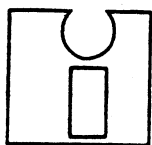


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INTERNATIONAL FEDERATION OF  
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WORLD INTELLECTUAL  
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## WIPO-IFIA INTERNATIONAL SYMPOSIUM ON INVENTORS AND INFORMATION TECHNOLOGY

jointly organized by  
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and  
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QUO VADIS INVENTIONS IN THE AGE OF INFORMATION TECHNOLOGY?

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1. The noted Spanish poet of the 17th century, Calderón, titled one of his well-known theater compositions: *La Vida es Sueño*, *Life is Dream* (*Az Élet Álom* - in Hungarian). This brief poetic thesis or paradigm is so rich in content and so far-reaching in intellectual consequences, that Calderón found it necessary to repeat and circumscribe it in several more theater composition - from different viewpoints and under different titles.
2. When we take an undisturbed sweeping view on the evolution of human histories, we are very much tempted today to augment, refine or reformulate Calderón's poetic thesis and state: *La Vida es Invención*, *Life is Invention*. Yes, beyond and above individual life dreams, the history of human life is rolling and progressing on a rich and yet unfinished series of technical inventions and related innovations. The existence of today's human life relies on something deeply intellectual: inventions and innovations.
3. What do inventions and innovations actually do? In simple words: they make life livable in the wonderful environment of Earth which is somewhat friendly and also somewhat hostile to human life. We live in a much adored natural surrounding of our "garden planet" Earth which, however, does not provide an abundance of explicit tools for living, and never offers sophisticated instruments for the betterment of human existence and life. It is up to the inventive and innovative human mind and spirit to create and use tools for the betterment of human existence and life on our "garden planet" Earth.
4. When anthropologists in brief terms try to describe the characteristic features of humans in relation to the surrounding diverse living creatures of Earth, they find that humans are two-legged creatures, equipped with a binocular vision system and brain, have two arms with five-fingered hands, and - most importantly, they are tool-makers and tool users in their life. It is then an easy conclusion of this description that inventions - which basically are intellectual products - provide the tools which characterize the human race most, and using the appropriate tools is the process of innovation in human life.
5. Innovations and discoveries are close relatives. Many times, tool inventions are needed for new discoveries, and discoveries often prepare the road for new inventions. Most importantly, however, both inventions and discoveries are the products of the searching and educated human mind. They reveal and produce something new and useful in life, they solve key problems and shed light on hidden or not so obvious things that have effect on our life. The key words here are the "searching and educated" human mind, briefly - education and motivation or attitude. It is education that can connect people to reality and to each other, it is education that can connect generations to generations, and it is education that paves the way for creating new tools or inventions needed to sustain and improve human life. And it is human attitude or motivation that keeps all of these alive and converts them into daily innovations in human life.
6. The information technology age itself is the product of inventions, or better, a series of diverse discoveries and inventions. These inventions produced unprecedented communication channel capabilities connected in far-reaching networks, enabling them to satisfy deep human needs and desires like: the hunger for knowledge, the hunger to understand many diverse things and to synthesize them, the hunger to communicate with each other, to exhibit capabilities and to offer things for public viewing, to manifest or display worthy things or happenings, and so on. Most importantly, doing all these in a fast, inexpensive, effective and quite personal way; doing it without traveling or using the postal service, without buying or

selling newspapers, periodicals or books, without visiting libraries, and so on. Information technology of today enables people to enjoy all the above capabilities from the home or office desk, sitting in a comfortable chair, pushing a few keys on a keyboard and gently manipulating a friendly mouse to place a pointer to some icons or other symbols on a monitor. People can physically be on-line with a huge multitude of very diverse things in a very simple way, with high efficiency. Obviously, the communication capability provided by today's information technology that I intend to highlight when looking for the future of inventions in the age of information technology.

7. Today and here, I would like to highlight the contextual content and connection of "information" and "inventions" when projecting their relation out to the coming times. And I would like to do this projection by invoking another characteristic notion of our time: the space age. The space age, that enables us to leave our planet Earth, send humans and instruments into orbit around Earth, and send instrumented spacecraft to distant bodies in the solar system. Curiously enough, the two notions of our time, the age of information technology and the age of opening space, are closely connected technically.

8. The current and future space missions of the Jet Propulsion Laboratory (where I worked for nearly thirty years) are linked by two grand themes: (i) Search for evidence of life outside of Earth, and (ii) the discovery of the origins of galaxies, stars and planetary systems.

9. We know that life has been detected on Earth anywhere there is water on Earth - let it be at the bottom of oceans; around vents of near-boiling water from the heat of the Earth interior; in Antarctica at near freezing; or in a rock 3-4 kilometers down under the Earth's surface. The search for life beyond Earth is, therefore, in a certain sense a search for liquid water or for the signature of liquid water elsewhere in our solar system. (This point should give enough ammunition to those who are concerned about water on Earth, since they are essentially concerned about life on Earth, anywhere on Earth.) The second grand theme and program - which is the search for the origin of galaxies, stars and planetary systems - is essentially also a search for life or possibilities for life beyond our solar system.

10. Life is not a simple system. The emerging new science of astrobiology is an intense multidisciplinary science since where astronomy, physics, geology, biology and chemistry cooperate and join forces to study the development of life on Earth and the prospects of life elsewhere in the Universe.

11. Why are all these ambitious goals set for the current and future space program? Why is astrobiology emerging when we have quite a few biological life problems on Earth? The answer to these questions is rather straightforward and sounds like the following sentences. We know that human life and the history of recorded and civilization-oriented human life is a very short time episode within the known time-frame of our solar system, say ten or twenty or so thousand years within a timeframe of about 4.5 billion years, and even shorter time episode within the known timeframe of the Universe which spans between 12 - 18 billion years. The knowledge-hungry human mind, therefore, looks beyond our home-planet Earth to understand life at large in global terms, with the hope of better appreciation and nourishment of life on Earth. Is there, was there, or will there be sometime and somewhere life, in particular human-like intelligent life in the Universe? Searching for answers to these questions will help develop a global view, understanding, protection and betterment of life on Earth, anywhere and anytime on Earth. A globalized view of human life will be a clear acknowledgment of hard physical

facts that human life on Earth is a complex function of a long set of nature-given external and human-made internal factors, and resting on bounded, finite resources of Earth. The only thing on Earth that seems unbounded and inexhaustible is the inventiveness of human mind.

12. To reach the life-searching goals, to understand life as it is seen or can be seen outside from Earth within reasonable time and in an affordable and constructive manner will require an intense development of new technical inventions and innovations. There is a long list of them within the space program, and each new step forward adds new invention and innovation requirements to them, including areas of spacecraft technologies, spacecraft operations and yet unseen sensor and actuator systems. And on top of all new invention requirements is the most difficult one: inventing their implementation. That is, the need for a constructive attitude that can integrate the past practice with a projected and desired future within the presence of everyday life. But this is the noble duty of society leaders and politicians having an eye on market economy.

13. The vision of the future in the age of information technology, and the opening of space beyond Earth for humans, projects a very challenging and unexplored road to the inventive and innovation-oriented human mind. Information technology in the future will not only help disseminate and communicate information very economically but will also help create new information mechanisms of relevance to life, in particular to human life, with the help of a series of inventions and innovations. Here I am alluding to intelligent automation of many different processes and activities having an impact on human life.

14. The road of the future for inventions and innovations in the information technology and space age is not easy, it needs the support of broad and strong educational policies and programs. But it will be rewarding, because it can contribute to more behavioral balance in the everyday struggle for life of humankind, to more understanding and cultivation of life-sustaining capabilities of our “garden planet” Earth, and to more and happier smiles in the course of individual lives.

15. Inventions and innovations represent power of mind. They essentially empower humankind with tools and techniques for sustaining and the betterment of life. The use of the innovative tools and techniques, however, will have to invoke the spirit of implementation, the spirit to step forward, which is the Crownbird of every invention and innovation - supported by “fortuna Bona” - the Good Fortune.

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