

Rodolfo A. FIORINI*

PERCEIVED UNCERTAINTIES AND POLITICAL SUPREMACY

Abstract: The Financial Times noted that the pattern in France latest election was echoed in the 2016 Brexit referendum, in the USA presidential election and in the recent Dutch election. The standard way of describing those political forces is “populist.” Populism means a politics of the people, juxtaposed against a politics of the elites. But in the USA at least, Trump’s ideology, which has little to do with traditional Republican conservatism, frames the axis of division not as the many versus the few, but as nationalists versus globalists. But there might be a deeper explanation. The incoming Western fourth industrial technology revolution will be a major cultural, social and economic revolution than a technical one, contributing to the exponential grow of “uncertainties” felt by people. As long as physical survival is perceived as uncertain, the desire for physical and economic security tends to take higher priority than democracy. Because of these uncertainties, industry will create reform on its own initiative to lead the world. From this perspective, it will be interesting to follow what will happen on the Eastern side of the world, to the Japan’s initiatives which fall under “Society 5.0” umbrella name. Japan has its particular challenges and just as Industry 4.0 is the digital transformation of manufacturing, Society 5.0 aims to tackle several challenges by going far beyond just the digitalization of the economy, towards the digitalization across all levels of the Japanese society and the (digital) transformation of society itself. In this paper, we bring to light some fundamental components, according to our personal experience, and formulated the proposal for a new understanding of them, at an effective scientific and operative level.

Key words: *super smart society, wellbeing society, Fourth Industrial Revolution, Society 5.0, ontological uncertainty, worldview, creativity, innovation, political supremacy, New Economic Theory, NET*

INTRODUCTION

At the beginning of the 2st century we are in an age that has been referred to in many ways, post-industrial (Bell, 1973), then post-modern (Lyotard, 1984), and most recently post-normal (Sardar, 2010, 2015). Terms such as “The Great

* Politecnico di Milano University

Turning”, the “Anthropocene Age” (where human beings are the major global cause of change), and “post-progress”, because of the lack of compelling views of the future (Montuori, 2013), have also gained in popularity. While many names and interpretations have been given to the current transformative moment, one way to frame it is as a form of global identity crisis. Transformation means change is not just occurring on the surface, but at the level of the basic tenets of an age’s worldview, what we might call its “deep structure.” In this time of transition, there is a need for new ways of making sense of the world.

This process requires a new approach to inquiry, and to the relationship between theory, action, reflection, and practice. In this transitional moment, it is necessary to understand where we are coming from, if only to have a sense of the way our current reality is informed by our own creations: the specific beliefs, assumptions, structures, institutions, customs, and traditions that were developed in our past. In order to understand transformation, we need to understand the extent to which history informs the way we think, know, feel, and act in the world. If efforts at transformative change are informed by the values and perspectives that informed the world that is no longer working, they are doomed to reproduce the conditions we seek to change.

In Europe, the French philosopher Edgar Morin has argued that we are experiencing a crisis of the future (Morin & Kern, 1999). A crisis of the future means there are no compelling, widely shared images of what a better future would look like, and therefore nothing to truly motivate people. Similar identity crises are happening in USA, in China and India, which have experienced a tremendous transformation in the last 30 years, as well as other emerging nations like Brazil. One of the key factors is the ever-increasing pluralism, and the lack of integrative factors. Fundamentalist movements of all stripes act as anti-pluralist forces for homogeneity (Montuori, 2005; Slater, 2008). One of the ways we can see how this transformative moment manifests in and as an identity crisis, is research suggesting that western countries have become “reinvention societies,” reinventing bodies, persons, careers, organizations, and communities (Elliott, 2013). Reinvention is about re-creating. This creativity does not have to manifest in earth-shattering revolutionary ideas, but in a greater response-ability, de-automatization and less unquestioned reliance on rote, habitual responses. It is the ability to participate with greater freedom and openness to change and the creation of more choices.

In this transformative moment, collaborative creativity and mutual leadership go hand in hand. In fact, leadership does not reside in a person but in an arena that can be occupied by offerings of specific wisdom to the needs of the community. So leadership is produced collectively in the community, not the individual. The individual’s responsibility is to be ready and willing to show up, serve, and then, most importantly, stand back. In the combination of community and individual, hardship and support, isolation and belonging, past and future, vision and discipline, there can arise a perfect storm that produces what we have, in the past, called leaders. Being part of a system requires knowing that whatever happens is an expression of the patterns that entire system is involved in; that means, there is no fault, and everyone is responsible. No blame. Everyone must contribute to

the shift. In the ecology of the interdependence of our world, the individualistic idea is wildly out of sync. With blame, as with praise, the causation becomes singular and linear. The problems we face nowadays are neither singular nor linear. So the solutions won't be either. Meeting unknown circumstances requires rapid and spontaneous learning. In the case of today's leadership needs, that learning is mutual. Our challenge in this era is to become familiar with the living complexity of our lives and avoid the destructive habits of reductionism. The next horizon is one of authentic mutual respect between generations, patience, humility, and care. We are headed into rough seas, together. Yes, together (Bateson, 2016).

The quest for reinvention tells us that we want to "create ourselves," "lead" our lives and creatively contribute to social transformation. Creativity is associated with such personality characteristics as Independence of Judgment, Preference for Complexity, Psychological Androgyny, and Tolerance for Ambiguity, and more generally with Openness to Experience (Barron 1995). These characteristics point to an openness towards opportunity and alternatives, an openness to systemic emergence, rather than a desire to conform and superimpose existing interpretive frameworks on situations and individuals. Systemic emergence is characterized by the creation of new properties in a system that could not be predicted from the individual parts. We see this phenomenon in groups, but also in the way ideas emerge as a result of bringing together concepts that were previously not considered together, when even opposing or in contradiction (Koesler's bisociation) (Koestler, 1964).

HUMAN PERCEIVED UNCERTAINTIES

In the past decades, we learned how traditional human-made system can be quite fragile to unexpected perturbation, because statistics by itself can fool you, unfortunately (Taleb & Douady, 2015). Our society is an arbitrary complex multiscale system of systems of purposive actors within continuous change. Present planetary problems are the legacy of multiscale-order deficiencies from the past, obsolete, Western, human reductionist worldview. They cannot be fixed by the usual, traditional, hierarchical approach alone, by doing what we do better or more intensely, but rather by changing the way we do. Men inevitably see the universe from a human point of view, communicate in terms shaped by the exigencies of human life in a natural uncertain environment, and make rational decisions in an environment of imprecision, uncertainty and incompleteness of information (Longo, 2010).

Both complexity science and chaos theory converge on showing the unavailability of uncertainty, whether it is embedded into feedback cycles and emergence or in the infinite precision of initial conditions. Even in mere terminology, minimizing or avoiding representation uncertainty and ambiguities is mandatory to achieve and keep high quality result and service. "How can we improve our perception of the complexity we live within, so we may improve our interaction with the world?" In order to interface with any complex system without disrupting the circuitry of the interdependencies that give it its integrity we must look at

the spread of relationships that make the system more robust, resilient and anti-fragile (Taleb & Douady, 2015). According to Nora Bateson “Warm Data” is the information about the interrelationships that integrate elements of a complex system. Warm Data provides cross-sector interrelational information because it is the outcome of a research approach premised upon the transcontextual interaction inherent in any system. This approach needs us to reconsider our prevailing epistemology, to foreground the study of interdependency, to observe the observer and to look for “the pattern that connects”. It has found the qualitative dynamics and offers another dimension of understanding to what is learned through quantitative data (cold data). Warm Data will provide leverage in our analysis of other streams of information. The implications for the uses of Warm Data are staggering, and may offer a whole new dimension to the tools of information science we have to work with at present. Using only analysis of statistical data will offer conclusions that can point to actions that are out of sync with the complexity of the situation. Information without interrelationality is likely to lead us toward actions that are misinformed, thereby creating further destructive patterns (Bateson, 2017).

When uncertainty and ambiguities cannot be avoided, then reliable ontological uncertainty management (OUM) systems are needed and become a must (Fiorini, 2017 a). There are surprising similarities in many fields of human activities and much can be learned from these. For instance, Puu discussed bifurcations that are likely to govern the evolution of culture and technology. More specifically, by defining culture as art plus science, he discusses the evolution of social and material products (Puu, 2015). In modern times, specialization has overtaken broader fields of knowledge and multidisciplinary research. Our past knowledge is organized in “silos”: good for grain, not for brain. The mental world we live in today is infinitely divided into categories, subjects, disciplines, topics, and their more and more specialized subdivisions. As a result American universities now offer more than 1000 specialized subdisciplines, and European ones are following them accordingly. Specialization is a power of knowledge to uncover the intricate mysteries concealed in the infinitesimal (if it does exist!). Many of the marvelous things we use and enjoy today are a result of this minute investigation. But no matter how much we try, our lives cannot be so readily divided into innumerable airtight compartments. The quest for “right knowledge” too often reduces to selecting some aspects of knowledge that fit neatly together into a conceptual framework and ignoring or rejecting those that do not. This process of acceptance and rejection may elevate our specialized knowledge of the part but it is likely to overlook profound truths about the whole. Human thought is the power to link and relate two or more things together. Knowledge is the capacity to see each thing in right relationship to everything else.

Furthermore, to ascertain complex causality reliably is always problematic, because the usual external observations always reveal superficial reasons only; they cannot reveal deep, concealed reasons (Fiorini, 2016 a; Wang et al., 2016). Forcing societies to fit in a box without understanding the deep reasons may lead to serious consequences like we witness in many world affairs today. Multidisciplinary, interdisciplinary and transdisciplinary are really ways the society together

with scientists and scholars must move on to (Nicolescu, 2008; De Giacomo & Fiorini, 2017). To harness complexity, we must take a generative, evolutive perspective and see social outcomes as produced by purposive actors responding to personal anticipation, incentives, information, cultural norms, psychological predispositions, etc., focused on personal wellbeing mainly (Wheatley, 2006). In other words, as Robert Rosen said, in his book "Life, Itself", that "The Machine Metaphor of Descartes is not just a little bit wrong, it is entirely wrong and must be discarded" (Rosen, 1991).

As a matter of fact, purposive actors are centered on their wellbeing dynamic equilibrium or balance that can be affected by life events or challenges continuously. Personal wellbeing state is stable when they have abundant resources needed to meet and manage their life's challenges. "The future will either be a product of an inspired cultural revival, or there will be no future," wrote the co-founder and first president of The Club of Rome Aurelio Peccei, expressing a sentiment shared by a number of contemporary thinkers (Karabeg, 2007; Karabeg & Raković, 2011). According to WAAS (World Academy of Art and Science) new paradigm for human development, as the creation of the new vision and new story for our shared future, an inspired cultural revival can be materialized in many different ways which, however, must share a common, solid, cultural background (Šlaus & Jacobs, 2013; WAAS, 2014, 2017 a, 2017 b).

POPULISM, GLOBALISM, NATIONALISM AND PATRIOTISM

In 2017, the Financial Times noted that the pattern in France latest election was echoed in the 2016 Brexit referendum, in the USA presidential election and in the recent Dutch election. Most of these events would have seemed unlikely just a few years ago. But with right-wing nationalism and ISIS-inspired terrorism on the rise before that fateful June month, and with the string of horrors that have occurred after that month (including so many terrorist attacks in Europe and the Middle East, and the killings of so many unarmed black men and police officers in the United States of America), political violence and political upheaval have come to feel like the new normal. Even the Scandinavian countries, which have experienced little political violence in the last few years, are seeing surging support for right-wing parties with strongly anti-immigrant and anti-EU views.

The year 2016 is an emotional turning point, and it may come to be remembered as the year that the Western world turned away from, or at least slowed down, its long march toward globalization and transnational entities such as the European Union. The hasty and standard way of describing those political forces is "populist." Populism means a politics of the people, juxtaposed against a politics of the elites. The globalists strongly support open borders and high levels of immigration while (often) opposing efforts to encourage assimilation of the new arrivals ("integration" is usually acceptable, but "assimilation" is controversial.) The globalists generally support transnational organizations, even when these organizations require reductions in national sovereignty. The globalists frequently accuse their opponents of racism. These sorts of steps add up to a "normative

threat”, a perceived threat to the existing moral order that activates the “authoritarian dynamic” in those who are predisposed to authoritarianism. So if you want to understand why nationalism and right-wing populism have grown so strong so quickly, you must start by looking at the actions of the globalists. In a sense, the globalists “started it.” They initiated the chain of events which have caused right-wing nationalist reactions in many countries. This is consistent with scholarship suggesting that conservative movements are usually best understood as reactions to waves of change promoted by progressives (Muller, 1997). The two sides have many real differences that must be worked out by a long and difficult political process. But political disagreements may become more tractable if both sides can understand each other a little better, and if both sides share a love of their country that is both passionate and, to varying degrees, perhaps, welcoming.

But, in the USA at least, Trump’s ideology, which has little to do with traditional Republican conservatism, frames the axis of division not as the many versus the few, but as nationalists versus globalists (Edsall, 2017). Trump’s leadership is in the form of conforming authoritarianism that, according to his psychographic campaign correlations (Confessore & Hakim, 2017), has been mainly focused on American fear for Chinese economic competitiveness and foreign immigration to USA. Psychographics is another name for psychometrics, the science that focuses on measuring psychological traits, such as personality. Anyone who has not spent the last five years living on another planet will be familiar with the term Big Data. Big Data means, in essence, that everything we do, both on and offline, leaves digital traces. Every purchase we make with our cards, every search we type into Google, every movement we make when our mobile phone is in our pocket, every “like” is stored. The company behind Trump’s online campaign is the same company that had worked for Leave. EU in the very early stages of its “Brexit” campaign, specializing in Big Data. The company’s core strength is innovative political marketing, microtargeting, by measuring people’s personality from their digital footprints, based on the OCEAN (an acronym for Openness, Conscientiousness, Extroversion, Agreeableness, Neuroticism) model (Wikipedia, 2017). Trump’s election was simply the most dramatic example yet of the consequences of the dangerous combination of political technology with “disruptive technology.”

The understanding of the outcome of those events can show how political communication might work in the future. According to those psychographic correlations, Donald Trump created and gave his campaign speeches in which he painted a dark vision of America going to hell in a dangerous world. Trump’s nationalism was all about “us” versus “them” and how we can kick them out or otherwise defeat them. Concern raised about organizations such as this crossing the line from persuading subjects to adopt ideas by presenting convincing evidence and that of manipulating subjects (Brannelly, 2016), was raised by a social scientist who studies organizational behavior, Michal Kosinski, previously a researcher in the psychology department at the University of Cambridge and in 2017 an assistant professor of organizational behavior at the business school of Stanford, when he stated that, “there’s a thin line between convincing people and manipulating them” (Mayer, 2017).

The rise of authoritarian leaders is closely associated to moments of chaos and confusion for uneducated people. We need only think of Germany's social, political and economic crisis during Hitler's rise. Authoritarian leaders can make themselves appealing by offering simple solutions, by providing a framework with which people can make sense of the world. Unfortunately, these frameworks more often than not remove ambiguity by eliminating complexity, involving a black and white, us versus them view, and curtailing freedom. Authoritarianism is associated with a strong preference for order, linearity and conformity. We see this in individuals who are rigidly concerned with order, and prefer simple slogans to an open-minded engagement of complex issues, typically leading to reductionism (scapegoating and the problem can be reduced to one thing) and either/or thinking (you are either for us or against us; we are good, they are bad) (Sanford, 1973).

In authoritarian social systems we see the same dynamic, the same kind of rigid orderliness (the USSR, pre-Deng China, authoritarian cults), and the same tendency to scapegoat either outside groups or a specific sub-group inside the system, based on race, ethnicity, religious affiliation, and so on (Montuori, 2005). Conformity, going along with the majority opinion because "if everybody else thinks so, they must be right." A lack of independence of judgment in groups can lead to the phenomenon known as "groupthink." Groupthink occurs when, for instance, groups make bad decisions because nobody wants to show dissent to the leader, or to what they perceive is the general mood of the group. As the conflict between globalists and nationalists has moved to center stage in many countries in recent months, several commentators have offered insightful new thinking about patriotism and nationalism. The key question all have addressed is: how can people show love and loyalty to their nation in ways that bring benefits to their nation while minimizing the harm done both to immigrants within the country and to citizens of other countries?

A POSSIBLE DEEPER EXPLANATION

But there might be a possible deeper explanation. In fact, the real challenge to face today is quite different. The incoming Western fourth industrial technology revolution will be a major cultural, social and economic revolution than a technical one, contributing to the exponential grow of "incompleteness" and "uncertainties" felt by people. As long as near future physical survival is perceived as uncertain, the desire for physical and economic security tends to take higher priority than democracy. The desire for free choice and autonomy is a universal human aspiration, but it is not top priority when people grow up feeling that survival is uncertain.

We need to reframe uncertainty-as-problem in the past into the evolutive concept of uncertainty-as-resource. The present is shaped both by the past and by the future. The idea is that the invariant traces of the past under organismal or ecosystemic transformations contribute to the understanding of present and future states of affairs. This yields a peculiar form of unpredictability (or randomness) in biology, at the core of novelty formation: the changes of observables and

pertinent parameters may depend also on past events. In fact, in contrast to the mathematics for physics, randomness, in biology, at the level of phenotypes, cannot, in general, be associated to a probability measure, as the possibilities, i. e. the list of possible observables and parameters, changes along historical time. Biology sits in between the mountain of the physico-mathematical construction and the depth of the investigations in human historical sciences. By the experimental methods and the nature of observation, it is a science of nature, yet the relevance of history in its understanding opens the way to the peculiar analyses proper to historical disciplines, beginning with the relevance of knowledge (and measurement) of past events.

Empirical evidence from evolutionary outcomes led to the conclusion that the phase space of the living is continuously changing (Longo, 2017). Forecast outcomes should be interpreted as counterfactuals (potential histories), with errors as the spread between outcomes. Reapplying measurements of uncertainty about the estimation errors of the estimation errors of an estimation leads to branching counterfactuals. Such recursions of epistemic uncertainty (Fiorini, 2017 b) have markedly different distributal properties from conventional sampling error. Nested counterfactuals of error rates invariably lead to fat tails, regardless of the probability distribution used, and to power laws under some conditions. Missing any degree of regress leads to the underestimation of small probabilities and concave payoffs (a standard example of which is Fukushima) (Taleb, 2012).

Furthermore, the complexity threshold for the living is decidability (Nadin, 2016) based on intention (Aigbedion, 2016). Intentions can be thought as neural processes that integrate representations of states of affairs, actions, and emotional evaluation (Schröder et al., 2014). Humans constantly evaluate situations with the emotion system of the brain, and we believe these evaluations to be an important building block of intentions. The emotion system mirrors the hierarchical nature of cognition, with more basic and ubiquitous emotions like anger and fear more tied to immediate sensorimotor experience (Ledoux, 1998, 2002, 2015) and more complex and culturally shaped emotions like guilt and shame of a more symbolic nature. Intentions also require representations of the intended actions themselves. We understand them not just as linguistic descriptions but also as patterns of activation in areas of the brain involved in processing motor instructions.

Neuroscientific evidence corroborates the notion of a non-verbal “action vocabulary” in pre- motor cortex, consisting of abstract representations of underlying motor programs in relation to goals (Rizzolatti, Fadiga, Gallese, & Fogassi, 1996; Gallese, 2009; Fogassi, 2011). Therefore, the past shapes us, and the way we conceptualize the future influences the way we act today. If we assume the world will end tomorrow, or that the economy will take a downturn, we will act differently today than if we think that the economy will be booming and we have an appointment with the love of our life. At the same time, we also have to remember that it is not enough to critique, to challenge existing structures and “speak truth to power.” More than ever today we need possibilities and alternatives, we need to enlist our creativity to give us hope for the future, and the discipline to embody that future in the present.

For instance, the environmental crisis has led to a critique of “anthropocentric” views of Nature, where Nature’s only role is to be exploited by humans (Purser, Park, & Montuori, 1995). The women’s movement has challenged the supremacy of men in society, from the home to the workplace. The civil rights movement in the USA challenged the supremacy of white people over people of color. The term non-binary challenges a binary way of viewing human beings as separated into two sexes exclusively. In this view racism is a zero-sum game that they are losing. The implications for the future are considerable, since this view does not take into account the possibility of a reduction in prejudice and discrimination across the board, and the possibility of partnership, of creativity and mutual benefit in diversity. Partnership systems are democratic rather than authoritarian and involve the creation of mutual benefit.

In each of the previous, analyzed plebiscites, education emerged as the strongest predictor of votes for a right populist option, where the less educated chose it more often than those with degrees. The key change performance factor is education, distinguishing from classic, contemporary education and a new one, education to creativity, based on a more reliable control of learning uncertainty; distinguishing building on sand from building on rock (De Giacomo & Fiorini, 2017). Education has to be reconceived from the ground up: solid scientific education, in both the natural biology grounded in anticipation, and the real physics of the world, is required. This in itself is a high-order endeavor, since schools continue to indoctrinate new generations in the traditional religion of reductionist, classical physics, biology and chemistry.

At a more specific level, we, the children of the Anthropocene Era, are entering the Fourth Industrial Revolution and the impact is going to be pervasive and of greater magnitude compared to the previous industrial revolutions. The Fourth Industrial Revolution builds on the previous, recent digital revolution, representing new ways in which technology becomes embedded within societies and even the human body. The Fourth Industrial Revolution is marked by emerging technology breakthroughs in a number of fields, including robotics, artificial intelligence (AI), nanotechnology, biotechnology, IoT (Internet of Things), 3 D printing, autonomous vehicles, etc.

There are three reasons why today’s transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact. The incoming changes, approaching at an accelerating speed, will be impacting everything and everybody and blurring the lines between the physical, digital, and biological spheres; they will affect the bio-psycho-social dimensions, our narratives and even what it means to be human (Pharand, 2011). If we are not farsighted and do not plan effectively, the results could be very problematic for all life forms on Earth.

If we manage the Fourth Industrial Revolution with the same blindness and forms of denial with which we managed the previous industrial revolutions, the negative effects will be exponential (Zucconi, 2016). At social level, inequality and unemployment destroy opportunity freedom. Radical inequality significantly undermines opportunity freedoms and capacity freedoms and consequently

radically undermines human capital as a foundation of community prosperity (Nagan, 2016). Because of these uncertainties, industry will create reform on its own initiative to lead the world. These policy observations are just a starting point toward the reform of economy and society. From this perspective, it will be interesting to keep an eye on what will happen on the Eastern side of the world, to the Japan's initiatives which fall under "Society 5.0" umbrella name. Japan has its particular challenges and just as "Industry 4.0" is the European digital transformation of manufacturing, Japanese "Society 5.0" aims to tackle several challenges by going far beyond just the digitalization of the economy, towards the digitalization across all levels of the Japanese society and the (digital) transformation of society itself.

THE JAPANESE SOCIETY 5.0 PROGRAM

In order to achieve a better, deeper understanding of the Japanese "Society 5.0 Program" conceptual achievement, a brief, historical background is needed.

Historical Background

The Japanese economy has continued to stagnate for nearly 30 years since the collapse of the bubble economy at the beginning of the 1990 s. As a result, the people have lost their self-confidence, and they have been demoralized by uncertainty over the future course of Japan. In its economic policy management, Japan has been constrained by the experience of the failure of the past two policy approaches which were not well adapted to changes in the industrial and social structures.

The First Approach was economic policy centering on public works. In the period of Japan's rapid economic growth during the 1960 s and 1970 s, improvements in roads, seaports, airports and other facilities led to increased productivity and acted as the driving force of the growth. However, in the 1980 s, when basic infrastructure had already been well developed, the positive link between public works investment and economic benefits broke down, and from the 1990 s onwards, the situation changed completely, with the social and industrial structures undergoing changes and the efficiency of investment in conventional infrastructures declining. An increase in inefficient public works investment made as part of fiscal pump-priming to overcome recession created a vicious circle in which the increased spending led to further loss of local vitality, while neither contributing to economic growth nor raising the living standards of the people.

The Second Approach was a productivity-oriented economic policy that was based on excessive market fundamentalism and was overly tilted toward the supply side. Improving business performance through restructuring may be appropriate from the perspective of an individual company in some cases. However, if we look at the situation of the whole country, we find that this policy has driven many people out of their jobs, squeezed the people's life and aggravated deflation. Public awareness has grown about the widening social gap as represented by the emergence of a class of people known as the "working poor," leading to a sharp

rise in social unease. Among others, a new social risk, “isolation,” has been rapidly intensifying in recent years. No one can go through life alone. When people suffer troubles, setbacks, and collapse, it is only through the support of those around them that they are able to get back on their feet again. In Japan, it used to be families, local communities and companies that performed this function. But these traditional sources of support are rapidly being lost, and social exclusion and disparities are increasing. Isolation is a problem that affects rapidly increasing numbers of people: young and old, men and women. A troubled company may resort to business restructuring and layoff of employees, but a troubled country has no such option. Although it may be important to improve productivity, it is more important to expand demand and employment.

The global financial crisis of 2008 delivered a direct blow to the Japanese economy, which was overly dependent on external demand, causing deeper damage to Japan than to other countries. To achieve a strong economy, it is necessary to create stable demand, both domestically and externally, and establish an economic structure that enables wealth to be widely circulated, in addition to strengthening the competitiveness of Japanese industry.

Learning from the lessons of previous two unsuccessful policy approaches, Japanese pursued the “Third Approach” as a policy well suited to the circumstances of Japan. This policy aimed to achieve economic growth by turning the problems faced by the economy and society into opportunities for creating new demand and employment. In 2010, they promoted this objective by proposing the “New Growth Strategy,” which placed top priority on bringing about a “strong economy,” “robust public finances” and a “strong social security system” in an integrated manner. They thought that the establishment of safety nets, economic revitalization and the restoration of fiscal health would complement one another, policy measures to ensure a “strong economy,” “robust public finances” and a “strong social security system” should be regarded as having a mutually beneficial “win-win” relationship. Under the “New Growth Strategy,” which incorporated concrete measures in seven strategic areas, the public and private sectors will work together to achieve a “strong economy” capable of recording an average annual growth of more than 3 percent in nominal terms and 2 percent in real terms in the period leading to fiscal year 2020. The seven strategic areas are the following: 1) green innovation, 2) life innovation, 3) the Asian economy, 4) tourism and the regions, 5) science and technology and information and communications technology, 6) employment and human resources, 7) financial sector.

Japan failed in the past to carry out reforms in line with national targets mainly because of a lack of political leadership. Politics has been conducted in ways to represent the interests of individual groups and particular regions, and there was a lack of strong political leadership to carry out reforms from the perspective of the future of Japan as a whole. The Japanese Third Approach laid the foundation for the Japanese Fifth Science and Technology Basic Plan (2016–2020) (CSTI, 2016). In this Plan, Japan introduced a new concept, namely “Society 5.0,” as a way by which to guide and mobilize action in science, technology, and innovation to achieve a prosperous, sustainable, and inclusive future that is, within the context

of ever-growing digitalization and connectivity, empowered by the advancement of AI. With its potential to equip and better shape our society with new services, businesses, social structures, values, and welfare, AI is perceived by Japanese as a fabulous enabler, but its benefits to society will deeply depend on the way it will be implemented and used in real socioeconomic systems.

What is the Society 5.0 Program?

Entering the 21st century, it is clear that science and technology have made great progress. In addition, the rapid progress of information and communications technology (ICT) in recent years has brought about a new reality in which information, people, organizations, logistics, finance, in reality, everything, are constantly connected on a global level and mutually influence one another. Globalization is progressing further and further, and various social activities are expanding beyond international borders. Under these circumstances, competitiveness is largely coming to be predicated by how well a company utilizes various knowledge and technology spread across the globe, and the abilities of superior personnel. Additionally, as the intellectual frontier expands, it is becoming increasingly difficult for individuals and individual organizations to produce all the knowledge and technology necessary for success. Thus, when creating new knowledge and value, it is increasingly important to form and act in teams by bringing together people with diverse specializations. Meanwhile, networks are rapidly expanding on a global scale and have the potential to overturn the conventional rules of society and people's values. Because of this, it has become essential to create new rules for protecting personal information and establish codes of conduct to handle the security ramifications.

In a world where ICT is evolving, and where the use and application of networks and IoT is advancing, ICT is being leveraged to its fullest in the manufacturing sector, according to worldwide initiatives such as in Germany's "Industrie 4.0", Europe's "Industry 4.0", the United States' "Advanced Manufacturing Partnership", and China's "Made in China 2025", etc.

The incoming Fourth Industrial Revolution must be a "Mindustrial Revolution" first of all, to guarantee a smooth transition from the previous one, according to Hungarian UN ambassador and past CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization) executive secretary Tibor Tóth (Tóth, 2016) at World Economic Forum (WEF) 2016, 20–23 January 2016, in Davos-Klosters, Switzerland. Mindustrial Revolution means mind and industrial universalization in a "glocal" perspective to reliable wellbeing (Fiorini et al., 2016). To harness complexity, we must take a generative, evolutive perspective and see social outcomes as produced by purposive actors responding to personal anticipation, incentives, information, cultural norms, psychological predispositions, etc., focused on personal wellbeing mainly. Industrial universalization in a glocal perspective is not just about agreement ratification only, it is much more than that. We have to enable countries through capacity-building, through training to have a capacity available. That is an important element as well as a stepping-stone leading to more and

more integration of signatories and ratifiers. So there will be many steps and many elements in the process, but all these steps and elements are very important on the better integration of countries, which would lead to universalization together with ratification in new social and economic paradigm. All of these elements and steps will have to be put together in a realistic way where we can simulate their function. Competitive advantage is no longer the sum of all efficiencies, but the sum of all networked connections. In fact, such efforts to lead change in the so-called Fourth Industrial Revolution are now being laid out under government-private partnerships. Japan is at the forefront of efforts to solve emerging issues that other countries will also be confronting.

The “Society 5.0” program defined in the Japanese Fifth Science and Technology Basic Plan is different from other initiatives like the “Industrie 4.0” of Germany, the “Industry 4.0” of Europe, and the “Advanced Manufacturing Partnership” of the U. S. A., which focus on the manufacturing side only. Society 5.0 covers various aspects of Japanese society, including manufacturing and other industries, with the aim of driving social change. Society 5.0 is a unique approach, in that Japan’s efforts to solve emerging issues before the rest of the world are geared to Japan’s strengths (Figure 1).

	Society 5.0 (Japan)	Advanced Manufacturing Partnership (U.S.A.)	Industrie 4.0 (Germany)
Back-ground	High-level fusion of the cyber world and the real world		
Fields	<p>All areas of society (including manufacturing)</p> <p>(The solution to issues facing Japan and the creation of new value through collaboration among systems, .)</p>	<p>Manufacturing</p> <p>(3D printing, power electronics, light-weight metal materials, digital design and manufacturing, advanced composite material manufacturing)</p>	<p>Manufacturing</p> <p>(Overall efficiency improvements and productivity improvements from design & production to retail and maintenance through integration of telecommunications technology and production technology)</p>
Objectives	<p>Hyper-smart society</p> <p>(Changes in industry, people’s lives and lifestyles, so that everyone can live comfortably and actively in society)</p>	<p>Job creation and strengthening of international competitiveness</p> <p>(Return of manufacturing industry to U.S.A. after which jobs are created and international competitiveness is increased due to new technology)</p>	<p>Strengthening of manufacturing competitiveness</p> <p>(For small quantity/large variation production, the global spread of German production technologies for detecting abnormalities at an early stage)</p>

Figure 1. Main differences between a few worldwide initiatives regarding the Fourth Industrial Revolution (Source: Created by MEXT and the SciREX Center based on data from CRDS (JST)).

We have arrived at a revolutionary age where the process of creating knowledge and value has changed considerably, and where the economic and social status quo, as well as industrial structures, are rapidly changing. In such an age, so-called game-changing shifts are expected to occur frequently, as new knowledge and ideas conceived in quick succession significantly impact the competitiveness

of organizations and countries. The driving force of this trend is the rapid development of network connectivity and cyberspace use that has accompanied the evolution of ICT.

In this revolutionary age, where predicting the future outlook is difficult, Japanese can only get ahead of the times through creating new game-changing knowledge and ideas. Toward this goal, they will foster initiatives that boldly attempt new ventures and actively generate discontinuous innovation (*kaikaku*, in the Toyota Production System language).

Furthermore, in light of the rapid development trends of network connectivity and cyberspace use, they are proposing an ideal form for our future society, a “super smart society” where new values and services are continuously created in order to bring wealth to the people who make up society through initiatives that focus on actively using and applying cyberspace. Over the course of this proposal, they will foster initiatives that are aimed at realizing the world’s first super smart society. New knowledge and technologies are created by breaking out of the current customs and paradigms, continually challenging the frontiers of our present knowledge and technology, which are the roots of social transformation, and by conducting trial social implementation. Thereafter, creating groundbreaking value from such new knowledge and technologies is essential. Such value may have a major impact on competitive strength by completely changing the current rules of the competition.

Essentially, Japan is planning to create a “super-smart society” capable of providing customized solutions through the adoption of new technologies like AI, robotics, Big Data, and drones, as well as through policy and regulatory reform. Society 5.0 aims to empower all actors in the society, placing a special emphasis on enabling each individual to actively participate and live safely, comfortably and securely. Taking the first stride to realize a new vision for its society and economy, Japan’s contribution to policy-making, research and development could one day be applied to solve the world’s biggest challenges. Japan’s government and private sector are making large investments in AI technologies as key drivers of future competitiveness. A March 2017 report from the new Cabinet Office Advisory Board on Artificial Intelligence and Human Society notes that “Japan, with its energy and resource constraints and demographic pressure, is placed among developed countries on the front line in seeking new societal models”. The report defines AI as technologies that can perform portions of human intellectual activities, such as perception, recognition and decision-making, and then take action based on these activities. AI draws on developments in machine learning and rapid advances in data collection and processing. A recent UK Royal Society report notes that IBM estimates that 90% of all the world’s data has been created in the last two years (BATRS, 2017).

“The essence of Society 5.0 is that it will become possible to elicit quickly the most suitable solution that meets the needs of each individual. We will become able to solve challenges that have defied resolution until now,” according to Prime Minister Shinzo Abe, at the International Conference on The Future of Asia, last June 2017 in Tokyo (TFOA, 2017).

TOWARDS A SUPER/HYPER SMART SOCIETY

A super smart society is characterized as follows: a society where the various needs of society are finely differentiated and met by providing the necessary products and services in the required amounts to the people who need them when they need them, and in which all the people can receive high-quality services and live a comfortable, vigorous life that makes allowances for their various differences such as age, sex, region, or language.

Our societies are arbitrary complex multiscale system of systems of purposive actors within continuous change. Society is, without any doubt, a complex system and the idea to use the knowledge from the analysis of physical complex systems in the analysis of societal problems is tempting. Indeed, the notions of, nonlinearity, interactions, impredicativity, self-organization, stability and chaos, unpredictability, sensitivity to initial conditions, bifurcation, etc., are phenomena which also characterize social systems. Furthermore, we have to remember the Warm Data lesson. Therefore, the “Mindustrial Revolution” has to be a reliable creative thinking transformation process by more and more integration of wellbeing signatories and ratifiers from different cultures and countries.

In order to achieve an antifragile behavior, next generation human-made system must have a new fundamental component, able to address and to face effectively the problem of multiscale ontological uncertainty management. We need a definitive, antifragile solution to the problem of the logical relationship between human experience and reliable knowledge extraction (Fiorini, 2017 c, 2017 c). When uncertainty and ambiguities cannot be avoided, then reliable ontological uncertainty management (OUM) systems are needed and become a must (Fiorini, 2017 a). Even in mere terminology, minimizing or avoiding representation uncertainty and ambiguities is mandatory to achieve and keep high quality result and service. As a current, simple example, even understanding the difference between “well-being” and “wellbeing” meaning is mandatory to achieve high quality healthcare informatics and telepractice (Fiorini et al., 2016).

The proper use of term and multidimensional conceptual clarity are fundamental to create and boost outstanding performance. One of the fundamental preconditions is to speak in the common language. It is not the problem of cultures only (Leung et al., 2007), it is also a problem of scientific communities (Kagan, 2009; Snow, 1969) and new societal education (Mulder, 2015; UNE, 1997). We deeply share the belief that a better understanding of information is needed to understand anything and everything, hopefully.

It is important to underline that information processing technology can be used also to facilitate the application of pragmatic models to “prescribe” or suggest to participants to improve their attitudes, predicative (Inhelder & Piaget, 1955; Beziau & Payette, 2012) and numeric competence, education and creativity. Science does not exist to enlighten people’s minds only. It mainly exists to show the educated way from quanta to qualia. And that way starts from social predicative competence (Robert & Brisson, 2016; Fiorini, 2017 c) to arrive to computational

competence, and to discover that, by the right AI perspective, they are not so different after all (Fiorini, 2017 d).

With its potential to equip and better shape our society with new knowledge, services, businesses, social structures, values, and welfare, AI is perceived as a fabulous enabler by Japanese, but its benefits to society will deeply depend on the way it will be implemented and used in real socioeconomic systems. AI services/products work appropriately if users understand their benefits and risks, learn how to identify responsibilities, and operate them perfectly to keep them under control. Significant issues are needed to understand the advantages and limits of the current AI technologies, to perfectly utilize AI technologies, and to perform creative activities in collaboration with AI technologies. In each country, the responsible development of technology towards open responsible innovation will be based on the convergence of two fundamental resources: success in AI and the availability of an effective global interconnected data infrastructure provided by ICT.

FROM A SUPER/HYPER SMART TO THE WELLBEING SOCIETY

ICT strategies are the pillars of Japan's growth strategy, and these are formulated by positioning ICT as an engine of economic growth that will help Japan overcome its stagnation and boost economic recovery. Japan, with its energy and resource constraints and demographic pressure, is placed among developed countries on the front line in seeking new societal models, ensuring sustainable and inclusive growth, and maximizing the wellbeing of its citizens. To take the lead in this endeavor, the full potential of science, technology and innovation (STI) should be explored, and in this perspective, AI is considered to be a priority. One may have concerns about the quick advancement of AI and its implementation in society. This is why the "Advisory Board on Artificial Intelligence and Human Society" was set up in May 2016 under the initiative of the Japanese Minister of State for Science and Technology Policy with the aim to assess different societal issues that could possibly be raised by the development and deployment of AI and to discuss its implication for society, ideally with international cooperation (ABAIHS, 2017).

Education policy functions according to discussions about how to efficiently reform the curriculum based on evidence that shows the limitations of technologies. For example, a deep understanding of semantics, the utilization of experience-based imagination in novel situations, the ability to identify a problem that should be solved, the ability to communicate and collaborate, and the ability to explore novel information actively and to discuss and incorporate the opinions of others are all abilities that current machine-learning AI technologies seem unable to perform, and they are expected to become more important in the near future. Enhancing these abilities differentiates humans from AI technologies and makes humans perform creative tasks by utilizing AI technologies, which leads to the realization of a sustainable society with high productivity and less labor.

Education for children is especially urgent because it takes time, and the development of AI technologies is so rapid. It is important to consider what abilities should be still learned by humans for proper brain development even though

the activities enabled by said abilities can be performed instead by AI technologies. However, like many other tools and technologies, AI technologies' utilization cannot be socially enforced. It may be necessary to take into consideration the need to ensure the freedom to use AI technologies, based on an individual's faith, and avoiding social conflict between users and non-users of AI technologies. Recent acceleration of the advancement of AI technologies makes it difficult for institutional and social adaptation to keep pace, which leads the Japanese government to address the question of transition management.

To maximize the benefits from AI technologies, in addition to appropriate knowledge of the AI technologies themselves, users need digital goods and services literacy and knowledge of data privacy. However, all people cannot acquire or maintain this knowledge and literacy, and it might be a causal factor in the so-called "AI divide." For instance, "rideshare," backed by AI optimization technologies, could offer a new means of transport at a low cost comparative to taxis; therefore, it is supportive of socially disadvantaged people. However, access to these services require a minimum familiarity with digital devices, so those without literacy may be excluded from the benefit of rideshare services. Potential discrimination based on the output of personal profiling by AI technologies must be prevented.

We consider clarifying the relationship between AI technologies and human society to be a prerequisite to the realization of a sustainable society, and we believe that addressing the fundamental question, "What values are shared by humans all over the world," is unavoidable. In general, it is not an easy question to answer by cultural perspective only (Wheatley, 2006; WVS, 2017).

As a simple example, should we use the term "well-being" or "wellbeing"? Currently, "well-being" and "wellbeing" are used in many different countries to refer to the same thing apparently (Fiorini et al. 2016). From a formal perspective the short answer is it is up to you; just be consistent. While "wellbeing" is becoming more popular, "well-being" is probably still used more. In Italy is even worse because the closest Italian one word meaning to "wellbeing" is "benessere" that is always translated back into English as "wellness"! Therefore, for Italian layman "wellness" or "wellbeing" can be used interchangeably! To date, Google search results indicate that "well-being" is more popular than "wellbeing." However, Google Trends indicates that since 2004, searches for "well-being" have been on decline, while searches for "wellbeing" have significantly increased.

The term wellbeing has been around for many years but has traditionally been associated with "wellness", "psychological wellness", "quality of life" (QOL), "happiness", etc. In 2010, the term "wellbeing" has been introduced as an attempt to de-medicalise illness (Stratham and Chase, 2010). It is recognised as a complex, multidimensional concept (the unity of body, mind, spirit) and there has been many attempts to define it but without clear success. Phrases historically associated with wellbeing include; the ability to fulfil goals, happiness, life satisfaction, quality of life, self-acceptance, purpose in life, environmental mastery, positive growth, positive relationships and autonomy. These however are dimensions of wellbeing and are not a definition.

In 2012 Dodge et al (2012) presented a well documented review of the many attempts to research a workable definition for wellbeing. Their article closes by proposing that it would be appropriate for a definition of wellbeing to centre on a state of equilibrium or balance that can be affected by life events or challenges like the following diagram shows (Figure 2), where wellbeing is stable when we have the resources needed to meet life's challenges, according to personal wellbeing values (Dodge et al., 2012, modified by author).

They believe this simple, yet precise nature of the definition can be, universal in application, optimistic and a basis for measurement. It conveys the multi-faceted nature of wellbeing and can help individuals and policy makers move forward in their understanding of this popular term. As a matter of fact, purposive actors are centered on their wellbeing dynamic equilibrium or balance that can be affected by life events or challenges continuously. Personal wellbeing state is stable when they have abundant resources needed to meet and manage their life's challenges. It is a dynamic dance definition that also reflects the viewpoint of Nic Marks, of the New Economics Foundation (Marks, 2012).



Figure 2. Definition of Wellbeing according to Dodge et al., 2012 (Modified by author).

However when life's challenges outweigh resources, wellbeing is compromised. It is also important to note however that if there are no challenges in life, then this can lead to stagnation and compromise our sense of equilibrium, which in turn will affect wellbeing in a different way. They hope that their simple definition can be applied to all cultures, ages and genders and could aid the measurement of national wellbeing and further the understanding of wellbeing as a whole.

Dodge et al. 's simple and operative definition opens up wellbeing as a new growing area of scientific research. In fact, if their definition has to be universal then, immediately we have to remember that because we all share this small planet Earth, we have to learn to live in harmony and peace with each other and with Nature. That is not just a dream, but a necessity, according to Tenzin Gyatso, the 14th Dalai Lama. Furthermore, in a global perspective, from previous discussion, we saw that the "state of being well", "happiness", QOL and "subjective wellbeing" mean different things to different people, different languages, different cultures, different norms.

Therefore, one-word wellbeing means a brand new science, a new paradigm, a new conceptual framework. A new universe to be defined by first comers and

international cooperation, perfectly tuned to the super smart society evolution. For instance, Health Informatics and Telepractice, by using new specific wellbeing oriented instrumentation and tools like EPM, E²PM (De Giacomo et al., 2016; De Giacomo and Fiorini, 2017), etc., can grasp and estimate human being global health balance level and biofield much better than in the past (L'Abate, 2016). Then, new automated, reliable practices and telepractices can be developed accordingly quite easily (Fiorini et al., 2016).

FROM PERSONAL TO COLLECTIVE WELLBEING

Globally, several indicators of human wellbeing have been developing favorably. Yet the future of wellbeing is dependent on our response to major new challenges such as population ageing, globalization and migration, changes in the labor market, reforms of the welfare systems and defining sustainable and effective policy options for services. Europe is the most rapidly ageing continent in the world and Finland is the most rapidly ageing country in Europe.

The situation calls for innovative research on social and generational equity and participation, social inclusion during the whole life course, and possibilities for active ageing. Successful social policies and care systems are a prerequisite for thriving societies. For instance, in Finland, an exceptionally ambitious reform of health and social care is under way. The goal is to create people centered, community based and civil society powered services, supported by ICT technologies, digital service models and co-creation processes. The challenges, however, are manifold, and collaboration between research and strategic partners is needed to test and evaluate the new models of services and processes of change.

The current social challenges cut through all levels of our social worlds, transforming forms of interaction from personal and professional fields to national and transnational communication. Addressing the consequences of new social trends requires taking full advantage of the potentials of new, cohesive and mediating forms of communication and interaction. At the same time, new channels and modes of interaction also cause new problems and can complicate conflicts.

On the level of infrastructures, there is an urgent need to study the emerging new information flows and practices of the new transnational, digitalized communication, in people's everyday lives and between nations and cultural groupings. Understanding and facilitating active political agency (both new conflicts and their management) depends on this.

On the level of practice, the development of skills and capacities of interaction builds new opportunities for better lives, but also disrupts existing roles and expectations (between generations, between professionals and amateurs, between cultures and identities) thus provoking ethical and normative challenges. On the level of ideologies, the new communication environment questions fundamental assumptions and conceptualizations of social imagination, such as citizenship, privacy, social cohesion and legitimate governance.

Addressing the new social trends adequately requires intense attention and the development of new, cohesive and mediating forms of communication and

interaction, whether they take place through the digital media or face-to-face. The design of new communicational tools, services and games has significant consequences for the formation of the social sphere, interpersonal interaction and collective action, and thus also needs to be addressed from critical perspectives. Global governance is not merely about harmonization and standardization across nation-states, nor simply about growing interdependence, but rather about a dynamic and often combative interaction in a continuous state of formation through intuitive and proactive position-taking and invention beyond national governments and institutions.

Research on global governance for health and development has usually addressed the governance of the global health system, namely actors whose primary intent is to improve global health, such as the WHO. Better understanding is needed on the many global level actors and forces outside the global health system and the ways in which they influence health. Political, economic and social globalization have tightened the interdependence of sovereign states on global powers, forces and actors. Global governance processes outside the health sector, such as those relating to security, trade, investment and finance, environment, work and labor, education, agriculture, and migration, increasingly affect health. New global players such as private firms, civil society organizations and charities wield significant influence. We need to recall the fifth principle for a Black Swan-proof world (Taleb, 2009):

“Counter-balance complexity with simplicity.”

Complexity from globalisation and highly networked economic life needs to be countered by simplicity in financial products. The complex economy is already a form of leverage: the leverage of efficiency. Such systems survive thanks to slack and redundancy; adding debt produces wild and dangerous gyrations and leaves no room for error. Capitalism cannot avoid fads and bubbles: equity bubbles (as in 2000) have proved to be mild; debt bubbles are vicious.”

Simplicity is complexity with grace (Bateson, 2016). Innovative, interdisciplinary and transdisciplinary research is needed to identify and develop mechanisms to protect and promote health and collective wellbeing in these other global governance arenas to reach new level of simplicity. This work will also deepen our understanding of how health is connected to global human rights, which remain contested at the intersection of national and transnational regulatory forms. Social care in the future should seek to promote wellbeing by empowering individuals and their communities.

POLITICAL SUPREMACY AND NEW ECONOMIC THEORY

Supremacism is the worldview that a particular age, race, species, ethnicity, religion, gender, social class, ideology, nation, or culture is superior to other variations of that trait, and it advocates that those who identify with it dominate, control, and subjugate those who do not. On the contrary, one of the tasks of good

politics should be not only to respect the diversity of behavior and ways of life, but to actively promote it. For the very fact that our societies have risen from the ashes of totalitarianism, we need to be aware of those germs of validation that still survive and could put our society in jeopardy. As a current example, we can refer to the totalitarianism linked to Islamic fundamentalism, where the validation and attack on diversity have reached paroxysmal and pathological forms that have never been seen before in human history and where the impulse for genocide is even turned upon themselves. It is interesting to note that we can talk of scientific fundamentalism as well as religious fundamentalism. This is because the characteristic of fundamentalism, whatever its form, is to consider that truth belongs to its own point of view and no one else's.

By contrast, an ecology of ideas considers truth within a context, which means that there cannot be a scientific truth without a social truth. Every individual is made up of future and past, so the conflict between these two points of view creates various synthesizing theories. Clearly, every individual carries within her/his all the identities of her genealogy: her/his parents, her/his personal history, the environments in which she/he has lived, but she/he is also projected toward the future. The diversity within an individual is a great tool of creativity for the community. It will take some time for our societies to begin a creative interplay of multiple individuals. It is not enough to respect diversity. Each individual must be allowed to discover the various languages and registers of which she/he is composed. It is also necessary for the others involved in this mutual series of exchanges to allow this discovery to take place. In this sense, time is an extremely critical variable. If we try to shorten it, we reduce the quality of the interaction.

Current social problems are multiscale-order deficiencies, caused by past, immature political supremacies, which cannot be fixed by the traditional hierarchical approach alone, by doing what we do better or more intensely, but rather by changing the way we do. Society is an aggregation of purposive actors. To harness complexity, we must take a generative perspective and acknowledge social outcomes as creatively produced by purposive actors responding to personal anticipation, incentives, information, cultural norms, psychological predispositions, etc. Any traditional modeling attempt will fail to capture their fundamental properties. Even less, any mathematical optimal approach will be far away to be able to predict any incumbent reality need. In fact, attempts to optimize hierarchical systems in the traditional top-down way will be less and less effective, and cannot be done in real time.

Facing such challenges as global warming and the aging population with a low birthrate squarely, Japan will become a "model nation" which overcomes these challenges before other countries do so, and create a virtuous cycle of creation of demand and strengthening of supply capability. What Japanese aim to build is a nation of "Sanpo-yoshi" (En. Tr.: all right on three sides) where three fundamental factors, that is, economy, environment, and society, work to improve one another and thereby contribute to increasing the wellbeing of citizens. Having experienced the global economic crisis, countries across the world are going deep into a substantial study on how to realize more fair and sustainable capitalism and growth.

In this process, Japanese will promote research and study on new growth and wellbeing in collaboration with foreign governments and international organizations, with a view to developing and upgrading statistics of related indicators. Through these efforts, they will establish a foundation for promoting measures to realize new growth, new environmental policy, a new concept of public service in an integrated manner and a new political supremacy. Human reality is multidimensional and integrated. To be effective, knowledge of that reality must be too. It is always shaped by a multitude of aspects, perspectives, and forces. The tendency to condense and compress reality into simplistic formulas is a form of willful ignorance that facilitates quantification, calculation and multiple choice examinations. In the process it conditions the mind to a reductionist mode of thinking, blind to the complexity and integral nature of life, with enormous, useful information dissipation and loss.

The world is beset with problems that appear insoluble largely because we are unconscious of the true extent of the social capacity that has been created and the social potential still waiting to be developed. The limitations of current economic theory prevent us from seeing the incredible power society has generated for accomplishment in all fields. A new paradigm in thought can provide the intellectual foundations for achieving a fuller and richer social life for humanity than anything now imaginable, if only we are willing to discard the self-imposed limitations of outmoded conceptions, vested interests and dead conventions.

Modern economies are conscious living systems increasingly fueled by human and social resources that are not subject to inherent material limits. Material resources are consumed in the process of utilization. Non-material resources such as information, knowledge, technology, skill and organization multiply in the very process of being utilized. Human capital and social capital grow in quality, utility and value through usage and experience. The argument that subjective factors are too difficult to measure is increasingly challenged by the development of alternative measures and justifies much more serious efforts by mainstream economists to evolve new methods, rather than ignore this essential dimension of reality.

New paradigm thinking in the social sciences can no longer deny the central importance of the subjective dimension of reality nor seek to reduce it to its chemical and nervous physiological constituents. The call for new economic theory is based on the premise that the persistence of poverty together with rising levels of unemployment, inequality and ecological degradation reflect the limits of the present conceptual system, rather the practical limits of sustainable human development. A new paradigm in economic thinking is needed to make conscious and explicit the underlying concepts that limit humanity's ability to promote rapid advances in welfare and wellbeing for all human beings.

The quest of traditional, classic natural science is to discover the immutable natural laws governing the world around us. The role of the natural scientist is as impartial, objective observer free from value judgements. A fundamental challenge in the social sciences is to discover the social processes by which people meet needs, fulfill aspirations and achieve goals. Impartial knowledge of what pertains is not sufficient. It must necessarily be examined in the light of the values and

goals humanity seeks to realize. Economics needs to become value-conscious. It needs to make explicit the goals, values and premises on which its knowledge is based. Today, we recognize complex right to a viable eco-system on what theorists have seen Spaceship Earth (Ward, 1968). The values embedded in the protection and promotion of a healthy eco-system, are, like many other values, issues of complex inter-dependence and inter-determination. However, implicit at least, in the concern for the integrity of the eco-system is clearly the notion that there are no human rights if there is no environment in which human being can survive and possibly even improve the human prospect (Nagan & Weeren, 2016).

The objective of WAAS' New Economic Theory (NET) is to formulate theoretical and practical knowledge required to maximize economic security, human welfare and individual wellbeing of all humanity in a manner consistent with universal human rights, cultural diversity and civilizational values and what it will mean to live in harmony with nature (Šlaus and Jacobs, 2013; WAAS, 2014, 2017 a, 2017 b). Economic security ensures minimum material needs. Human welfare encompasses a wider range of material and social needs related to safety, health, education, social security and cybersecurity. Individual wellbeing encompasses higher level social, cultural, psychological and spiritual aspirations for freedom of choice, respect, free association, enjoyment, creative self-expression, individual development and self-realization. And sustainability means achieving this in ways that restore the natural systems on which we depend. The objective of economics is not production for its own sake or economic growth for growth's sake. The goal is not to discover immutable, universal, natural laws of economy based on any existing precedent, model or theory, but to identify the intrinsic laws and first principles of a social system suitable for promoting global human welfare and wellbeing.

Drawing on current biology, NET argues that the phase space of economic evolution is not stable. Thus, there are no immutable and entailing laws of economic dynamics. In this sense, economic dynamics are creative and the economy is not a causal system. Because economic dynamics are creative, the implicit frame of analysis for the econosphere changes in "unprestatable" and non-algorithmic ways. New-venture, social, and political entrepreneurs solve the frame problem of the econosphere. Economic evolution is unpredictable, not entailed, and the number of things traded ("cambiodiversity") increases over time. The metatheoretic framework proposed by Roger Koppl and affiliates points out how institutions, entrepreneurs, and disparate actors enable what they call "novelty intermediation". They provide examples of novelty intermediation from Renaissance Italy to Silicon Valley. Their framework does not automatically provide clear policy prescriptions in part because their main result is negative. It may nevertheless provide a useful prolegomenon to a future economics fit for a creative world (Kopple et al., 2015).

As a matter of fact, values express intention and commitment, but they are not merely utopian ideals or ethical principles. They represent the highest abstract mental formulations of life principles with immense power for practical accomplishment. They represent the quintessence of humanity's acquired wisdom regarding the necessary foundations for human survival, growth, development and

evolution. Consciously or unconsciously, the construction of any image of the real world relies on personal beliefs based on personal predicative and numeric competence. In this paper, we have brought to light some fundamental components, according to our personal experience, and formulated the proposal for a new understanding of them, at an effective scientific and operative level. It is absurd to believe that everything is going to change, but politics will and can remain the same.

Therefore, in order to achieve an antifragile behavior, next generation human-made system must have a new fundamental component, able to address and to face effectively the problem of multiscale ontological uncertainty management in an instinctively sustainable (Hyttén, 2017) way: active wisdom (Bateson, 2011) by design!

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