

The Blue Economy

Cultivating a New Business Model for a Time of Crisis

*Based on the new book **The Blue Economy: 10 years, 100 Innovations. 100 Million Jobs**, published by Paradigm Publications (New Mexico, USA) with the support of UNEP and IUCN.*

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How a new generation of entrepreneurs can bring innovations to the marketplace, secure the basic needs of all, and make sustainable businesses competitive.

Mere months after the 2008 financial meltdown, the International Labor Organization (ILO) reported the loss of 50 million jobs. Developing economies were deeply affected by massive layoffs in the formal sector and the loss of income in the informal sector. It was a social shock that unsettled the world. In essence, the world economy for the past few decades was capitalized on money that simply did not exist. Downsizing and outsourcing were some of the key driving forces of every major industrial group. “Wealth” was generated by making “assets” appear as though by magic through leveraging credit and creating financial instruments that contributed not even remotely to the value of the business. Money was multiplied over and over in special accounts without risk, initiative, or production of real assets. Innovation was limited to investments that could produce multiple short term returns. Entrepreneurs, on the other hand, verged on becoming a vanishing breed.

The form of capitalism that has dominated world societies is entirely disconnected from peoples’ real needs. Some two billion people struggle to get by on less than two dollars a day, lacking access to food, water, health, and energy, the most basic requirements for survival. Over 25% of the world’s youth are unemployed. Yet one billion of us are overnourished and swim in 400 million tons of electronic waste with higher metal concentrations than the ores extracted from the earth. Conservatively, the top 70% of the world’s wealth is concentrated in the top 10% of the population.

The business model that requires companies to invest more in order to save the environment will be replaced with a framework that permits less investment and more revenues while building social capital.

Fortunately, times are changing. This book is about that change. As the second decade of the 21st century sets the stage for a new economy, the core question we answer is, “What is the business framework we really need?”

Up to now, the model driving our economies depended on perpetual growth, requiring ever more resources and investments. This model has inherent flaws. It leads to unjust societies, highly skewed and exploitative economies, and devastated ecosystems. The business model that defines corporate environmental responsibility in terms of size of investment, and defines corporate success as increased shareholder value and grandiose executive compensation, must be replaced. The new

economy must be more effective and more collaborative. It must become truly sustainable, introducing innovations that permit less investment, generate more revenues, and build the strengths of a community and builds up social capital – not debt. This is the business framework that will drive the new Blue Economy. This is the framework that will seek out and define true sustainability for all living species on Earth.

The prevailing economic model predicates that scarcity is the major limitation. Industry searches for ever higher agricultural yields and manufactory outputs, demanding that the Earth and human labor produce more. We must re-evaluate this notion and begin to more fully utilize what the Earth and labor produce, rather than demanding more materials and more output. It is time to end the insatiable quest for ever lower costs that drives business towards economies of scale through megamergers and acquisitions financed by billion dollar loans. It is time to adopt broad-based innovative strategies that generate multiple revenues and greater cash flows while creating more jobs. It is time for a Blue Economy.

In shifting our focus to economies of scope, the framework of the Blue Economy opens possibilities for a new generation of entrepreneurs who use what is available to sustainably address the needs of the Earth and all its citizens.

The shift from the model of core businesses based on a single core competence and economies of scale to a framework of multiple businesses with aligned economies of scope may sound unrealistic to the executive trained by any leading business school. However, the current global crisis highlights the need for an framework of economic development that is based on fundamental innovation and that will generate desperately needed jobs while sustainably addressing the needs of the earth and all its citizens. This “blue” approach is not only viable, it has already begun to take root. Four years of research has identified a portfolio of 100 innovations including whole systems models that have the potential to generate as many as 100 million jobs worldwide over the next 10 years.

Cascading nutrients and energy

The first set of innovations, all proven and benchmarked at a remarkable scale, cascade nutrients and energy the way ecosystems do. This means that everything contributes according to its capacity, and everything stays in the nutrient stream – even waste is not wasted. Instead of contrived scarcity and shortages, what we see in the new economic framework is abundance – of food, energy, jobs, and revenue. For example:

- Under the leadership of Paolo Lugari, Las Gaviotas in Colombia converted a desolate savannah created by 400 years of extensive cattle farming into a lush rainforest that provides residents with abundant water, food, and fuel while building valuable social capital. The project regenerates biodiversity, and becomes an island of peace in a world of poverty and violence, while the land value increased more over 25 years than the shares of Microsoft, turning the local population bankable.
- Small-diameter wood is a pernicious fire hazard in forests throughout the world. In New Mexico, USA, the peoples of a Native American Picuris pueblo have used a

whole systems model introduced by Robert Haspel and Linda Taylor centered on mushrooms and their growth substrate to converted this fire hazard into a resource that provides jobs, food, and livestock feed while upholding their traditions and culture. This stands in stark contrast to how this hazard is handled elsewhere in the western US. Each year we see dramatic images of wild fires devastating rural and even suburban areas of California.

- The silkworm converts leaves into nutrients, which easily blend with soil bacteria, quickly attracting micro-organisms and regenerating topsoil that will safeguard agricultural production and build food security. Additionally, silk –as discovered by Fritz Vollrath based at Oxford University- itself can be used to replace high performance titanium in health care and consumer products, reducing the burden that titanium mining places on the Earth, while sequestering carbon. Simply replacing the titanium and stainless steel razor requires the planting of 250,000 hectares of mulberry trees on desolate and infertile land, which apart from generating top soil creates an estimated 12.5 million jobs.
- Anders Nyquist (Sweden) mathematically codified the termites' ability to utilize air flows for temperature and humidity controls into a model that makes automated climate control systems obsolete, successfully moderating the effect of ice-cold Scandinavian winters. With the new technology made possible by his research, buildings can be designed to warm or cool as needed. The “energy saving” model of locking all living species into an airtight and heavily insulated room cannot truly serve the purpose of energy savings. It merely creates an environment where the infectious species proliferate. If one person sneezes, then everyone sneezes.

Substituting “something” with “nothing”

Our society is heavily accustomed to consuming products that create massive waste and pollution. These products and their manufacturing processes have squandered limited resources and mired many in living environments that are loaded with toxic residue and the spoils of production. The genesis of M1H1 or swine flu can be attributed to just such a scenario. Real, lasting solutions – truly sustainable solutions – require a fundamental shift in our awareness. We will need breakthrough innovations, such as the second set of innovations which exemplify how “something” – models of unsustainable production and consumption – can be replaced by “nothing.” For example:

- Consumers do not realize that the cost per kilowatt hour of electricity stored by a hearing aid or a pacemaker battery may easily surpass 100€. The 40 billion batteries we dump into landfills every year required energy-intensive mining and smelting in their manufacture. While a “green” battery may someday be developed, it remains dependent on mining which is part of the old business model. The technology is available that would permit us to simply eliminate the battery altogether. The Fraunhofer Institute in Germany has already presented a cellphone powered by the differential between ambient and body temperature and the pressure generated by our voice. Professor Jorge Reynolds (Colombia), a pioneer in whale research, has developed the first pacemaker that requires no batteries, no surgery, and only local anaesthesia, cutting costs carried by social security by factor 200, and dramatically reducing the trauma for the patient.

- The alarming proliferation of drug-resistant bacterial and viral strains requires science to venture towards solutions based on technologies that mirror natural systems, such as the ability of red algae seaweed to deafen bacteria. Australian scientists Peter Steinberg and Staffan Kjelleberg (Australia) discovered that red algae seaweed could mitigate the spread of bacteria – without killing them and without poisonous chemistry – simply by making the bacteria unable to communicate. If bacteria do not hear others of their species, they move on and do not populate a surface. This means that they cannot create a biofilm, a superstructure that plays a critical role in many diseases.
- The simple but elegant power of a vortex as industrialized by Curt Hallberg and his team at Watreco AB (Sweden) replaces chemicals with purely physical effects to remove bacteria and air from water. This eliminates the need for bactericides while cutting energy consumption. Many chemicals are replaced by the forces of physics. Since a vortex is reliably generated by gravity, it has the potential to generate drinking water with a minimal expense of energy.

There are over one hundred such innovations described in the forthcoming book, *The Blue Economy*, presented as a Report to the Club of Rome. Each has been benchmarked and brought to fruition in different parts of the world. They are just a few examples of what is possible, and the insights they supply give us a positive future outlook. The new “blue” business framework will work with what is locally available to generate multiple revenues and respond to basic needs. It will provide a platform that merges creative entrepreneurship with breakthrough innovations to nurture life, secure food and shelter for all, and sustain the Earth’s natural systems.

This mirrors the evolutionary path of nature. Indeed, just as ecosystems evolved to ever more efficient nutrient and energy cycles, bringing ever more diversity while developing resilience, flexibility, and performance, the Blue Economy will increasingly rely on less energy and provide more diversity through innovations brought to the market by ever more entrepreneurs fortified with a vision of real sustainability and prepared to take the risks. More players will be encouraged to respond to critical needs, linking the triangle of innovation, sustainability, and entrepreneurship away from scarcity and into abundance. Debt becomes social capital, external costs become opportunities to differentiate on the market.

Re-imagining our economic future requires entrepreneurs in science, social affairs, business, environment, and culture. We must make information available, exposing the opportunities we have to accelerate these innovations on the market, and refrain from imposing the laws. We will reach out to others we never imagined working with, so that we efficiently and purposefully allocate resources so that we can respond to the needs of all with what we have. We must move away from an economy where the engine of growth is indebtedness loaded upon our children and grandchildren, squandering those future generations’ material resources.

The incapacity to imagine meaningful jobs and to provide worthy challenges to a whole generation equates to telling the young that there is no future for them, that their generation is lost. With over one billion young people entering the labor market in the next decade, we must move toward a Blue Economy, based on what we have and what we can share with those who have not.

Gunter Pauli (1956) is an inveterate entrepreneur whose scope of initiatives span business, culture, science, and education. Aurelio Peccei, founder of the Club of Rome, exposed Gunter to a systems approach which has influenced his research and projects ever since. In 1994, with the support of the Japanese government at Tokyo's United Nations University, he launched an initiative to design an economic framework and business model that converts all waste, including emissions, into a value-added cascading model that draws from whole systems in nature. In 2004 he undertook a massive research project to identify innovations that would shift business towards higher levels of competitiveness and sustainability, while generating millions of jobs through the creation of a platform for entrepreneurship. In Spring 2010 he will personally direct a two-year initiative that will regularly present Blue Economy business models to inspire entrepreneurs to translate these opportunities into worldwide business initiatives. Gunter is a member of the Club of Rome and the author of 17 books, published in 21 languages, and 36 fables that bring science and entrepreneurship to young children. He is married with four children, including his adopted daughter from Zimbabwe, Chido Govero.

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