



## ***The Crisis and Challenge of Globalization Insights from Physics***

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*The crisis and challenge of globalization centers on the many disempowered people who no longer feel they hold any “stake” because the present global economic course has wrenched it away from them. The goal should **be to support people world-wide, or more generally the process of life, rather than interests of stakeholders.***

### ***Curing basic causes and not only treating symptoms***

*Hence, to my mind, it is essential, first, **to identify and critically reflect upon the basic forces behind the present global development and their origin** before immediately turning to, what should only be the second step, a sophisticated consideration of possible remedies of the various un-healthy **symptoms** being generated by this development. Of course, we do know from experience that treating grievous symptoms may sometimes prove to be urgent and, in fact, a necessary entry for a longer healing process, but this approach should not be an excuse or substitute for not immediately trying **to identify the worst defects** and to mobilize counter-forces for confining and finally eliminating the main cause of the disease.*

### ***Continuous acceleration is not irrevocable***

*The „**fatalistic**“ **approach**, as I call it, as e.g. reflected in stating at the start of the Executive Summary: „As the process of globalization and technological innovation continue to accelerate ...“, is commonly regarded as being pragmatic, non-ideological, cool-minded, wise by political and economic rationale, or plainly „realistic“ in the sense of an inescapable consequence of some imagined, strictly valid law of reality. To state such a dependence with certainty may, however, be seriously in error. And very likely, on the basis of our present knowledge of reality, this fortunately is the case, because this confidence actually reflects a mind-set still dominated by the **now antiquated thinking of the 19<sup>th</sup> century** and its limited materialistic and mechanistic*



ideologies (Marxian and Capitalist Economics, naïve Darwinism etc.) relying on a simple-minded extrapolation of the very successful Cartesian-Newtonian world view of classical physics.

### **Modern technology with old thinking**

In the meanwhile even the 20<sup>th</sup> century has passed. And we are all fully aware of the tremendous change that breath-taking advances of science and technology during this century have brought upon human society, providing in particular the material basis of the present process of globalization. Or more precisely: It were the **revolutionary discoveries in micro-physics** during the first quarter of that century, quantum physics, that offered startling and profound insights into our understanding of matter (e.g. the stability of atoms as the basis of modern chemistry) and enabled hitherto unimaginable technical applications (e.g. microelectronics triggering the present information age, nuclear weapons with the potential of destroying human civilization and more). But strangely enough **only a very few have become aware of the truly revolutionary dimension of these new insights, which forced us into a dramatically changed world view, leaving us with a perplexing new Reality.**

### **The new Reality**

This new Reality is not based on matter anymore („matter is not made of matter“) but relates to a **fundamental immaterial connectedness** („Reality is not reality but potentiality“) obeying non-deterministic laws. This potentiality, similar to „information“, establishes an intimate, non-separable, non-reducible, holistic relationship („globalization“) between everything. Only on the **coarser macroscopic level**, in an „as-if“-fashion, **familiar reality** is induced with all its inanimate and animate forms including man. The future is essentially open, not strictly determined, allowing genuine creation. Predictability and knowledge and science (conditioned on determinism and reductionism) do not hold anymore in the strict scientific sense but are basically limited (and not only due to our ignorance). **Man is an integral and inseparable part of this more general, all-embracing immaterial Reality.**

### **The living and the dead**

The dead and the living are „made“ of the same immaterial essence but in different dynamical arrangements: An arrangement close to stable equilibrium, where a statistical averaging occurs, appears as „dead“. Close to stati-



cally instable but dynamically stable equilibrium („chaotic points“) however it appears as „living“. For the „dead“ we have essentially (excluding the microcosm) the old classical dynamics to which 19<sup>th</sup> century and our common thinking is adapted. In particular also the law: „the more likely will occur (in the future) more likely!“ (2<sup>nd</sup> Law of Thermodynamics) applies and serves as the logic of the conventional „realist“. For the **evolution of the living** we find on the contrary: „the **less likely can occur** (in the future) **more likely!**“ The most impressive example of this is the evolution of the extremely unlikely arrangement of „matter“ forming human beings from the original primitive organic chemical compounds, and this in only three-and-a-half billion years time. The living requires, for dynamically stabilizing its intrinsic „chaos“, a continuous influx of energy („food“) provided by sun light. The evolution of life proceeds along the spiral: **Identity \* Differentiation \* Integration without destroying diversity** (win-win-game or plus-sum-game or constructive cooperation) \* **New Identity** on higher level (s. also Ken Wilber). This upward (syntropic) spiral only works with a **continuous energy-input** and an **element of decision** demanding appropriate connections with the environment and a minimum of time. Without energy-input and/or without providing minimal decision time (unduly accelerated processes) the spiral turns downwards (entropic) like for the dead.

### **Survival strategies in case of fixed and unknown goals**

Since the future is essentially open and hence unknown, optimal chance for survival in the long run can no longer be achieved as in case of fixed goals by the *fixed-goal-strategy*: selecting the best option for this goal and using highest efficiency to reach it (*win-lose-game* with always a winner and a loser, *zero-sum-game* or more extreme: *winner takes all* = *survival of the fittest*), but the **optimum is attained by „highest flexibility“** in order to adapt best to whatever condition has to be met in the future. Highest flexibility in turn is achieved by the new **unknown-goal-strategy: diversification and subsequent close constructive, synergetic cooperation** (*win-win-game*, the advantage of one will simultaneously also be advantageous for others).

### **The paradigm of life**

This is the **paradigm of life**. It results from the fundamental immaterial connectedness. The particular superposition principle of connectedness (coherence, quantum statistics) allows **differentiation** (strengthening/weakening by constructive/destructive interference) **and subsequent integration of the diverse by a basically possible syntropic (counter-trend)**



**process supported by in-flux of energy and time- and environment-sensitive decision elements.** This is distinct and rather contrary to the paradigm of the dead which is characterized by a approximately valid general separateness (material decomposition) effected by de-coherence and only capable of entropic (normal-trend) mixing-type, diversity-destructive processes, except as local syntropic phenomena (although overcompensated by entropic external processes) in case of an appropriate influx of energy and extensively utilized in our technical value creation.

### ***Economic dogma on collision course***

**The paradigm of the present economic dogma, roughly speaking, simulates the paradigm of the dead and hence stands in contrast to the paradigm of life. This, to my mind, is at the center of our present crisis.** The problem, therefore, is not globalization because this, in a way, is the foundation of all Reality. But the present globalization is based on a „**competition**“ **interpreted as a win-lose-game** or even winner-takes-all-game which at best has only short-term advantages (fixed-goal approximation) but fails in the long-term. This is well-known: „In the long term we are all dead.“ also the economists say. But the miracle of life is related to floating, dynamically stabilized, statically unstable states which employ the basic immaterial connectedness for balancing the fundamentally complex. Under these conditions the competition is a highly correlated game and hence should be interpreted in its original sense as a **competition, i.e. seeking together** a common solution, expressing a win-win-game of the whole, the unity of all creation and in particular of humanity. In this case the **diversity of people and the diversity of cultures are important assets for the success of the whole.**

### ***Basic roots and validity of democracy***

This viewpoint is quite familiar in our civilizations where we celebrate (at least in our solemn official proclamations) the **integrity and relative independence of the individual.** This is also embedded in our **democratic constitutions:** we highly value the distinctiveness and dignity of the individual, give full support to develop his/her unique spiritual, emotional and physical abilities and protect the individual from being submerged into a monotonous aggregate of indistinguishable people. So we **definitely give preference to countries and cultures which in their union and their governance, the way of their globalization so-to-say, do not demand breaking down all barriers between their constituents but in fact pro-**



**protect their diversity. This „protectionism“ is essential for the vitality of the whole.** Going up one level we should similarly also protect the different cultures in which people are embedded as a way to vitalize the whole organism, the culture on earth, to generate a highly diversified **Global Culture**, which is more than the sum of its subcultures, and herewith will greatly enrich our human civilization.

### ***Holistic structure of Reality***

Globalization exercised by Reality does not aim at tearing down all boundaries between subsystems (e.g. in the global system of our body blood is essentially restricted to blood vessels and, to avert a fatal stroke, is prevented to enter the brain, although blood and brain closely cooperate because oxygen has to be provided to the brain) because this would destroy the diversity within the one organism and hence have fatal consequences to the integrated system. The boundaries between the subsystems are, however **never walls but more like hedges**, semi-permeable, realizing in an effective way cooperative integration without destroying diversity, individuality, creativity.

### ***Globalization of neo-liberal economies***

The present dominant (neo-liberal capitalistic) economic system uses the method of highly sensitizing the society to stimulate innovations. But this can be viewed as a destabilization process („approaching chaotic points“) like **triggering an avalanche**, where an initial minute input gets largely amplified („butterfly effect“) by forcing wet snow on its way to follow suite: the avalanche rolls downhill **“multiplier-larger-faster”**, exposing the **commonly celebrated symptoms of „success“**. But **this „avalanche syndrom“**, as we know, will end in a huge catastrophe because **destabilization without dynamic stabilization has no long-term future**. Dynamic stabilization requires a **balance of forces and counter-forces**, a homeostasis, as we observe in all living systems. The **counter-force is not the enemy of the force** but only both, appropriately playing **together**, allow to **achieve optimal „freedom“ and „survival“**. Hence, without controlling counterforces the present system of economics is fatal like a cancer for a living organism. It may impress in the short run by its fast, although regarding sophistication very limited type of growth but it will collapse in the end with the complete destruction of the organism on which it feeds. This problem **cannot be resolved by a better governance** of this process but, in fact, will even **aggravate**. The centralized and closed structure of the organization is the problem.



The solution lies in the direction of **decentralization, transparency and subsidiarity**.

### ***Eigendynamics of the globalization process***

The problem we are facing has the structure of a **vicious circle**. The „bad boys“ are really bad boys, but „unfortunately“ not to the full extent as many imagine that they themselves make the circle vicious (I mean „unfortunately“ in the sense: if they were the full cause, the problems could be solved by simply stopping or replacing them), but it runs essentially by itself, by its own feedback. Hence convincing the one or the other to restrain their action will not stop it, but only slightly improve the situation because they are adding to its vice, increasing the positive feedback, instead of weakening it. We all know that in case of a howling feedback of a microphone-loudspeaker system it does not help to send the boss to the microphone to improve the sound, but the only sure remedy is: **turn down the amplifier**. Hence a damping of the processes of the system, e.g. impeding the capital to move so freely and fast, may get the system into a mode which on principle becomes again **controllable** and hence provides the **precondition to establish sufficient safeguards** against large run-aways which in human terms are **catastrophes** of various degrees and may include the extinction of humanity.

### ***The slanted and uneven playing field***

To visualize the situation a picture comes to my mind. I see the world as a huge **playing field**. It is the playing field that Reality has provided to set the stage for the Evolution of Life. **Everybody and everything is participating according to their best abilities**. There are a lot of diversity in looks, ability and actions. There is no way to be send off the field, but multiple ways to connect with others. The playing field is rather level but has hills and valleys offering favorable and less favorable sites. But these small inequalities can be easily compensated by local adjustments. There are general, evolutionary grown rules of the game for fairness and respecting the others. Empathy prevails because there is strictly speaking nothing on the playing field strictly separate from the other, not more distinct as my thumb feels about my toe. But then by our arrogant insensitive actions a mechanism is set into motion which slowly but continuously tilts and deforms the playing field. As a consequence everybody und everything has to adjust their special games to compensate for this disturbance. The local rules get more complicated the larger the slope. People start to slide off the field. Eventually none of the old remedies work. At that point intense „rubber sole“-discussions get started and there will be an intense competition for the best rubber-soles being fixed to our shoes to prevent us from sliding off. This approach will be useless in the long run!



*Rubber soles may only help to gain some time for becoming aware of the dangers and to think of more drastic countermeasures. **We have to go to the basic cause of the tilting and stop the dynamic imbalance to obtain a sustainable solution.***

### ***Translate to our present situation***

*Applying this picture to our present globalization debates we realize, I am afraid, that most of them concentrate on „rubber-soles“ and by-pass the basic problem. **Because the problem is not globalization as such.** We are all fully aware that everything is connected with everything else. But it is the particular structure of the connectedness which requires our attention. The ways we talk about globalization today center around materials, commodities, goods, things which can be localized, exchanged, possessed, produced, traded, consumed, accumulated, have trade value, allow to establish power structures etc., but rarely address people directly, their individual lives, their expectations, dreams and sorrows, their creativity, search for knowledge and understanding. Of course, all these aspects and qualities appear abundantly in our daily routines but increasingly more as psychologically refined baits for attracting and catching customers for largely superfluous products.*

***Technique once was meant to assist people in managing more successfully and easily their lives, now people have to worry about how to adapt their way of life to serve best the technology,*** which comes upon them threateningly like a hurricane, the direction and fast development of which appears like an irresistible and uncontrollable natural process.

*The present globalization process, to my mind, gets its **great momentum not from a yearning to improve the predicament of people all around the world but primarily constitutes a race for more power, ultimately for world power.** Perhaps the most alarming aspects at present in this context is, firstly, that an increasing number of people in the most powerful countries are not afraid anymore to openly admit „more power“ to be their main aspiration, and even advance moral justifications for this attitude on the basis of a naive „survival of the fittest“-ideology, but, secondly, that there is no loud and clear officially supported public out-cry heard all around the world to vehemently oppose such an attitude. What is the matter? Have we already decided that the present course is irreversible and are merely looking for some shelter? Do we feel as people already so intimidated and disempowered that our faith in a humane homo sapiens sapiens is lost?*



### ***Democracy is the main issue***

I believe, therefore, that the main issue in our globalization debate should be **democracy**, the (re)construction of a democracy in a deeper sense which does **care about people** and – providing them with **high quality information** and means of communication rather than misleading and disempowering them by manipulation - does **trust their generic ability to make sound judgments, to actively participate in large numbers in creating their own lives and successfully cooperate with others, different and alike. A democracy simply based on a system to count votes once-in-a-while just will not do to prove its democratic status**, in particular if people can be brain-washed and dulled in large numbers by psychologically refined centralized mass media. **And it will be critically important that the politically leading countries will become the leaders in this democratic development and the best examples in performance.** Since the win-win-game of the diversified as a mean to advance to a higher level of organization, a higher “fulcrum”, is a central part of the evolution of life in its three-and-a-half billion years learning process, **we can safely proceed on the assumption that people have not be taught empathy, fairness, responsibility, generosity, kindness and the play of win-win-games from scratch but just have to be reminded of their ingrained competence in constructive cooperation as a participant in the general process of life.** This competence is reflected in all of the great world cultures. That this is not evident anymore may be caused by severe short-comings of the dominating practiced Western civilizations which glorify aggressiveness, toughness, reckless advancement and an arrogant lack of empathy, and undertake great efforts to make people fit to a world which is perceived as a great battle field for survival with everyone fighting the others and all jointly attacking nature, and, even claim this world view to be “true” as sanctioned by an “infallible” science, despite all the traditional wisdom to the contrary.

### ***Sustainability in the full sense has to become our dominant goal***

Sustainability will be the key issue, with “sustainability” not only applying to a compatible relationship of humankind to nature as its natural support system but comprising an equitable relationship between people, and honoring each human being with all the faculties of a humane *homo sapiens sapiens* beyond merely its crippled form of a *homo oeconomicus*. This in particular will mean: In solving whatever problem, it will not suffice to obtain agreement among certain groups discussing possible solutions but **to make sure that by these agreements the problems are not merely externalized**



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***and transferred to somebody not being represented at the discussion tables, or eventually to generous earth, herewith jeopardizing our natural support system and subsequently the livelihood of future generations and other species important for the vitality of the biosystem as a whole.***

*Munich, August 15<sup>th</sup>, 2001*

*Website:*

*[www.pcdf.org/Living\\_Economies/supporting\\_essays/physics.htm](http://www.pcdf.org/Living_Economies/supporting_essays/physics.htm)*