



21st Century Entrepreneur's Tool Box

(Invited position paper)

Robert S. Block, Founder and the First Chairman of the United States Sports Academy and Founder and Managing Partner of LiTricity, California, USA, Email:robertsblock@gmail.com; RSB@3dbt.com

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The confluence of many revolutionary technologies will mature in the first half of the 21st Century. For the purposes of this presentation, I'll use just 7 known technologies to illustrate the point:

Keywords: Supercomputing, biotechnology, nanotechnology, robotics, communications.

1. **Supercomputing:** The Notebook computer I used to create this presentation would have been considered a supercomputer just a few years ago. Already, there is sufficient computing power available through the Internet to serve virtually, every office, home, product and service to achieve almost any defined calculation, processing and storage task.
2. **Biotechnology:** We have learned how to clone life, extend life and improve the quality of life. Biotechnology is a field of applied biology that involves the use of living organisms and bioprocesses in engineering, medicine and other fields. DNA may turn out to be the most valuable

substance on Earth.

3. **Nanotechnology:** We are learning how to manipulate matter and build machines at the atomic level. Nanotechnology may spell the end of shortages of any desirable material and may be the source the Alchemist dreamed of. Here's a quote from Richard Feynman, Nobel Prize winning physicist regarding nanotechnology, "I want to build a billion tiny factories, models of each other, which are manufacturing simultaneously. The principles of physics, as far as I can see, do not speak against the possibility of maneuvering things atom by atom. It is not an attempt to violate any laws; it is something, in principle, that can be done; but in practice, it has not been done because we are too big."
4. **Robotics:** We are learning how to use robots to do what no human can do at the extremes of size, temperature, strength and accuracy. The limitation noted by Dr. Feynman will no longer exist.
5. **Communications:** Soon bandwidth con-

straints will disappear, and communication will become virtually unlimited. We will be able to move any information from any source to any destination in the blink of an eye. Just 2 years ago Japanese researches broke the record for Terahertz Wi-Fi transmission.

6. Manufacturing on Demand: Today, 3D printers can manufacture 3 dimensional objects, fully assembled, including moving parts.

Automated manufacturing on demand will make it possible to produce complex assemblies customized for each individual customer's needs. Costs will be lower and product quality will be substantially improved. About a year ago, I had a tooth replaced with a crown. A few months ago, my grandson had all his teeth removed one afternoon and had them replaced the next morning. He sang with a country band that evening.

7. Ubiquitous and Inexpensive Energy:

Abundant, very low-cost energy is the most important missing ingredient to giving man near God like powers to manipulate nature to create a better world for everyone. When virtually unlimited energy is added to this mix, almost everything becomes possible. Where there is abundant, inexpensive energy there is plenty of; food, clean air and potable water, comfortable shelter, health care, a healthy eco-system, even leisure and the arts.

There are several paths to virtually unlimited energy; controlled fusion is high on the list of possible solutions. I think America needs to launch a Manhattan Project or Apollo style effort to solve the energy problem once and for all.

As these technologies improve and combine, everyone can prosper. Virtually everything man needs and wants will become available and affordable.

These extraordinary powers bring great responsibility. How shall we answer these questions?

- Is the goal of achieving God like power "good" for mankind? Are we civilized enough to be trusted with such power? How can we be sure that the power implied in these enormous steps will be used to free mankind, eliminate war,

poverty, sickness and other afflictions and not to subjugate, control and manipulate people?

- As productivity and longevity increase, what will happen to jobs? If there are fewer jobs, how will we keep people working and contributing to society? Will the work week change? Will family structure change? How will urbanization be affected? What part will leisure play in the lives of humans? How will these forces affect population growth, education and government?
- Who will answer these and the myriad of other important questions that must be answered? How will you help?

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About the Author



Bob block, is a Founder and a Managing Partner of LiTricity, a shareholder and Board member of USCL and the Co-Chair of the Advanced Technology Policy Committee of the National Energy Marketers Association. Mr. Block has extensive experience in the computer software, communication, energy and entertainment industries including pioneering roles in commercial and pay television and cellular telephone operating companies. He has also contributed significantly to the creation and development of entertainment and communication technologies used worldwide. Block is widely known for his pioneering work in communications, information and management technologies. He is the inventor and patent owner of more than 150 issued US and International patents, including patents relating to: Enterprise Management Systems, Information Labeling, Signal Control, Terrestrial and Satellite Distribution Systems, Real-Time Subscriber Billing Systems, Pay-Per-View, Parental Control and English Language Education. Block has multiple patent applications pending, including patents relating to interoperability of non-compatible radios, power metering and solar energy systems. Blocks inventions are licensed to most of the major consumer electronics manufacturers and have influenced entertainment, sports, and information and education services worldwide.