INTERNATIONAL CONFERENCE

Global Ethics, Sustainable Development & Social Media

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Panel Discussion

“21st Century and Civil Education and Civil Society”
We live in a Global, Exponentially growing, Turbulent World, that generate a continuous chain of problems, more and more difficult to be solved.

As Einstein said: “a Problem cannot be solved, based on the same paradigm that create it”. Therefore, to find real solution for such a complex situation we need “to rise the mind to the level of problems and not to simplify it at the level of the present knowledge”. We can have in mind the saying of the Romanian modern sculptor Constantin Bracusi: “Simplicity is a solved Complexity”
To find solutions for a sustainable development at global scale we need:
- A new, integrated vision of interactions between natural phenomena and the complex chain of human activities which define the needs of a modern civilization as we perceive it today;
- New concepts, tools and technics for a wise management, oriented to the harmonious balance between different socio-economic activities, in correlation with cultural diversity and the climatic change;
- A new educational system, capable to accelerate the compatibility of individuals to understand this new step in the evolution of humanity, known as Knowledge based Society.

To do that, we need to understand the big picture… the evolution of humanity as a living organism on a particular planet.

One way to do this is looking for the evolution of artifacts, seen as “letter” of a special writing, capable to point out, in an objective way, the historical evolution of civilization.

We see an exponential growth with short periods of profound changes that modify the level of civilization… new paradigm …new social structures… Each jump comes sooner and sooner and create more and more complicated artifacts based on a more and more abstract vision about life, universe …

In a first essential “jump”, we externalized the labor by using machines that create the Industrial Age. We build towns, railways, cars …the main infrastructure of today.

Starting with the invention of the Computer, we start a total different journey in an immaterial, informational realm.

The A.I. externalize an important part of our intellectual activities creating the frame for a Knowledge based Society, a society that we build today. A society based now a very new ontological basis: to the Energy & Matter we need to add IN-formation. Therefore, as Matter can be seen as a condensed Energy, the information is a new Encoded energy.
Each new paradigm shift creates a major crisis at socio-economical levels. The old social structure decomposes, an anarchic/chaotic behavior begins, and a new structure emerges.

The real new “ingredient” in the present paradigm shift, that lead as to the Knowledge based Economy, is the INFORMATION, the key of the digital technologies. The Negroponte switch is ON. This Digital Future is something intangible, so abstract and so new for humanity… a challenge.

Let see an example. Look to the evolution of a radio device. We start with vacuum tubes, case in which 90% of the production was handmade… Many people involved in production, in maintenance, many materials was used …

The discovery of transistors creates a real jump into society… the same function but less material, less energy used, but more complex technology…

Negroponte switch
“The Future is Digital”
A new jump was generated by the high integrated circuits ... You have in image an entire radio used in the Smart Phone ... It is difficult to produce in a new factory because of the huge initial investment and the very low price of each product.

The last jump in technology is the quantum radio ... no internal components as resistors, capacitors, transistors... but only a nanotube. A complete new approach.

What we can conclude:
- The essence of the geo-modernization process is the exponential grows of the knowledge, based on the development of science and technology;
- Information became a new production force with major impact on industries and of course in the structure of society;
- The exponential behavior of MEST law has profound consequences in social life and impose a radical change of the educational system...

We are at the beginning of digital age, but we already know how to print 3D and 4D objects. Without the classical tools and hard labor, the 3D printers are able to materialize complicated shapes made from different materials, starting with a "mathematical" abstract pattern. We can say that Math shapes the physical world. In other words, the object is a result of a digital pattern... numbers (as Pythagoras said long time ago: all is number)

Look to the complexity of these objects.... Difficult to manufacture this kind of object in a classical way. Because of this technology, the creative personal development was unleashed...
Imagine a 3D printer in a Hotel room. You do not need to bring from long distance, any clothing items… A 3D scanner take the personal body characteristics and create the software to control the printer…
The development of IT&C creates the conceptual basis and the technical infrastructure for two major pillars:

- Computational Science – that allow as today to develop complex models, to deal with huge data base end extract useful information and
- The WEB – the Internet that change the world by creating a new environment that modify the human behavior, create new kind of interactions (teleworking, e-commerce, e-learning)….

On this basis, the Complexity science emerge as a new way of seeing and understanding the World. To study a Complex system we need new concepts, new models, new theories, new tools and of course a new training. Chaos theory, Bifurcation theory, Fractal Geometry, Synergetics, Dissipative Systems, Cellular Automata, Neural Networks are only a small part of this new network of knowledge that is used to describe, understand and control complex systems.

Based on this, many other disciplines emerge: we can speak about Neuroscience, Socio-physics, Econo-physics, Juris-dynamics, mechatronic, astro-bioscience, astro-geophysics….

As methodology, we need to use a trans-disciplinary approach in the Basarab Nicolescu definition, president and founder of the International Center for Transdisciplinary Research and Studies.

He define transdisciplinarity in this way: “Transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all disciplines. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge”
We can conclude that humanity is in front or a major change with profound implication in lifestyle, in needs and opportunities. From complicated to complex, from linear to Non-linear, from tangible to nontangible values, from mechanical to biological view, from labor to creative activities.

A condensed information on Complexity Science

The major task to help mankind to do this jump, to build a sustainable society at global scale is to develop an educational system, capable to assure the diffusion with high efficiency of this concepts, models, theories and technologies. To reshape the Mind in such a way to be capable to operate in this new dynamic, turbulent, abstract environment. In addition, this is a profound challenge for anybody.
Behind any success story there are the people

*conscious evolution* represents our capacity to evolve consciously and not merely by chance.

Humanity is consciously evolving at an exponential rate and it is doing so through the wide-scale spread of expression, connection, love, compassion, innovation, co-creation, and recognition that has been made possible by advances in technology that have initiated a viral awakening of personal and collective consciousness.

**Conscious evolution is the evolution of evolution, from unconscious to conscious choice.** While consciousness has been evolving for billions of years, conscious evolution is new.

The difficulty of this process is to admit that Cultural and Spiritual activities are vital for humans. Humans are not components into a huge engine that produce goods! **Humans are spiritual and cultural beings.** At this level, humans starts the “**Conscious evolution that can be described as the evolution of evolution, from unconscious to conscious choice**” Barbara Hubbard. Therefore, the educational system has a different role: to prepare people for a new kind of society in which the **Work has a different meaning.** The values are Creativity, Harmony, self-development, Educational system must create a mental up-grade for professionals and a Mind Building for a Knowledge based society for all of us.

In a schematic view, the Unknown become Social Reality, part of everyday life, by a chain of activities, interactions between individuals. Starting with R&D activities, a flow of products and technologies are integrated into the market, becoming parts of the Society, shaping the lifestyle, creating the market demand. An educational system help society to be part of this chain.
In the moment in which the knowledge flow increase in an exponential way, the educational system has a new task: to help the diffusion of new knowledge into society (continues learning, up-dates and up-grades).

A new business opportunity become any activity dedicated to facilitate Companies, SMS-is, individuals to have access to this new concepts, technologies, information and to use it in a creative, innovative way.

In this context, we need a fluid management, a new kind of interface between Academic and Market, between theory and applications. To fulfill this task, in 1996 I founded the Center for Complexity Studies an NGO that become an UNESCO center in 2001.

The main task of the scientific council is:
- To design research programs, based on real problems that need a Complexity science approach,
- To choose a basic theme of the year and
- To adequate the programs to the level on age and knowledge of participants to the scientific research program that become the core of this new educational process named The NEXUS program.

In this way, the theme of the year is fragmented into sub-projects (parts of a integrated, holistic view), fact that induce a coherence in the research-education activity. The sub-project acts as a “didactical object” that impose for solving an inter- and trans-disciplinary approach and acts as a motivational tool.

This “seeds” are spread around, using different social and educational structures: Clubs, summer school, Contests and as subjects for master degree, license, hobby and summer schools….
PhD and Master level

- FRACTAL ANTENAS
- CHAOTIC OSCILLATORS AND CHAOTIC RESONANCE
- INTELLIGENT MONITORING SYSTEM FOR SEISMIC RISK IN A GEODYNAMIC ACTIVE AREA

A laboratory for the studies of the Quality of a Natural environment by the use of complexity science tools

NEXUS – T program is in fact an “engine” designed to increase the attractiveness and relevance of science studies at schools.

The NEXUS room is a particular place allowing teachers, professionals, managers to exchange ideas, techniques and methods to supplement existing science curricula and educational strategies in order

Nexus room
space specifically dedicated to and equipped for research, training, dialogue and multidisciplinary consultancy, conducting laboratory experiments.
Saturday school

Produse realizate în cadrul programului NEXUS-T destinate formării bazei naționale și asigurării inteligibilității materiilor predate la fizică, mate, info.

- Masurarea parametrilor procesului de gaurire (fotorezistentă, deplasare burgului, vibratii)
- Banc de masurare / studiu vibratii mecanice
- Ridicarea nivelului pt. scoala vocationale în parteneriat cu licee teoretice;

Repetition – Monotony – kills the creativity and generate STRESS => we need to do something to disconnect the linkage between Job and Stress
We are looking for a job… fighting for a better job… A job in these days is based on procedures, deadlines, hierarchy… It implies repetition, in short: monotony… Monotony kills creativity, the joy of living, the happiness … and generate what we call STRESS;
It is useful for the company that became efficient, but in long terms, we can see the degradation of people with dramatic impact on sustainability of the company.

The intensity of stress rise from Monday to Friday when we live a critical point between the tiredness of the week and the joy of starting the weekend. Where we can start to do a hobby… that means relaxation …creativity… 5/2 the ratio between stressed period and the happy one. Why is the weekend perceived as joy, and happy? In general because we can express our self in a creative way… Therefore, creativity is a joy engine! It brings “psychical energy” into the body.
Our life is a continuous oscillation between stress and relaxation but with this 5/2 ratio… In time the joy of living vanish and this become the seed for depression.
Today, depression is the first on the hierarchy of diseases… and that in all developed countries …So, what to do?
To be CREATIVE in your one life! In addition, build for yourself a new life … **Jobby** that means “personal development for having a broader, extensive view about life, nature, universe… That implies continues learning (not the **permanent fight for a diploma but for understanding the meaning of lectures**); and as a result a sustainable life (not only based on money).

Creativity and not a competition with a copy-paste behavior; **time** for cultural and spiritual activities, an opening to society, building programs with and for society.

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**The human being of today “a ferocious animal that computes”**

*Richard Wagner*

- Humans- as potentiality - are more than a rational animal… producing artifacts
- In the absence of a spiritual “sight”, human creativity is oriented towards the satisfaction of the Ego
- A spiritual dimension allows the empathy with GAIA evolution (co-evolution and sustainable development)
- Knowledge-based Society is a (compulsory) phase in Human evolution, a step toward the only sustainable society: the Consciousness Society
CONCLUSIONS:
A TRA-N-DISCIPLINARY APPROACH IS ESSENTIAL IN BRINGING THE SCIENCE AT THE LEVEL TO DEAL WITH THE UNIVERSE AS A WHOLE.

THE KNOWLEDGE “DENSIFICATION” (MEST LAW) GENERATE AN EXPONENTIAL GROWTH OF THE DESTRUCTIVE POTENTIAL OF SOME ARTIFACTS.

DEVELOPING A SPIRITUAL BEHAVIOR IS AN OBJECTIVE NECESSITY LINKED TO THE MANKIND SURVIVAL.

THE SEEDS OF A CONSCIOUSNESS SOCIETY MUST BE PLANT TODAY, IN THE CORE OF KNOWLEDGE SOCIETY.

Ethics can not be learn
Ethics is a result of a level of consciousness

Every place must be a SCHOOL
SCHOOL WITHOUT WALLS
SCHOOL NEAR COMPANY
SCHOOL NEAR OIL FIELD
WEEKEND SCHOOL
SUMMER SCHOOL
WINTER SCHOOL
……
LEARNING BY DISCOVERY
LEARNING BY DOING

Thanks for your attention
Dr. Ing. Florin Munteanu

Born on March 27, 1952, in Braşov; B.S. from the Polytechnic University. 1976; Doctorate in Sciences: *Industrial Engineering*; specialized in applied complexity science in engineering, econophysics, geodynamics and environment, as well as policies for integration into education of the informational and communicational technologies.

Member of the Academy of the Scientists from Romania, Scientific Secretary of the Geonomic Sciences Department. Correspondent member of the Academy of Technical Sciences from Romania, Scientific Secretary of the Petroleum Engineering, Mining and Geonomy Department. Founder and Scientific secretary or the UNESCO chair in Geodynamic from the Romanian Academy, Institute of Geodynamic, Associate professor at the University of Applied Sciences of the Polytechnic University from Bucharest. Associate professor at the National Defense College.

Founding President of the Center for Complexity Studies – UNESCO center, the main promoter of the complexity science paradigm in Romania. Initiator and coordinator of research programs with national and international participation such as: “*Complex study of the geodynamic; area Vrancea – Romania and Reunion – The Indian Ocean*”, Unconventional technologies (the design and production of equipment for magneto-forming, laser cut of the materials, magnetic control of the electric arc in plasma welding, etc.).

**Areas of expertise:**
Consultancy and mentoring in business managing into a “turbulent” economy; HR training in leadership for a knowledge-based economy (mind building). Designing conceptual and technical framework for e-learning continues learning, personal development.

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Complexity science and trans-disciplinary approach in the 21st Century Education

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The exponential growth of the dynamics of the modern socio-economical life, in the context of globalization and climatic changes, puts an enormous amount of pressure on each individual. Trying to survive in a turbulent environment, in which the prediction of future events is becoming more and more difficult, needs a huge effort for a continuous adaptability, but also a taking into account of a possible failure. It is common knowledge that every critical point (either a dilemma or a choice) assumes a change and imposes a decision. The psychological tension induced by the uncertainties that naturally accompany any decision in an unpredictable evolution has the power to affect man at both an emotional and mental level.

Lacking an appropriate vision of the meaning of this dynamic evolution of Reality, the modern man is confronted with stress, a stress that increases exponentially at global scale. It is a fact illustrated by the continuous degradation of the quality of life at planet-size scale and by the decrease of the immune system’s performances as well, with dramatic consequences in the continuous degradation of the physical and psychological state.

Immediate solutions for improving the individual state of health and the growth of the chances of survival of the human species in the context of the actual socio-economical turbulences are as follows:
- Understanding the process through which mankind is going through today (a “forced” transition from the industrial society to the informational one, and from Knowledge based society to Conscience society),
- Spreading the Complexity paradigm in society, a paradigm that is able to identify and foresee certain patterns in the social turbulence, as a conceptual stage superior of the current basic view,
- Formally refining and adapting modern society’s understanding the theological information, which places Man and his nature (consciousness), as the generator of spiritual and cultural living in the global system,
- Developing a new educational system based on the unity of knowledge (interdisciplinary vision) and the understanding of the cognition processes (the science of the mind) in harmony with the assumed role of Man to be a first and unique spiritualized entity, capable of creating adequate conditions for the protection, maintain and develop life on Earth (ecosophy).

To accomplish this task, the Center for Complexity Studies (CCS) has structured a special multi-dimensional program called NEXUS. At the core of this program is an Exploratory Research team whose purpose is to design applications based on the Complexity Science theory in Econophysics, Socio-physics, Environment, Engineering and Neuroscience. The main mission of this academic team is to explore opportunities for pragmatic applications of this new paradigm and to define/design projects and programs for R&D activities. Their major objective is to create and innovate an approach for a profound change in social perception of Knowledge based Economy. In conclusion, CCS will act as the interface between fundamental research and pragmatic applications.
In order to help society perceive the changes needed between Industrial economy and Knowledge base economy, the Nexus program has a branch dedicated to education. This educational activity is based on the notion that a clear and concise question can initiate a specific cognitive process, able to arouse interest and curiosity and motivate the effort of accumulating knowledge. For this reason, the program was conceived to stimulate young people’s ability to generate pertinent questions in the field of Complexity Science and to find answers through a process largely based on self-instruction, experimental research and communication with other students and researchers/instructors who are interested in the same topic.

The Nexus Educational program has a multi-layer approach to bring together children, parents and students around a “complex” problem that needs to be solved. Based on non-formal and informal educational concepts and having a trans-disciplinary approach, the NEXUS educational program can be seen as a new and flexible educational environment. The program is coordinated by mentors and shaped by multi-generational and multi-disciplinary activities with the purpose of continued learning. As a result of having an integrated view in various subjects, our students increase their capability to act in a more responsible and team oriented fashion.

A specific characteristic of the Nexus methodology is the integration of arts and sciences into a harmonic curriculum. Through this approach, students become more sensitive to human needs; thus becoming more creative and capable to correlate data and notions from different disciplines. They are also more capable of having scientific and rational communication of the essential issues and are more tolerant and proactive when facing crises. We call the students who complete Nexus educational program: “Nexialists”. It is a term introduced by the science fiction author A. E. Van Vogt who defined a “Nexialist” as "one who is skilled in the science of joining together, in an orderly fashion, the knowledge of one field of learning with that of other fields”.

The Nexus educational network was developed more than 16 year ago. It includes scientific clubs, research labs for high school students and personal laboratories linked to an Internet network. As a spin-off to the network, CCS has developed a small production of personalized devices and “complex didactical objects” (experimental setup, software, dedicated lectures on a specific theme; experimental infrastructure for an open question). CCS also offers an on-demand training of The Basic of Complexity Science. In this way, the Nexus program is an engine for real change in our society, which meets the needs of a global society in the age of Knowledge based economy.

In conclusion, CCS believes that our expertise in this non-formal, integrated education is useful on a local and global scale. We invite you to join in on the discussion regarding the role of Complexity science, trans-disciplinary approach, non-formal and informal activities in the “21st Century Education system”.

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