio*, and *Op-Ed*. However, to readily see them all together, it is best to go to www.GlobalForesightBooks.org and click on Book of the Month. Better still, open up the *GFB Update* Newsletter (3:5/6, 2013), which repeats this essay, along with linkages to all books cited.

1. General Perspectives

The latest selection (see long review, above) provides an excellent starting point: **Now for the Long Term: The Report of the Oxford Martin Commission for Future Generations** (University of Oxford, Oxford Martin School, Oct 2013, 85p; BOM 11/13). This impressive, broad-ranging, and amply documented report identifies key “megatrend” drivers of change, areas where action is imperative (boosting youth employment through “youth guarantee programs,” reducing inequality, tackling climate change, risk prevention for better health, targeting corruption, more transparency on taxes, etc.), elements to overcome impediments to action, problems of growing complexity and public trust, the need for “creative coalitions,” more innovative institutions, revaluing the future, “more global conversations,” and an agreed global ethic.

A somewhat similar overview is provided by former Vice President Al Gore in **The Future: Six Drivers of Global Change** (Random House, Feb 2013, 558p; BOM 4/13), describing a “future now emerging that will be extremely different from anything we have known.” The six “revolutionary” drivers are a deeply interconnected global economy, a planet-wide communications grid, a new balance of political/economic/military power, unsustainable growth in population and resource consumption, emergence of a new set of powerful technologies (biological, biochemical, genetic, materials), and human civilization colliding with the natural world and causing grave harm (notably due to climate change). Gore’s prescriptions include stabilizing human population growth, following principles of sustainability, a full and accurate measurement of value and externalities, re-evaluating reliance on the GDP measure of progress, fully recognizing the value of public goods, and

restoring our ability to communicate “clearly and candidly” with one another in a broadly accessible forum.

Another framework for appreciating global problems and possibilities is offered by the Millennium Project (Jerome C. Glenn, Director), which assesses 15 Global Challenges in its annual **State of the Future** reports, begun in 1997. See the long review of **2010 SOF** (July 2010, 88p; BOM 9/10) and a shorter review of **2011 SOF**. The Global Challenges deal with familiar topics such as sustainable development and climate change, clean water, energy, population growth, promoting democracy, new and re-emerging diseases, and the status of women. Less familiar but important topics include transnational organized crime, new security strategies, improving decision-making capacity, more global long-term perspectives, ethical market economies, ethics in global decisions, and promoting collective intelligence about accelerating science and technology and other matters. The MP, with 49 “Nodes” around the world, now offers ongoing updates of the individual challenges (<https://themp.org/#>). The 2013-2014 edition of **State of the Future** is available on <http://www.millennium-project.org/millennium/publications.html>.

A considerable amount of fresh thinking around the broad topic of “security” is provided in **The Quest for Security: Protection Without Protectionism and the Challenge of Global Governance**, edited by Joseph E. Stiglitz and Mary Kaldor (Columbia University Press, April 2013, 412p; BOM 8/13), with essays on economic security without ruinous nation-state protectionism, Scandinavian equality, the need for global security cooperation, restructuring global security with “human security” as the organizing framework, trends in global criminal industries, sharing the burden of adjusting to climate change, designing the post-Kyoto climate regime, how cities have taken the lead in facing global governance challenges, urban security challenges, cities and climate governance, a five-point agenda for improving global governance structures, expanding the G20, global financial governance, and the “vast” waste of resources in military spending.

22 Ideas to Fix the World: Conversations with the World’s Foremost Thinkers (New York University Press, Aug 2013, 466p; BOM 9/13), edited by Piotr Dutkiewicz and Richard Sakwa, is a joint publication of the Social Science Research Council, Russia’s World Public Forum, and NYU Press. The title is striking but overstated; still, many of the interviews deserve consideration. Topics include Muhammad Yunus on rethinking the nature of humanity so we can design a new system that allows people to take care of themselves, Will Kymlicka on how society can benefit from rights granted to minority groups, Joseph Stiglitz on the defective standard paradigm of economics (notably as regards sustainability and inequality), Ha-Joon Chang on the failure of free-market economics, Jose Antonio Ocampo on the need for a different international monetary system, Paul Watson on “Planet Ocean” and the dying of the seas, Mike Davis on the need to become a planet of gardeners, Immanuel Wallerstein on the hegemonic decline of the US in recent decades, Zygmunt Bauman on our new world of “liquid modernity” where change is the only constant, Bob Deacon on the ILO’s quest for international standards for workers and a global social protection floor, Peter Katzenstein on the diffusion of power that makes governance more challenging, Ivan Krastev on the paradox of much more interconnection in our globalizing world—yet more

fragmentation, Manuel F. Montes on the need for more stringent regulation of the financial sector, Kemal Dervis on the underappreciated European model of social democracy, and more.

In **Futurevision: Scenarios for the World in 2040** (Scribe, Nov 2012, 330p; BOM 6/13), futurists Richard Watson and Oliver Freeman seek “to prevent people from getting the future seriously wrong” and to emphasize that the world offers more promise than ever before, but also more threats to our existence. The scenarios serve to introduce the subsequent Worldviews described here under the headings of SUSTAINABLE DEVELOPMENT (Watson/Freeman’s “world of temperance” where less is more and people are happier), TECHNO-OPTIMISM (Watson/Freeman’s “world of intelligence” where science and technology restore order to the natural world and life is generally good under free-market capitalism), and GREEN PESSIMISM (Watson/Freeman’s narcissistic “world of greed” and rudderless “world of fear” scenarios where things go downhill).

2. Sustainable Development

Resilient People, Resilient Planet: A Future Worth Choosing (United Nations, Jan 2012, 94p; www.un.org/gsp/; BOM 6/12) is the Report of the United Nations Secretary-General’s High-Level Panel on Global Sustainability, featuring 56 proposals to empower people, promote a sustainable economy, and strengthen governance. This reaffirmation of **Our Common Future**, the 1987 “Brundtland Report” by the World Commission on Environment and Development, calls for genuine global action to integrate the economic, social, and environmental dimensions of development, eradicate poverty, reduce inequality, make production and consumption more sustainable, combat climate change, and respect a range of other planetary boundaries. Proposals include a Global Fund for Education, promotion of green jobs and decent work policies, an “ever-green revolution” to at least double productivity while drastically reducing resource use, basic safety nets for all citizens, price signals that value sustainability, a Sustainable Development Index by 2014, a set of universal sustainable development goals, and sustainable energy for all.

An overlapping and equally ambitious report is offered by another UN High-Level Panel: **A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development** (United Nations, July 2013, 69p; www.un.org/sg/management/pdf/HLP_P2015_Report.pdf; BOM 7/13). This report, from the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, goes beyond the UN’s limited Millennium Development Goals for 2015, urging “a new paradigm” and “a universal agenda” driven by five transformative shifts: 1) leave no one behind by ending extreme poverty in all its forms; 2) put sustainable development at the core, in halting the pace of climate change and environmental degradation; 3) transform economies for jobs and inclusive growth to improve livelihoods in every country; 4) build peace and effective institutions for all with a transparency revolution; 5) forge a new global partnership based on a common understanding of our shared humanity underpinning mutual respect and mutual benefit. These five changes, which must be a universal endeavor, are “the right, smart, and necessary thing to do.”

Similar to the paired UN high-level Panels, the Worldwatch Institute provides a visionary pair of their signature “State of the World” reports, published since 1984 and now distributed

in 18 languages. **State of the World 2012: Moving Toward Sustainable Prosperity** (Island Press, April 2012, 241p) offers essays on making the green economy work for everybody, “degrowth” in overdeveloped countries to create a steady-state economy, inclusive urban development, sustainable transport, technologies for livable and equitable cities, principles of corporate redesign, a new global architecture for sustainability, nine population strategies to stop short of nine billion people, sustainable buildings, sustainable consumption, sustainable agriculture, food security, protecting biodiversity, valuing natural capital and ecosystem services, and local democracy as critical to sustainable development.

State of the World 2013: Is Sustainability Still Possible? (Island Press, April 2013, 441p; www.sustainabilitypossible.org; BOM 10/13) presents 34 essays on such topics as nine endangered planetary boundaries, metrics for a “new economic dashboard” beyond the inadequate GDP measure, humanity’s ecological footprint, sustaining freshwater, sustainable fisheries and seas, net energy analysis, conserving nonrenewable resources, re-engineering cultures for a sustainable civilization, the Genuine Progress Indicator compared with the GDP measure, political strategies for sustainability, corporate reporting, calculating all costs to end the fossil fuel era, assessing energy alternatives, healthy food for all, valuing indigenous peoples, new university courses in “Big History,” moving toward a global moral consensus, more effective environmental studies programs, governance in the long emergency, building a deeper environmentalism, pros and cons of geoengineering, the impact of four years of drought in Syria, cultivating resilience, and the warning that it is not too late if we do everything right starting now and continuing for several decades.

The Climate Bonus: Co-benefits of Climate Policy (Earthscan/Routledge, Jan 2013, 408p; BOM 5/13) by Alison Smith, a UK policy consultant and lead author for the IPCC, provides a detailed, systematic overview of the many environmental, social, and economic benefits of a green economy, which “can provide a much stronger motivation” for supporting the move to a low-carbon society and a cleaner, safer, and healthier world. Some 37 overlapping and reinforcing co-benefits are discussed in six major categories: cleaner air by cutting pollution, greener land for forests and farming, safe and secure energy by cutting consumption and waste and shifting to low-carbon sources, less waste in a resource-efficient economy, long-term economic stability and prosperity with more jobs, and improved health and fitness. To reap the full benefits of the Climate Bonus, however, we must look at the big picture and take all co-benefits into account, which outweigh the total costs of a strong and coordinated climate policy. This message needs to be refined and widely publicized. Too many people—including Joseph Stiglitz in **The Quest for Security**, above—look only at the costs and not at the offsetting benefits.

3. Techno-optimists

The alternative to sustainable, low-carbon societies that aim to reduce poverty and inequality is essentially “business as usual” powered by the panoply of new technologies, with “trickle-down” benefits to all implicitly assumed. This is expressed subtly, or not so subtly.

Global Trends 2030: Alternative Worlds from America's National Intelligence Council (NIC, Dec 2012, 137p; www.dni.gov/nic/globaltrends; BOM 2/13) acknowledges that the world of 2030 "will be radically transformed" and presents a framework of four megatrends, six "game-changers," potential "black swans" or wild cards, and four "alternative worlds" scenarios that bear little resemblance to any of the sustainable development visions presented above. The tip-off to the NIC's bias is their selection of "Individual Empowerment" as the most important megatrend, which will "accelerate substantially during the next 15-20 years owing to poverty reduction and a huge growth of the global middle class, greater educational attainment, and better health care." The potential for greater individual initiative due to widespread use of new communications and manufacturing technologies is thus seen as "key to solving the mounting global challenges over the next 15-20 years." Perhaps so, but this upbeat assumption should be categorized as a scenario and not a megatrend. Conversely, the NIC's "Gini Out-of-the-Bottle" scenario of greater inequality as measured by the Gini Coefficient should be seen as a megatrend, not a possible scenario. For further critiques of the NIC report, see the 13 essays in **The NIC's Global Trends 2030 Report: A Collective Critique**, *World Future Review* Special Issue, 5:4, Winter 2013 (published by World Future Society/Sage Publications).

The bias of *The Economist*, a widely-respected weekly magazine with outstanding global coverage, is not as subtle. **Megachange: The World in 2050** (London: The Economist and Profile Books, 2012, 304p; BOM 6/13), edited by Executive Editor Daniel Franklin, provides 20 chapters on the "great trends that are transforming the world": population growth to "over 9 billion" by 2050, "stunning" advances in health care, more opportunities for women in most countries, collective intelligence as commonplace by 2050, continued dominance of the English language as many other languages die off, atheism and agnosticism expected to decline (!), global emissions unlikely to fall for decades (the best we can hope for is a plateauing in the 2030s, followed perhaps by a modest decline), problems of failing states and jihadist terrorism will remain, the problematic spread of the rule of law, the rising social burden of an aging society, the prospering of today's "upstart economies," scenarios of globalization, a "far narrower" gap between rich and poor countries, disruptive innovation, the accelerating growth of information (information overload is a very real problem, but "tools to help us handle it are improving") and mobile technology bringing the excluded closer to the mainstream and making markets more efficient. Editor Franklin concludes that "there is every chance that the world in 2050 will be richer, healthier, more connected, more sustainable, more productive, more innovative, better educated, (and) with less inequality... and with more opportunity for billions of people." A concluding essay by Matt Ridley, author of **The Rational Optimist** (2010), states that "planetary pessimism is usually wrong; the field of futurology is littered with cataclysmic prognostications that failed." He does not compare with the many optimistic prognostications that failed in the mythical "field of futurology," a simplistic construct used as a straw man by one-eyed optimists.

"Sustainability" is not mentioned by *The Economist*, other than the passing reference, cited above. The overview of scores of trends is quite good, and many problems are discussed, albeit too briefly in most instances (e.g., infoglut). The general expectation is that R&D and

rising levels of education “will offset barriers to growth such as unemployment, corruption, environmental degradation, and social tensions arising from income inequalities.”

In contrast to this sophisticated defense of free-market capitalism and globalization driven by high technology, **Abundance: The Future Is Better Than You Think** (Free Press, Feb 2012, 386p; www.AbundanceTheBook.com; BOM 8/12), by Peter H. Diamandis and Steven Kotler, presents the uninhibited techno-enthusiasm of Silicon Valley’s Singularity University, founded by Diamandis and prodigious inventor and putative “futurist” Ray Kurzweil. Eight exponentially growing fields are at the core of SU’s curriculum: biotechnology and bioinformatics, computational systems, networks and sensors, artificial intelligence, robotics, digital manufacturing, medicine, and nanomaterials and nanotechnology. “Each of these has the potential to affect billions of people, solve grand challenges, and reinvent industries.” The back-cover blurb by Kurzweil announces that “This brilliant must-read book provides the key to the coming era of abundance replacing eons of scarcity; (it) is a powerful antidote to today’s malaise and pessimism.” The authors go on to forecast that “within a generation, we will be able to provide goods and services, once reserved for the wealthy few, to any and all who need them. Or desire them. Abundance for all is actually within our grasp.”

4. Green Pessimists

Whereas techno-optimists ignore or downplay environmental issues, or brag that new technologies will “solve” them, green pessimists characteristically ignore or downplay the panoply of new and emerging technologies while focusing on population/resource/ environmental issues, especially climate change. And, if one looks, there is much to be pessimistic about.

Bankrupting Nature: Denying Our Planetary Boundaries (Earthscan/Routledge, Nov 2012, 206p; BOM 1/13), a Report to the Club of Rome by Anders Wijkman (Co-President, Club of Rome) and Johan Rockstrom (Stockholm Resilience Center), expands the concern about climate change to the broader concept of “planetary boundaries” involving nine biophysical processes as regards climate, ozone levels, ocean acidification, biogeochemical loading (nitrogen and phosphorus cycles), biodiversity loss, degradation of land, overexploitation of freshwater, toxic chemical pollution, and atmospheric aerosol loading. They argue that since WWII, the evidence is clear that “pressures on key ecosystems have increased exponentially” and that “we are very close to a saturation point, where the biosphere cannot handle additional stress.” Major indicators are higher levels of CO₂ in the atmosphere, large dead zones in coastal areas, melting sea ice and permafrost, rising sea levels, land use changes, etc. The authors discuss the necessary energy transition to renewable sources and greatly-reduced consumption, the possibility that the Arctic region may have entered a “death spiral,” the need to stop using GDP growth as a measure of well-being and to place a value on natural capital and ecosystem services, financial sector reform to promote sustainability, and the need to curb population growth and reform agriculture. A brief version of the “planetary boundaries” concept also appears in the Worldwatch Institute’s **State of the World 2013** report, written by Carl Folke of the Stockholm Resilience Centre. This well-documented concept of planetary pessimism, first published in 2009 in *Nature and in Ecology and Society*, has yet to be widely noticed.

Another recent Report to the Club of Rome, **2052: A Global Forecast for the Next Forty Years** (Chelsea Green, June 2012, 392p; BOM 7/12) was written by Jorgen Randers, one of the four original authors of the first report to the CoR in 1972, **The Limits to Growth**. Commemorating the 40th anniversary of this much-discussed and debated report, Randers looks 40 years ahead at “the most likely global roadmap,” based on the premise that “humanity remains in solid overshoot...and we can discern the early signs of the coming gradual destruction of the ecosystem.” The negative impacts of climate change will be significant but not disastrous by 2052, with more droughts, floods, sea-level rise, and self-reinforcing climate change largely due to methane emissions from melting tundra as “worry number one.” Slow and insufficient response to our challenges will dominate, but lack of space and cheap resources will force solutions with a lower ecological footprint, and a decline of world GDP just after 2052. Emerging problems will mean increased investment, forced or voluntary, lowering the share of GDP available for consumption, which will begin to fall around 2050. In sum, “the story of the 2052 forecast is one of overshoot caused by delayed societal response to greenhouse gas emissions being allowed to increase beyond sustainable levels for generations.” This forecast is not entirely bleak: whereas Randers and colleagues warned of “exponential” population growth in the original LtoG report, **2052** envisions global population reaching a maximum of 8.1 billion in the early 2040s (the U.N. low projection), thereafter declining to 7 billion by 2075.

A far more pessimistic view coupled with an idealized global vision is provided by Ross Jackson’s **Occupy World Street: A Global Roadmap for Radical Economic and Political Reform** (Chelsea Green, March 2012, 315p; www.occupyworldstreet.org; BOM 9/12), which views our civilization in the midst of a painful global collapse by overloading the ecosystem. Chapters describe the assault on nature, the coming peak in global oil production, overpopulation, “grossly overstated” hopes for biotechnology, how the Genuine Progress Indicator that adjusts GDP for negative factors shows deterioration of well-being in the past 30 years, inadequate economic beliefs that make a collapse inevitable, the corporatocracy, and recurrent financial crises (“the financial mafia is simply too powerful”). Calling for a new worldview to promote sustainability, Jackson advocates Gaia theory as foundation, steady-state economics, and effective global governance in a Gaian world to ensure survival (with detailed discussion of eight institutions to be founded by a Gaian League of small nations).

5. The Long Road Ahead to Shared Vision

The Oxford Martin Commission for Future Generations advocates more global conversations, more international cooperation, creative coalitions, an agreed global ethic, and a “common global vision” and “platform of understanding” to create global belonging among citizens, especially the justifiably angry and alienated young. But this is more easily said than done, and considerable learning about alternative views is needed.

The good news is that something of this sort is emerging, centered around WAAS discussions of a “new paradigm,” promoting a “universal agenda” for sustainable development along with a “new paradigm” (2013 UN High-Level Panel), paying more attention to the long term and future generations (Oxford Martin Commission), rethinking obsolete economic concepts (Al Gore and Worldwatch Institute), addressing 15 Global Challenges

(Millennium Project), human security and global security cooperation (Stiglitz and Kaldor), ideas to fix the world (Dutkiewicz and Sakwa), halting population growth and promoting a “green economy” that works for everyone (State of the World 2012), and considering the many co-benefits of a strong and coordinated climate policy (The Climate Bonus).

The bad news is the “herding cats” problem of identifying the hundreds of individuals and organizations that are continuously generating promising ideas and actions—far more than the sixteen worldviews described here – and arriving at some common language and a common global vision. Efforts should certainly be made at more conversations and more coalitions, but there will invariably be conflicts between big and small organizations, and between idealists and pragmatists, or “fundis” and “realos” as long identified among German greens. Practical disputes are inevitable as to which issues should be addressed and prioritized, and who gets credited. The ongoing problem of forging a global climate policy may seem simple in comparison.

Even if some sort of common global vision does begin to emerge, a still greater task will be to promote it in the nations of the world, especially in the still-powerful but information-glutted United States, where “sustainability” is not on the national political agenda; there are few “green” champions in national policy discourse and fewer still in public office, and any universal global agenda would be viewed with suspicion at a time when “big government” is under assault and fiscally challenged. On the other hand, as noted in several chapters in **The Quest for Security**, large cities and some businesses in the US and elsewhere are taking the lead in pursuing important elements of sustainable development.

Both tasks — forging a common vision and making it widely visible and accepted – are not impossible and should be undertaken. But a long and difficult road ahead seems more likely than not. Conversations can be undertaken among most cosmopolitans and greens, and possibly with muted techno-optimists such as the National Intelligence Council, which professes openness to dialogue. Productive conversations seem less likely with *The Economist* and other institutions wedded to free-market capitalism and conventional economic thinking, and seem virtually impossible with those who hear the siren call of technology innovation and easy “solutions” to our numerous global problems, especially because some new technologies may prove to be helpful.

Meanwhile, estimates of world population growth in 2050 continue to creep upwards every year, according to the annual **World Population Data Sheet** of the Washington-based Population Reference Bureau. In 2003, the projected population in 2050 was 9.198 billion. In the 2008 Data Sheet, world population rose to 9.352 billion. In the 2013 Data Sheet, the projection was expected to be 9.727 billion. This “estimate creep” is probably due to better health care and declining mortality rates. One might reasonably expect a projection of 10 billion people by 2050 to be made in the next three or four years—quite contrary to the 9 billion now assumed by *The Economist* (and many others) and the 8 billion or so assumed by Jorgen Randers. This “most likely” informed forecast for 2050 is not yet in anyone’s worldview, but it ought to be cause for further concern. Some 10% more population by 2050 than commonly assumed increases the urgency of forging and pursuing a shared vision for sustainability.

Now for the Long Term: The Report of the Oxford Martin Commission for Future Generations

*Oxford Martin Commission. Oxford UK: University of Oxford,
Oxford Martin School, Oct 2013, 85p. (download for free at www.oxfordmartin.ox.ac.uk).*

1. Background

James Martin (1933-2013) was the respected author or co-author of more than a hundred books, including **The Computerized Society** (Prentice-Hall, 1970), **The Wired Society** (Prentice-Hall, 1977), and **The Meaning of the 21st Century: A Vital Blueprint for Ensuring Our Future** (Riverhead/Penguin, 2006). In 2005, he founded the James Martin 21st Century School at the University of Oxford, re-named in 2010 as the Oxford Martin School, which currently supports over 30 research teams and over 300 scholars across the University, addressing “some of the biggest questions that concern our future.” Martin was elected as a Fellow of the World Academy of Art and Science in 2007.

The Oxford Martin Commission, chaired by Pascal Lamy (former WTO Director-General), has 18 other members: Michelle Bachelet (former President of Chile), Lionel Barber (Editor, *The Financial Times*), Roland Berger, Ian Goldin (Director, Oxford Martin School), Arianna Huffington (*Huffington Post*), Mo Ibrahim (Mo Ibrahim Foundation), Luiz Felipe Lampreia (Brazil), Liu He (China), Kishore Mahbubani (Dean, National University of Singapore), Trevor Manuel (South Africa), Julia Marton-Lefevre (Director-General, IUCN), Nandan Nilekani (former CEO, Infosys), Chris Patten (Chancellor, University of Oxford), Peter Piot, Martin Rees (former President, The Royal Society), Amartya Sen (Harvard University), Nicholas Stern (President, The British Academy), and Jean-Claude Trichet (former President, European Central Bank).

The Commission focuses on “the increasing short-termism of modern politics and our collective inability to break the gridlock which undermines attempts to address the biggest challenges that will shape our future” (p.6). The case for action is built in three parts: **Possible Futures**, identifying key “megatrend” drivers of change and how to address five categories of resultant challenges; **Responsible Futures**, on historical drivers of transformative change, previous examples of where impediments to action have been overcome, and lessons from where progress has been stalled; **Practical Futures**, on five principles for action that advance the interests of future generations and “how we can build a sustainable, inclusive, and resilient future for all.” The Report is backed up by a whopping 551 references, including recent reports from WTO, OECD, IEA, IPCC, IUCN, ILO, NIC, WHO, World Bank, Transparency International, and McKinsey Global Institute. According to the Oxford Martin School website, the “Future Generations” report was downloaded >500,000 times in >130 countries by the end of November 2013!

2. Introduction

Our world has experienced a sustained period of positive change such that “Now is the best time in history to be alive.” However, while the future is full of opportunity from the

advances of recent decades, it is also highly uncertain and characterized by growing systemic risks, in many cases the consequences of our success. Given the scale of the challenges—such as plundering of our planet’s natural capital, growing inequality, and potentially devastating results of accidental or deliberate use of new technologies—we need more attention to the future and a more far-sighted attitude. *“In an increasingly integrated and hyper-connected world, our individual future depends more than ever on our collective future and our capacity to work together to deepen our understanding of the critical challenges. We need to ensure that we have the skills, tools, institutions and social fabric necessary to navigate safely through the hazardous fog of the future”* (p.9; emphasis added).

Governing requires a dual vision: a commitment to address current needs, and to build the foundations for vibrant generations in the decades ahead. This responsibility relates to future generations and “a broader societal ideal of trusteeship that requires us to leave the world better than we find it” (p.9). Given advances in knowledge, we are more aware than ever of the implications of our actions on future generations. “And we could arguably be amongst the last generations able to do anything to stop the long-term devastation of our planet. Soon it may be too late... Changing course towards the longer term requires society to devote sustained attention to the transformational changes which will characterize our lifetimes” (p.10).

3. Part A: Possible Futures

Megatrends are grouped under seven highly interactive headings, all underpinned by globalization:

1. *Demographics*: continued world population growth, aging nations;
2. *Mobility*: migration and urbanization, rise of the middle class in the next 40 years along with more consumption, more empowerment through education;
3. *Society*: a steady decline in poverty rates but rising inequality, generational and gender divides (one-third of the world labor force is poor or unemployed);
4. *Geopolitics*: rise of developing countries, more networks that transcend state boundaries, a global marketplace with world merchandise trade at \$18.2 trillion in 2011, nearly four times as many states as in 1945, growing influence of international law, decline of violence although potentially devastating tensions still simmer, growing concern about cyber or biological warfare;
5. *Sustainability*: an emerging “perfect storm” associated with water/food/energy and climate change as a risk enhancer, 2 of every 3 countries to be water-stressed by 2025, extreme weather events expected to increase with great regional variation;
6. *Health*: the growing threat of NCDs (non-communicable diseases such as diabetes and cancer), new and re-emerging infectious diseases as up to 2 billion people will live in slums by 2030, increasing levels of dementia and mental illness;
7. *Technology*: the information revolution creating a faster and smarter world, the Internet as key driver of global connectivity but exacerbating inequality, our carbon-based

energy and transport system as evidence of “technological lock-in,” the pace of technology change as “an accelerating race into the unknown,” technology as double-edged sword.

“Crisis is often a stimulant for action .”

These megatrends present extraordinary opportunities, but also generate acute risks and challenges. Five areas where action is imperative:

1. *Society*: boosting youth employment, empowering women, reducing inequality;
2. *Resources*: tackling climate change, improved climate modeling, generating green growth and resource security, valuing biodiversity and ecosystem services, reducing excessive consumption, a global carbon price, a “Manhattan Project” for new energy;
3. *Health*: risk prevention for NCDs such as obesity is highly cost-effective but no single action is sufficient, providing better access to cheaper drugs, new and reinvigorated avenues of cooperation to stem the burden of disease, incentives to encourage new innovations, measurable targets for reducing NCDs;
4. *Geopolitics*: more international cooperation due to rise of unconventional security threats, the US-China relationship should not be seen as a threat (they should work together to set a safer and more sustainable course); *“More global conversations, less anachronistic policies, and an agreed global ethic are essential for a one-world theory to emerge triumphant”* (p.31, emphasis added), long-overdue reform of 20th century global governance institutions, modernizing trade by cutting customs’ red tape, completing the Doha package to renew global trade, continued development of rules for cybercrime and cyberwar;
5. *Governance*: improving transparency in extractive industries, targeting corruption as an impediment to good governance, more transparency on tax evasion and tax havens, “systemic reform of the current capitalist growth model,” upgrading agreement on a common legal and rights language, improving baseline governance indicators, making information available in as many formats and institutions as possible, realigning business incentives towards a longer horizon.

4. Part B: Responsible Futures

“The scale of today’s challenges means countries and organizations must enhance, and prioritize, their capacity to think and act with a longer-term perspective...in Part B, we aim to shed light on why gridlock prevails where action is imperative...to understand the factors that are undermining political will to act, despite the urgency and extent of the problems.” (p.37) Key lessons are distilled from historical examples where impediments to action have been successfully overcome. Elements that contribute to success:

- *Crisis* is often a stimulant for action, e.g., the Limited Test Ban Treaty of 1963, the Non-Proliferation Treaty of 1968, the G-20 arising from the 2008 global financial crisis, establishing
- The Financial Stability Board in 2009 and the International Criminal Court in 2002; the Year 2000 Network set up to counter Y2K threats which proved overstated.

- *Mutual Interests* have long been a key ingredient of cooperation and progress, illustrated by the Single Market Programme in Europe, and the 1989 Montreal Protocol to prevent ozone depletion.
- *Leadership* can be decisive in translating shared interests into definitive action, e.g., the achievements of Nelson Mandela, Mahatma Gandhi, Winston Churchill, and Martin Luther King Jr; leadership by Gro Harlem Brundtland played an important role in ratifying the Framework Convention on Tobacco Control in 2003 as the world's first global public health treaty.
- *Inclusion* characterizes many prominent interventions such as the UN, the 1948 Universal Declaration of Human Rights, and creation of the G-20.
- *Networks* counter the paradox of globalization, providing more governance on a global and regional scale without centralization of power and coercive authority; they facilitate equal and open dialogue and trust between participants.
- *Partnerships* bring together stakeholders from government, business, academia, and civil society, e.g.: the IPCC established in 1988 and the Global Alliance for Vaccines and Immunizations.
- *Goals, Prizes, and Indexes* can play an important role in promoting best practice, e.g.: the Virgin Earth Challenge, the Shell Springboard, Transparency International's Corruption Perceptions Index, the Mo Ibrahim Index of African Governance, and the Global Competitiveness Report of the World Economic Forum.
- *National Transformation* offers lessons about progressive interventions on the national level, e.g. South Africa's 1995 Truth and Reconciliation Commission and South Korea's turnaround since the 1960s.

While celebrating these successes, it is also vital to reflect on lessons from many failures:

- *Tragedy of the Commons* when actors seek to maximize consumption of a scarce resource, e.g. the shrinking of the Aral Sea to 10% of its original size by 2007, and the rapid increase in global fishing that has led to the decline of marine biodiversity and compromised ocean resilience.
- *Lack of Intergenerational Vision* as illustrated by disappointing outcomes at the 2009 UN climate change negotiations in Copenhagen and the Rio+20 Summit in 2012.
- *Absence of Global Oversight*, notably during the financial crisis.
- *Resistance of Vested Interests*, notably major tobacco corporations and coal and oil interests.
- *Lack of Awareness* of critical issues; too much information can cloud public judgment and make people more passive; also, too many conversations are closed to too many people.

In sum, what makes change so hard? Five shaping factors must be taken into account:

- *Institutions* built for yesterday, that suffer from legitimacy, authority, and effectiveness deficits;
- today’s global governance institutions seem unfit to address far more complex and interconnected challenges within their current configurations and cultures; also, coming to agreement has become more fraught because the number of actors and voices has multiplied on the international stage (this raises questions about the efficacy of world summits).
- *Embedded Short-Termism* increasingly driving our politics and business; performance metrics and quarterly earnings targets encourage a focus on short-term stock prices; this can be countered by a whole-of-government approach to long-term planning and various foresight institutions such as Finland’s Committee for the Future and the proposal by the World Future Council for an International Ombudsperson for Future Generations.
- *Political Engagement and Public Trust*: engaging young people in politics is vital, yet they are less and less interested in party politics and politics more generally, and increasingly disillusioned with politics as usual and mistrusting leadership, aided by changes in the media and a reduced number of independent journalists and reporting resources.
- *Growing Complexity*: issues are becoming more complex as we see an accelerated pace of change, with many human activities increasingly driving the Earth’s system toward dangerous thresholds or tipping points; “there is remarkably limited comprehension or acknowledgement of the scale, urgency, and connectivity of the problems” (p.52); whereas insurance is widespread against personal risks, uncertainty about climate change is used as an excuse not to act.
- *Cultural Biases*: countries lack the capacity to speak to each other openly; what is lacking is a bedrock of common values to create a shared ambition for civilization; hyper-globalization has transformed the core of modern societies, creating both opportunities and tensions, but this does not mean that thinking on the big issues is shared; culture does not explain everything, but it often orients the prism through which we interpret and formulate beliefs.

“What is lacking is a bedrock of common values to create a shared ambition for civilization.”

5. Part C: Practical Futures: Principles and Recommendations

“Fresh thinking is urgently required in order to address critical global challenges and prevent future crises...we aim to contribute meaningfully to the necessary strategic and institutional renewal” (p.57). Five key principles are used to organize the recommendations, which can guide action and institutional change:

1. *Creative Coalitions*: multi-stakeholder partnerships to prompt learning and deeper change, e.g. a) the fight against climate change can be kick-started by a “C20-C30-C40”

- coalition that brings together the G-20 countries, 30 selected companies, and 40 large cities; b) a “CyberEx” initiative to identify emerging common threats regarding cyber security while helping companies and governments to minimize future attacks; c) a global network of “Fit Cities” dedicated to fighting the rise of NDCs;
2. *Innovative, Open and Reinvigorated Institutions*: a) 21st century institutions independent of short-term pressures of governing and the 24/7 media cycle, which conduct systematic reviews of longer-term issues; b) build sunset clauses into most publicly-funded international institutions and require a review of accomplishments, to ensure regular reflection of organizational performance and purpose and steering toward long-term resilience; c) optimize new forms of political participation, transparency, and accountability; d) establish “Worldstat” to undertake quality control of global statistics, assess domestic practices, regulate misuse, and improve data collection (this could hasten the ideas of the 2009 Commission on the Measurement of Economic Performance and Social Progress; see Joseph Stiglitz et al, **Mismeasuring Our Lives: Why GDP Doesn’t Add Up** The New Press, 2010); e) establish a Voluntary World Taxation and Regulatory Exchange to harmonize corporate taxation arrangements and encourage multinationals to disclose their tax planning and transfer pricing arrangements;
 3. *Revalue the Future*: a) adjust political, legal, and economic structures in favor of future generations; b) give priority to proposals made by the Group of 30 on Long-term Finance, especially long-term accounting frameworks; c) give greater attention to “the considerable implications generated by assumptions in current discounting models and their bias against future generations”; the discount rate should be lower, rather than higher; discounting should embrace “a more sophisticated appreciation of the role of ethics, risk, and the scale of possible damages in the future” (p.61); d) invest in people by removing price-distorting perverse subsidies on hydrocarbons and agriculture, with support re-directed to targeted pro-poor transfer; e) develop a Long-Term Impact Index to highlight the importance of investing in appropriate infrastructure and decision-making processes that enhance long-term resilience and inclusiveness.
 4. *Invest in Younger Generations*: a) break the inter-generational persistence of poverty through social protection measures such as conditional cash transfer programs (evidence from countries such as Brazil, South Africa, and Mexico suggests that cash transfers can reduce child poverty); b) create new employment and training opportunities for young people through “youth guarantee programs” available to all between, say, 15 and 29 years old, based on successful programs in Germany, the Netherlands, Poland, Sweden, etc. that enable a smooth transition from education to work and prevent long-term unemployment.
 5. *Establish a Common Platform of Understanding*: a) articulate a common global vision and ambition to create global belonging among citizens, building on aspirations of the UN Charter, etc.

Concludes that, “As a Commission, we will continue to engage with governments, businesses, NGOs, and civil society in order to take our recommendations forward... By so

doing, we hope that together we can contribute to the construction of a sustainable world for current and future generations. We invite you to engage with us on these issues” (p.65).

COMMENT

This is a *very* sophisticated and important report—a model of multi-disciplinary integration—that covers a lot of ground, with “future generations” as just one of several important themes. Unfortunately, the three parts should have had better labels. Part A on “Possible Futures” is more appropriately seen as “*Megatrends and Needed Actions.*” The excellent Part B on “Responsible Futures” would be better described as “*Previous Successes and Barriers to Change.*” Part C entitled “Practical Futures” should have stressed the sub-title re-formed as “*Principles and Proposals for a Sustainable World.*”

The stark contrast with **Global Trends 2030** from America’s National Intelligence Council is illuminating (see GFB Book of the Month, Feb 2013; also a unique Special Issue of the World Future Society’s *World Future Review*, 5:4, Winter 2013, entitled “**The NIC’s Global Trends 2030 Report: Comments and Critiques,**” featuring 13 varied responses by experienced general futurists).

Whereas Oxford Martin and GT-2030 both start out with a set of “megatrends” that are largely similar, the reports diverge sharply after that: the former is strongly *prescriptive*, while the latter is strictly *descriptive*. The GT-2030 report does include a discussion of problem areas trendily mislabeled as “game-changers,” an overly brief discussion of wild cards (trendily labeled as “Black Swans”) and four “Alternative Worlds” scenarios with little or no relation to the Oxford Martin proposals for a better and more sustainable world (the NIC makes no mention of “sustainability,” and egregiously downgrades the risks of climate change). The important lesson here is that scenarios are not necessarily helpful, and can too easily be an amusing but fanciful distraction from articulating what is really needed and how to get there. As a government agency concerned with security, NIC is in no position to make strongly prescriptive comments. But the Oxford Martin proposals could be embodied in a future NIC scenario, if NIC is up for it and truly serious about security and well-being.

It is heartening that the Commission seeks to “take our recommendations forward” and the Oxford Martin School has the extensive financial and intellectual resources to do so. Perhaps this effort, in contrast to many smaller and poorly-funded efforts in recent decades to promote foresight and futures-thinking, can spark greater interest in broad and long-term perspectives for the public good, at a time when they are needed more than ever. If an update to the Commission report is to be made, however, greater attention should be paid to the print and electronic media (which favors sensation, entertainment, “nowness,” and political personalities over policy) and to higher education (still characterized by too much specialized trivia and fragmentation). Together, these two sectors may prove to be the most important barrier to a “common global vision” and enhancing “our capacity to work together.”

For the historical record, an earlier effort (not among the 551 footnotes of the Oxford Martin Commission) should be noted: **Why Future Generations Now?** (1994, 159p in English and Japanese), from the Institute for the Integrated Study of Future Generations,

with theoretical and moral arguments by Sakae Shimizu (Chairman, Kyoto Forum), Katsuhiko Yazaki (Chairman, Future Generations Alliance Foundation), Kim Tae-Chang (President, IISFG), Wendell Bell (Yale University), Emmanuel Agius (University of Malta; editor, *Future Generations Journal*), Allen Tough (OISE, University of Toronto), and Rick Slaughter (Futures Study Centre, Melbourne).

Security and Sustainability

We can have no security without sustainability. And we can have no sustainability without security. Both security and sustainability are broad and expanding areas of policy concern.

Increasingly, they are overlapping, and it is valuable that they should be seen as such. Many recent books suggest the expansion and overlap of these concerns. Some of the more noteworthy are highlighted below.

1. “Conventional” Security Concerns

The central concern of the Cold War era was nuclear weapons, and this threat has by no means disappeared. *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon* (Georgetown University Press, Dec 2012, 256p) notes the increasing potency of nuclear arsenals and the potential for more states to cross the nuclear weapons threshold. Adding to this threat, *Preventing a Biochemical Arms Race* (Stanford University Press, Oct 2012, 256p) warns that changes in the life sciences and the nature of warfare could lead to a biochemical arms race among major powers, rogue states, and non-state actors. This is complicated by small arms proliferation, as described in *Small Arms Survey 2012: Moving Targets* (Cambridge University Press, Oct 2012, 374p); *The New American Militarism: How Americans Are Seduced by War* (Oxford University Press, 2nd edition, April 2013, 304p), which notes a revival of vast national ambitions coupled with a pronounced “affinity for the sword” (not to mention small arms for individuals); the private sector taking over some military functions as described in *Privatizing War: Private Military and Security Companies under Public International Law* (Cambridge University Press, March 2013, 768p); and *Lone Wolf Terrorism: Understanding the Growing Threat* (Prometheus Books, Feb 2013, 335p), exemplified by the Boston Marathon bombings. Another new form of terrorism, inadvertently inflicted by the US, is *Living Under Drones: Death, Injury and Trauma to Civilians from US Drone Practices in Pakistan* (Oct 2012, 260p; www.livingunderdrones.org), a report from the Stanford and New York University Law Clinics suggesting that drone strikes appear to be making the US less safe in the long term, by fueling anti-US sentiments and recruiting new terrorists.

2. Cyber-Security

Adding to the unsettling developments, above is the emerging cyber threat, as summarized by *Securing Cyberspace: A New Domain for National Security* (Aspen Institute/Brookings, 2012, 202p), which looks at cyberspace as a new battlefield and the threats of cybercrime. *The World of Cybercrime: Issues, Cases, and Responses* (Rowman and Littlefield, Dec 2012, five volumes) covers all major areas in the world of cybercrime. *Cyber Defense: Countering Targeted Attacks* (Government Institutes, 2011, 240p) explains why targeted attacks require changes to security operation. *Fatal System Error: The Hunt for the New Crime Lords Who Are Bringing Down the Internet* (Public Affairs, Feb 2010, 288p; www.fserror.com) describes the evolution of cybercrime to sophisticated organized gangs. *Global Governance*

and the Challenge of Transnational Organized Crime (Center for International Governance Innovation, Dec 2012, 21p) reports that “TOC” is becoming a global priority. *The New Digital Age: Reshaping the Future of People, Nations, and Business* (Knopf, April 2013, 337p), by former Google CEO Eric Schmidt and Google Ideas director Jared Cohen, warns that dozens of states will have the capacity to launch large-scale cyber-attacks, revolutions for better and worse will be more frequent as connectivity spreads, and that there are clear advantages of cyber attacks for extremist groups, inflicting massive damage with minimal resources. With a plethora of threats and strong differences of opinion regarding their intensity and likelihood, especially regarding cyber-attacks and cyber-espionage, the intelligence function becomes increasingly complicated, as described in *The Future of Intelligence: Challenges in the 21st Century* (Routledge, Oct 2013, 240p).

3. Food Security

The broad-ranging concept of “human security,” promoted by the UN Development Programme, has grown in importance in the past 15 years, as described in *The Routledge Handbook of Human Security* (Routledge, July 2013, 384p). A major component of human security is the emerging concern for food security, as described by Lester R. Brown in *Full Planet, Empty Plates: The New Geopolitics of Food Security* (W.W. Norton, Oct 2012, 144p), who sees the world in transition from an era of food abundance to one of scarcity. Also see *Food Security: From Crisis to Global Governance* (Routledge, Aug 2013), which looks at strategies for achieving food security, including reforming the Committee on World Food Security. *The Global Farms Race: Land Grabs, Agricultural Investment, and the Scramble for Food Security* (Island Press, Oct 2012, 272p) describes how wealthy countries are racing to buy or lease huge swaths of farmland abroad. *Green Grabbing: A New Appropriation of Nature* (Routledge, April 2013, 416p) shows that some land grabs are done for “environmental” purposes to justify appropriations for food or fuel. In any event, no matter who owns or occupies the land, the *Handbook on Climate Change and Agriculture* (Edward Elgar, 2012, 544p) warns that climate change is likely to have an extensive impact on agriculture around the world, leading to uncertainty and security concerns for crops.

4. Environmental Security and Sustainability

Environmental Security: Approaches and Issues (Routledge, Jan 2013, 302p) points to the emerging field of “environmental security studies”; as described by political scientist Dennis Pirages, the outmoded national security paradigm is “a major obstacle to dealing with growing ecological security threats.” Many recent books and reports discuss these threats, but not explicitly as a security concern. For example, *Global Environmental Outlook 5* (UN Environmental Programme, June 2012, 515p) warns that human pressures on the Earth System may pass critical thresholds and change life support systems of the planet. *OECD Environmental Outlook to 2050* (OECD, March 2012, 350p) focuses on four “red light” areas of climate change, biodiversity, water, and health. *Overheated: The Human Cost of Climate Change* (Oxford University Press, Feb 2013, 280p) warns of a first-order social and political disaster ahead. *The Climate Bonus: Co-Benefits of Climate Policy* (Earthscan /

Routledge, Jan 2013, 408p; *GFB Book of the Month, May 2013*) mentions only energy security in its extensive overview of desirable changes to a low-carbon society. Al Gore's *The Future: Six Drivers of Global Change* (Random House, Feb 2013; *GFB Book of the Month, April 2013*) offers an extensive discussion of "outgrowth" of humans to natural resources, as well as the deepening climate crisis, but this is not linked to security concerns. *Climate Change and National Security* (Georgetown University Press, 2011, 310p; *GFB Book of the Month, March 2013*), however, explicitly links climate changes to national security concerns in 19 nations, and the outlook is quite grim in most of them. *Crisis of Global Sustainability* (Earthscan / Routledge, Feb 2013, 188p) calls for immediate and drastic change in our institutions and policies. *Divided Nations: Why Global Governance is Failing* (Oxford University Press, May 2013, 207p) considers the inadequacy of post-WWII institutions in dealing not only with climate change, but with finance, pandemics, migration, and cyber-security. *Global Environmental Governance Reconsidered* (Boston Review/MIT Press, Sept 2012, 320p) addresses emergence of non-state actors, new mechanisms of global governance, and the fragmentation of authority.

The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies

Erik Brynjolfsson and Andrew McAfee (both MIT Center for Digital Business).

NY: W. W. Norton, Jan 2014, 306p, \$26.95. (www.secondmachineage.com)

On the surface, this is a very important book about present and future technologies, jobs, and growing inequality. It is clearly written, plausible, and well-documented. Although oriented to American audiences, it has global import in our globalizing age. It is not directly about security and sustainability (neither term is in the index), although the book could illuminate both concerns, as technology continues its inexorable advance, for better *and* worse.

The first machine age brought the Industrial Revolution: the sum of several near simultaneous developments in mechanical engineering, chemistry, metallurgy, etc. The most important technology was the steam engine, which overcame limitations of human and animal muscle power, leading to factories, mass production, railways, and mass transport.

“Now comes the second machine age. Computers and other digital advances are doing for mental power—the ability to use our brains to understand and shape our environment—what the steam engine and its descendants did for muscle power” (pp.7-8). How this transition will play out is unknown, but it is “a very big deal,” for mental power is at least as important for progress and development as physical power.

1. Three Broad Observations

1. **Rapid Progress Ahead.** “We’re living in a time of astonishing progress with digital technologies”— those that have computer hardware, software, and networks at their core. Just as it took generations to improve the steam engine, it has also taken time to refine our digital engines. The full force of these technologies has only recently been achieved, yet computers will continue to improve and do new and unprecedented things. “Full force” simply means that key building blocks are now in place. In short, “we’re at an inflection point” where the curve starts to bend a lot.
2. **Profound Benefit.** “The transformations brought about by digital technology will be profoundly beneficial ones.” The new era will be better because we’ll be able to increase the variety and the volume of our consumption. “Technology can bring us more choice and even freedom,” and technical progress is improving exponentially.
3. **Tough Challenges.** Digitization will bring with it some thorny challenges, notably economic disruption, because, as computers get more powerful, employers will have less need for some kinds of workers. “*Technological progress is going to leave behind some people, perhaps even a lot of people, as it races ahead.*” (p.11, italics added). The challenges of the digital revolution can be met, but we first have to be clear on what they are, and to discuss the likely negative consequences. They’re not insurmountable, but they won’t fix themselves.

2. Recent Technological Progress

Six chapters enthusiastically discuss the skills of the new machines (self-driving cars from Google's Chauffeur project, instantaneous translation from IBM's GeoFluent and Google Translate, acceleration in robotics, 3D printing used by many companies to make prototypes and model parts), why Moore's Law has held up for so long (brilliant tinkering leading to constant modification), the digitization of just about everything, the fundamental importance of innovation for growth and prosperity, why innovation and productivity will continue to grow at healthy rates in the future, the life-changing potential of Artificial Intelligence (bringing key aspects of sight to the visually impaired, restoring hearing to the deaf, AI-aided diagnoses in some medical specialties).

Echoing the optimism of the late Julian Simon, the authors exclaim that "there is no better resource for improving the world and bettering the state of humanity than the world's humans... Our good ideas and innovations will address the challenges that arise, improve the quality of our lives, allow us to live more lightly on the planet, and help us take better care of one another. It is a remarkable and unmistakable fact that, with the exception of climate change, virtually all environmental, social, and individual indicators of health have improved over time, even as human population has increased" (p.93). But the main impediment to more progress has been that, until quite recently, many people had no effective way to access the world's knowledge. This situation is rapidly changing with the advent of mobile phones, bringing billions of people into the community of potential knowledge creators, innovators, and problem-solvers.

3. Bounty and Spread

The next five chapters explore the two economic consequences of this progress: *bounty* (the increase in volume, variety, and quality and the decrease in cost of the many offerings of modern technology) and *spread* (the ever-bigger differences among people in income and wealth, likely to accelerate unless we intervene). Topics include marked increases in productivity growth, zero-price products and services not reflected in GDP (e.g. over one million apps on smartphones, Wikipedia, free classifieds on Craigslist, free phone calls on Skype), the ubiquitous bounty of digital photographs, intangibles as a growing share of capital assets (intellectual property, organizational capital, user-generated content, and especially human capital), and the need for "new metrics" other than GDP in the second machine age.

But growing inequality or spread is a major problem. The authors discuss decoupling of median wages from productivity (the bottom 80% of the US income distribution saw a net decrease in their wealth since 1983), increased earnings of the top 1% by 278% between 1979 and 2007 while overall median income has fallen since 1999, economic winners and losers ("digital technologies increase the economic payoff to winners while others become less essential and hence less well rewarded"), the evolving skill set affected by computerization, stars and superstars as the biggest winners due to "winner-take-all" markets (the top 0.01% saw their share of national income double from 3% to 6% between 1995 and 2007), why winner-take-all markets are more common now (digital goods have enormous economies of

scale), the questionable “strong bounty” argument that it will overwhelm the spread and thus no need to worry (“we wish that were the case, but it’s not”), technological unemployment despite a growing economy (but most mainstream economists still argue that technology creates more jobs than it destroys), and globalization. *“In the long run, the biggest effect of automation is likely to be on workers not in America and other developed nations, but rather in developing nations that currently rely on low-cost labor for their competitive advantage”* (p.184). The advantage of low wages largely disappears by installing robots and other types of automation; “offshoring is often only a way station on the road to automation.”

4. Labor Force Remedies

1. **Individuals.** “Our most fundamental recommendations to students and their parents: study hard, using technology and all other available resources to ‘fill up your toolkit’ and acquire skills and abilities that will be needed in the second machine age” (p.199). Learn to race with machines. A college degree remains a vital stepping stone to most careers. Most professions still require the skills of ideation, large-frame pattern recognition, and complex communication. “As the labor market polarizes more and the middle class continues to hollow out, people who were previously doing mid-skill knowledge work start going after jobs lower on the skill and wage ladder...this puts downward pressure on wages” (p.202). More surprises are in store, and “it’s becoming harder and harder to have confidence that any given task will be indefinitely resistant to automation” (p.203).
2. **National Policies.** The best way to tackle labor force challenges is to grow the economy. To do so, we should teach children well, put digital technology to work (e.g. MOOCs enable low-cost replication of the best teachers, content, and methods), “flip the classroom” by having students listen to lectures at home and do traditional homework at school, raise teacher salaries, lengthen school hours and the school year, champion the innovation engine of entrepreneurship (the best way to create jobs and opportunity), improve matches between jobs and people, support basic research, institute prizes for innovation, upgrade US infrastructure to acceptable levels (one of the best investments the country can make), reform counterproductive immigration policy (of benefit not only to immigrants but to the economy), tax wisely (most economists advocate “Pigovian” taxes on pollution and other negative externalities; also, a value-added tax and higher taxes on high earners).
3. **Long-Term Policies.** Reward employment instead of taxing it; some form of basic income guarantee can help, but better still is a negative income tax that provides an incentive to work. Also, we will need some radical “out-of-the-box” ideas, e.g.:
 - A national mutual fund distributing ownership of capital widely;
 - Directing technical change toward machines that augment human ability rather than substitute for it;
 - Paying people to do socially beneficial tasks;

- Nurturing special categories of work to be done by humans only (e.g. caring for the young and old);
- Awarding credits to companies that employ humans, similar to carbon offsets that can be purchased;
- Providing vouchers for basic necessities like food, clothing, and housing;
- Ramping up government programs like the depression-era Civilian Conservation Corps to clean up the environment and build infrastructure.

[NOTE: Not mentioned but well worth adding to this list are job-sharing programs that match the over-worked with the under-worked, promoting quality part-time work with better benefits (another form of job-sharing), and perhaps encouraging semi-self-sufficiency, e.g. with urban agriculture programs and homesteading. See **Work Sharing During the Great Recession**; International Labor Office, May 2013.]

“Technology is not destiny. We shape our destiny.”

— Erik Brynjolfsson & Andrew McAfee

5. Other Long-term Prospects and Problems

The final chapter emphasizes that the new technologies are exponential and combinatorial, with most of the gains still ahead. Growing even faster than Moore’s Law, “in the next 24 months, the planet will add more computer power than it did in all previous history; over the next 24 years, the increase will likely be over a thousand-fold” (p.251). Our generation will likely experience “two of the most amazing events in history: the creation of true machine intelligence and the connection of all humans via a common digital network, transforming the planet’s economics.” But not all the news is good, because, “*while the bounty brought by technology is increasing, so is the spread.*” And this is not the only possible negative consequence.

As we move deeper into the second machine age, “perils from both accident and malice will become greater, while material wants and needs are likely to be relatively less important.” We will be increasingly concerned with questions about catastrophic events, genuine existential risks, freedom vs. tyranny, etc. The sheer density and complexity of our digital world bring risks and weaknesses: 1) the digital world is subject to minor initial flaws that cascade via an unpredictable sequence into something much larger and more damaging; 2) tightly-coupled complex systems make tempting targets for spies, criminals, and terrorists (“until recently, our species did not have the ability to destroy itself; today it does”); 3) there are myriad other ways that technology can have unexpected side effects, e.g. addictive gambling, digital distractions, cyber-balkanization of interest groups, social isolation, and environmental degradation; 4) development of fully conscious machines may bring a dystopian “terminator” future, or a utopian singularity; “we honestly don’t know; as with all things digital, it’s wise never to say never, but we still have a long way to go.” (p.255)

“In the second machine age, we need to think much more deeply about what it is we really want and what we value, both as individuals and as a society... Technology is not destiny. We shape our destiny” (Final paragraph, p.257).

COMMENT: IS THIS “REALLY BIG DEAL” WHAT WE NEED?

The Second Machine Age has much in common with several other recent “techno-ecstatic” books on the new digital technology, notably **The New Digital Age** by Eric Schmidt and Jared Cohen, **Big Data: A Revolution That Will Transform How We Live, Work, and Think** by Viktor Mayer-Schonberger and Kenneth Cukier, and **Abundance: The Future Is Better Than You Think** by Peter Diamandis and Steven Kotler (GFB Book of the Month, Aug 2012). All four books promise a better world ahead. Diamandis and Kotler make no qualifications at all, but simply enthuse that, within a generation “abundance for all is actually within our grasp,” with no mention of how it will be distributed. The promise of “big data” is hyped in the book’s sub-title, with no downsides of infoglut considered. “Googlers” Schmidt and Cohen state that everyone will benefit in the new digital age, but not equally—which is a slight improvement in sobriety.

The importance of Brynjolfsson and McAfee is that they forthrightly venture into the economics of the new digital era, linking the new technologies to the widely-appreciated fact of growing inequality. Although they state that the transformations ahead will be “profoundly beneficial,” they also grapple with the “thorny challenges” of technological unemployment and uneven “spread” of the “bounty,” with two chapters of suggestions on how to tackle labor force challenges. The authors state that we *can* face up to these challenges, even as the spread accelerates—which they deem likely. But, seriously, folks, how likely is it that Americans and other developed nations will do so to any meaningful degree? Similarly, the Worldwatch Institute says that sustainability is still possible if we do everything right starting now (**Is Sustainability Still Possible?** GFB Book of the Month, Oct 2013), but how likely is that?

The authors mention only in passing that the biggest effect of technological displacement of jobs will be on the developing nations (p.184), which parallels the unfortunate megatrend that the biggest negative impacts of climate change, largely caused by the rich nations, will also impact the poorest nations. And they don’t consider the declining quality of many jobs as a result of economic restructuring (e.g., see David Weil, **The Fissured Workplace: Why Work Becomes So Bad For So Many**), or the impact of the new technologies on politics. **The New Digital Age** does consider politics, noting more “revolutions” ahead for better or worse by newly enlightened and connected citizens—especially angry young people who are unemployed or underemployed as a result of the new technologies. We can already see roiling civic discontent in a dozen or so countries worldwide, which does not necessarily lead to better leadership, policies, or jobs (e.g., see **Global Employment Trends for Youth: A Generation at Risk**; International Labor Office, Aug 2013).

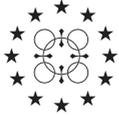
Brynjolfsson and McAfee conclude that “we need to think much more deeply about what it is we really want and really value.” We *also* need to think more deeply, widely, and rigorously about current social, economic, and environmental trends and possible developments,

as well as the “brilliant technologies” that are driving them. How much and what kind of bounty are we really getting, and at what cost to whom, all things considered? We need nutritious food, potable water, safe and affordable energy, decent housing, adequate infrastructure, and security in many dimensions. But will the Second Machine Age provide more than marginal help in these essential areas? These basic needs are not addressed by Brynjolfsson and McAfee, who focus instead on the wonders of self-driving cars (perhaps important to those traveling to Silicon Valley on California’s congested highway 101) and on the flood of information now available worldwide (but not necessarily utilized, or beneficial, and too often a distraction).

The authors make a strong case that “a very big deal” is unfolding—that “we’re at an inflection point” where the curve starts to bend a lot. This may be overstated to some degree, but should not be ignored. Similarly, environmental scientists have been warning of various “tipping points” and “abrupt climate changes” ahead (e.g., **Abrupt Impacts of Climate Change**; GFB Book of the Month, Jan 2014). The difference in presentation is that the scientists are restrained in their assessments, often erring on the side of caution and trying not to express undue pessimism. In contrast, those who write about technological change are too often exuberant and overly optimistic. To its credit, **The Second Machine Age** does devote an entire chapter (“Beyond GDP,” pp 107-124) to discussing the deficiencies of the obsolete GDP measure of production and progress. It just doesn’t go far enough. “True growth is greater than the standard data suggest.” (p.119) But if the negatives are subtracted, overall net growth may be much less.

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- *Abstracts from “THE LIMITS TO CERTAINTY – Facing Risks in the New Service Economy” (2nd edition, Kluwer Academic Publishers, Dordrecht / Boston, 1993)*
- *Abstract from “DIALOGUE ON WEALTH AND WELFARE” (Pergamon Press, Oxford, 1980)*

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PUBLISHER

THE RISK INSTITUTE



On the basis of a voluntary network, partly supported by The Geneva Association, The Risk Institute was established in order to extend the studies on the issues of risk, vulnerability and uncertainties to the broader cultural, economic, social and political levels of modern society. It is now in the process of becoming established as a Foundation.

The starting point defining the programme of action was an informal meeting held in Paris in 1986. Among the participants were Raymond Barre, Fabio Padoa, Richard Piani, Edward Ploman, Alvin and Heidi Toffler and Orio Giarini.

A first report, by Orio Giarini and Walter Stahel, was published in 1989, reprinted in 1991 and revised in 1993, with the title *The Limits to Certainty — Managing Risks in the Modern Service Economy* (Kluwer Academic Publishers, Dordrecht, The Netherlands), with an introduction by Nobel Laureate Ilya Prigogine. It was also published in French, Italian, Romanian and Japanese. A completely new German version was published in 2000 with the title *Die Performance Gesellschaft* (Metropolis-Verlag, Marburg).

The book stresses the point that uncertainty is not just simply the result of inadequate or insufficient information. Every action extending into the future is by definition uncertain to varying degrees. Every ‘perfect system’ (or ideology) is a utopia, often a dangerous one: the total elimination of uncertainty in human societies implies the elimination of freedom. Learning and life are about the ability and capacity to cope, manage, face, contain and take advantage of risk and uncertainty.

In 2002, The Risk Institute published with Economica (Paris) the book *Itinéraire vers la retraite à 80 ans*. Ever since the The Risk Institute has been mainly concerned with a research programme on social and economic issues deriving from extending human life expectancy (usually and wrongly defined as the ‘ageing’ society), which is considered the most relevant social phenomenon of our times. This is particularly relevant in the context of the new service economy. The Risk Institute has contributed to the organisation of the conference on “Health, Ageing and Work” held in Trieste and Duino on 21-23 October 2004. Followed by a second conference on similar issues, in Turin, October 2007. On this basis, it has taken the initiative to publish from 2005 the EUROPEAN PAPERS ON THE NEW WELFARE — The Counter-Ageing Society, in two versions (one in English and one in Italian), both freely available on www.newwelfare.org.

In 2010 the Institute published in Italian *“Itinerario senza frontiere: dal Texas alla terza età”*. Furthermore it is now editing the CADMUS Papers.

The Risk Institute recently published Orio Giarini’s autobiography *“Itinerary to the Third Age”* in early 2014 which is available for purchase. If you wish to obtain a copy of the book, please email admin@worldacademy.org

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The editors welcome submission of proposals, articles, ideas, abstracts, reviews, letters and comments by Fellows of the World Academy of Art & Science, Members of the Club of Rome and Pugwash as well as invited and unsolicited articles from the public. All proposals are reviewed by the editorial board to determine their suitability for publication in Cadmus.

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- The article should not be one that naturally qualifies for publication in a more traditional journal devoted to a specialized discipline i.e. it should be multi- or trans-disciplinary in scope and implications
- The article should present an original perspective, conception or practical approach
- The article may be in the form of an essay of ideas, an annotated theoretical discussion or fact-based scientific evaluation of evidence. We accept all three.

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Submissions may be of any length but preference will be given to articles of 5-10 pages and shorter pieces of 1-3 pages.

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We encourage you to share any manuscript with us that you think might be what we are looking for.

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What is needed is an economic paradigm that is not confined to a single state or sovereign but a paradigm that functions within the context of a global social and political process and responds to the problems that emerge from this process from a global inclusive perspective.

Winston P. Nagan,
The Crisis of the Existing Global Paradigm of Governance and Political Economy

The question is: how can we design a system that will harness the collective intellectual and adaptive power of the human species?

Merlin Donald, The Digital Era: Challenges for the Modern Mind

New economic theory must ensure the termination of dysfunctional traditional standards and embrace new thinking.

Winston P. Nagan & Valeen Arena, Towards a Global Comprehensive Context-driven and Decision-focused Theory and Method for a New Political Economy

The classical education system was dominated by theory. Now, emphasis is being laid on *learning* through *experience* and on *work-based learning*.

Orio Giarini & Mircea Malitza, The Double Helix of Learning and Work

A truer measure of education is the awakening of the student's capacity to actively seek and acquire knowledge on one's own, to question and think independently, creatively and even originally.

Garry Jacobs, Towards a New Paradigm in Education

The problem of building a stable, just, and war-free world is difficult, but it is not impossible.

John Scales Avery, Lessons from World War I

The integration of wisdom from two centuries of economic thinking and the legitimate requirements of the ecological and environmental needs and demands should naturally find their synthesis in a new notion of value.

Orio Giarini, The Riches of the Ocean for Humankind

What is lacking is a bedrock of common values to create a shared ambition for civilization.

Michael Marien, Book Reviews

Every individual constitutes a network of immense potential. That explains why single individuals throughout history have exhibited a remarkable power to change the world.

Orio Giarini et al,
Expanding Network of Networks

The quantitative extension of access to free quality higher education made possible by the MOOCs is itself only the beginning of something far more important. The coming revolution will tear down the barriers that separate the ivory tower from the real world.

Alberto Zucconi & Garry Jacobs,
The Coming Revolution in Education

As quantum physics / theory of relativity provided explosion of surprises, so the forthcoming paradigm shift can produce an explosion of even richer surprises.

Ivo Šlaus,
Transition to a New Society

A new paradigm must necessarily be founded on a new conceptual framework. There is no shortcut.

Garry Jacobs,
New Paradigm: The Necessity and the Opportunity

Achieving the required level of global, systemic change will require political leadership, vision and courage, rather than an adaptive strategy of small steps, and a revitalized multilateral governance architecture adequate to meeting the interconnected challenges reflective of the 21st century.

Alexander Likhotal,
Environmental Acceptability as the Driver of New Civilization

We need holistic and long-term approaches and solutions. But our most important societal systems (capitalism and democracy) are built on short-term thinking, mechanisms and dynamics. Official reactions to our systemic challenges tend to be sectoral and not holistic.

Karl Wagner,
Change the World by Changing "Economics"

Continued . . .
