WORLD FUTURE SOCIETY U.S. NATIONAL CAPITAL CHAPTER

FUTURE*takes*

Your international platform for future related issues

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INSIDE THIS ISSUE

FUTURE*takes* is distributed electronically to members of the World Future Society US National Capital Chapter, to other WFS chapters worldwide, to interested individuals, and to selected think tanks, other professional societies, and educational institutions. In addition, it is available at *www.natcapwfs.org/futuretakes.htm*. For further information, contact us at *futuretakes@cs.com*.

Employing Geoethics to Avoid Negative Nanotechnology Scenarios in Undeveloped Countries

Núñez-Mujica

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Abstract

Intensifying the current trends of using fewer raw materials per unit of manufactured consumer goods will eventually lead to fewer mining extractions and the preservation of natural resources. Nanotechnology-based recycling will improve today's efficiency rates and allow for extracting materials from sources that are currently impossible, making an almost perfect recycling system feasible. Integrating these trends within undeveloped countries (with trends of slight or negative growth) with the industrialized Western countries, could decrease their import needs to almost zero. New technologies could render junkyards and landfills a good source of raw materials. In discussing the crucial role of geoethics within such a scenario, several measures must be taken to ensure the economic, environmental, and social welfare of affected Third World, undeveloped countries, especially those affected by a loss of their foreign trade.

See Geoethics, continued on page 9

Fuerth

Professor Leon Fuerth and the Case for Forward Engagement

By Natalie Ambrose

Leon Fuerth, a research professor of international affairs at The George Washington University's Elliott School and the national security advisor to former Vice President Al Gore, is a distinguished scholar and public administrator, concerned with matters of national import, particularly with issues of governance and national security, and with the tendency of government leaders to discount the future and postpone complex decisions involving longer-term challenges. As he wrote in an article in the Spring 2006 issue of *The National Interest*, the US government is burdened by a bureaucratic and myopic approach to governance, problem solving, and policy formulation, which is totally insufficient for responding to the increasingly interrelated and accelerating challenges of today. Forward Engagement (FE) is Fuerth's answer for staying ahead of the curve – for identifying alternative options in order to better influence outcomes. FE describes a systematic process of using strategic and longer-range (up to 50 years out) foresight analysis in order to better engage, inform, and shape public policy.

See Engagement, continued on page 4

from the CHAPTER PRESIDENT

Dear Members and Friends of the World Future Society, US National Capital Chapter and Our Extended Family of Friends from Around the World,

Welcome to our Fall 2006 edition of **FUTURE*takes***. I am sure you will you will find that this edition of **FUTURE*takes*** lives up to the high standards that you have grown to expect. At this time I especially welcome all of our growing number of friends from World Future Society Chapters around the world. I am proud that **FUTURE*takes*** has expanded both in readership and in its growing list of futurist article contributors.

On my way into work several days ago I noticed that one of the headlines on the front page of the paper was a warning by British Prime Minister Tony Blair over the economic cost of unabated climate change. His information suggests that the eventual cost to the world would be between 5 and 20% of the world's global gross domestic product.

I remember our chapter had an evening presentation in March of 2005 at the **Marian Koshland Science Museum**, administered by the **National Academies**. There we enjoyed the opportunity to explore and interact with the new museum exhibits during a WFS member only setting. Also Dr. Peter Schultz discussed "Climate Change: An Inter-generational Hot Potato: What is the Long Term Future of Climate Change?"

Wooten

Climate change, negative environmental impact, pollution, the greenhouse affect, overpopulation, etc are all critical, emotional, controversial, issues that are feared or ignored by many. As world futurists, we are concerned and knowledgeable of many of these issues. As a futurist where do you stand on our climate? Should we leave this issue entirely to politicians, weather professionals and other scientists? What can each of us do? Can our governments do anything? Is it too late? What will happen to us, The Day After Tomorrow?

Thanks,

Russell Wooten

from the INTERNATIONAL PRESIDENT

I am pleased to report to you that the news for WFS International is positive. Once again, our membership numbers are higher than a year ago. This is the result of increased retention and our ongoing new member program. Our 2006 conference attendance was up over the 2005 conference by the largest increase in some time and registration for our 2007 Minnesota meeting is already running ahead of the Toronto levels.

The Learning Section organizational meeting in Toronto was a clear success. Attendance and enthusiasm were high, the brainstorming approach allowed a great deal to be accomplished in terms of planning for the coming year. As well, discussions are underway for several on-line courses on technology foresight and assessment.

We are continuing to work with an expanding range of groups to get the "Foresight is Valuable" message out to new audiences. In addition to presentations to several trade groups on international travel trends, I have spoken to both public and private high schools and community colleges across the US, an engineering association in Denver, and the US National Security Agency in Maryland. In Toronto, we met with the government of Singapore and Brazil, and discussed working more closely with both on upcoming events and publications.

Mack

I have long felt that interest in the future cannot begin at too young an age, and have also made presentations on space exploration and technology trends to middle-school groups and even an early childhood development center (pre-K). We are in discussions with Bowling Green State University about a strategic partnership where they will utilize our resources for ongoing futures research projects. And a group called the Future City Competition has approached WFS about joint programming. They are connected with National Engineers Week and the Society of Professional Engineers and hold a very successful middle-school competition on designing the city of the future. The national finals are held each year in the Washington DC area.

We have also added the Inter American Development Bank to our list of potential strategic partners. They and their partner organizations, the World Bank and IMF, have responsibility for achieving the UN Millennium (which is separate from the UN University's Millennium Project) Development Goals for 2015, and see the World Future Society as a helpful partner. We are discussing articles on global economic futures (in cooperation with Taiwan's *Journal of Future Studies*), conference presentations and other joint activities. As well, I was able to recently speak at a national

See President, continued on page 7

FUTURE*takes*

FUTURE*takes*, published by the World Future Society (WFS) US National Capital Chapter, brings professions, disciplines, nations, ethnic groups, and cultures together to study the future from a non-partisan perspective. Its articles and program synopses generally explore alternative futures as well as the cross-cutting implications of social trends, technology advances, and policy decisions. In addition, **FUTURE*takes*** is an educational resource, complete with discussion points to inspire student and faculty thinking, articles, and research projects. Distribution includes interested individuals as well as selected think tanks, other professional societies, other WFS chapters worldwide, and selected educational institutions.

FUTURE*takes* welcomes contributed articles that contribute to a reasoned awareness of the future, advance serious and responsible investigation of the future, and promote the development of futures studies methodologies. In addition, **FUTURE*takes*** publishes book reviews, future studies exercises, discussion threads, letters to the editor or equivalent correspondence, and summaries of chapter programs. All published material will normally follow the guidelines delineated herein for contributed articles.

To promote free dialog and the exchange of ideas on matters concerning the future, **FUTURE*takes*** does not align itself with political parties, political action committees, or political platforms. In addition, **FUTURE*takes*** does not advocate particular ideologies or political positions.

Any article published in **FUTURE*takes*** including any original article written by **FUTURE*takes*** editors represents the viewpoint of the author(s) and does not necessarily represent the official position of the greater World Future Society or any WFS chapter.

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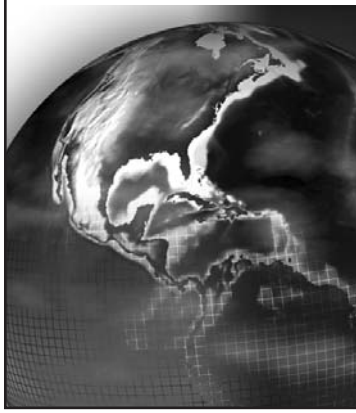
Give Us Your Perspective on the Future



We are looking for people with vision in any area of interest or expertise to write a future-oriented article for **FUTURE*takes***. Your vision may come from personal experience, reading, lecture notes, or a topic that in your view is important for the future. Please share your thoughts with our chapter members, preferably in 1000 words or less. Send your contribution to *futuretakes@cs.com*

Enangement

continued from page 1

FOREWARD ENGAGEMENT

Fuerth uses Forward Engagement (FE) to better anticipate and comprehend possible future developments in the broad categories of defense, economics, science and technology, and governance, as well as to better understand how these developments interact and influence each other. The phrase was derived from the Cold War era concept of "Forward Deployment," where the military places its forces at strategic locations chosen specifically to improve its ability to engage the enemy as early as possible, while it still has leverage and the time to maneuver. As Fuerth describes in his writings and on his website (http://home.gwu.edu/~esialsf/index.html), FE responds to three 21st century realities – (1) that we are facing an acceleration of major historical events, some of them carrying the potential for major societal and international consequences; (2) that society in general, and government in particular, need to address such possibilities as far in advance as possible, in terms of policies and resources; and (3) there needs to be a system to help government visualize more consistently what may be approaching in the longer-range future, and to deliberate possible responses in a more timely way.

While teaching at George Washington, Professor Fuerth has developed several capstone courses as part of his Forward Engagement (FE) project, which also receives support from the Rockefeller Brothers Fund. His classes have two related objectives – first, to have FE regarded as a substantive and applicable discipline; secondly, to use the concept as a means of instruction to better prepare young people for strategic thinking and leadership in public policy – as he explains, "in the real world, things are far more inter-connected than our specializations, and we filter out these connections at peril to our real appreciation of what is shaping our lives." And besides his teaching and extensive writing, Fuerth has also organized several important convenings of experts, futurists and policy makers to introduce as well as to explore further the FE concept and its application to helping address the emerging global challenges of our times.

This past April 7th, I attended one of these convenings, a full-day briefing titled "*Societal Tsunamis*." The event's objective was to engage expert thinking around three possible future discontinuities which, if they occurred, would result in significant societal impact requiring government action. The three discontinuities are geopolitical inversion, environmental dislocation, and evolutionary secession. According to Fuerth, these three complex and seemingly disparate scenarios actually share important characteristics – (1) they are fast moving, powerful forces of change which each appear to be gathering force; (2) they each are generating additional related sub-issues which should be addressed by policy-makers now, in the short term; and (3) the three scenarios have the potential of all coming into full fruition and impact more or less concurrently. According to Fuerth, discontinuities of such magnitude present significant challenges for the world as we know it – and for the United States, in terms of its democratic form of governance, which tends to be slow to identify, deliberate, and respond to new challenges and opportunities.

In the real world, things are far more inter-connected than our specializations, and we filter out these connections at peril to our real appreciation of what is shaping our lives.

GEOPOLITICAL INVERSION

The first discussion of *geopolitical inversion* described a scenario where geo-economic power shifts massively and permanently to Asia, breaking the link between liberal democracy and the economic primacy of the US and other Western democracies. Clyde Prestowitz, founder and president of the Washington-based Economic Strategy Institute – which provides analysis of and consultation on matters concerning international trade, competitiveness and globalization – introduced this first theme. Prestowitz was an international businessman who served in the U.S. Commerce Department; he holds an MBA from Wharton, serves on various advisory boards, and is also author of several books including *Trading Places* (about U.S.-Japan relations) and *Three Billion New Capitalists: The Great Shift of Wealth and Power to the East*.

Prestowitz described two simultaneous revolutions now underway, which have big implications for the state of commerce, geopolitics, even the environment. The first is the movement of some 3 billion new people (the new capitalists and consumers in China and India) into the global economic system and second, the increasing compression – even erasure – of aspects of time and distance as a result of modern technology and advances in communications. He described the environmental implications of rapid new industrialization and how a new economic growth paradigm is needed, since the world can no longer support unmitigated growth and resource use along the path the US took during its development. Prestowitz also described the challenges and rivalries to come – in terms of economic, political, demographic, and military – which threaten to end the five-hundred-year run of Western domination of the world. He finds the United States position to be particularly fragile, due to factors like "its increasingly unsustainable trade deficits, the dangerous accumulation of huge dollar reserves in economies like Japan and China, and the end of its position as the world's premier center for invention and manufacturing."

See Engagement, continued on page 5

Engagement

continued from page 4

ENVIRONMENTAL DISLOCATION

Dr. David Jhirad, Vice President of Science and Research at the World Resources Institute, led the second session about how a possible *environmental dislocation* – in this case, rapid climate change – might break the fundamental links between current industrial civilization and nature. Dr. Jhirad, a native of India, is an international energy policy expert. His group compiles the data for the World Resources Institute's Climate Analysis Indicators Tool (CAIT).

Dr. Jhirad argued that we have already reached a scientific tipping point and that climate change is now occurring all around us. According to Dr. Jhirad, the only uncertainties that remain are in the details; uncertainties about (1) the exact impacts of these changes on the world's people and ecosystems, (2) the rate of these changes, and (3) the nature and magnitude of such non-linear change. And the global ecological threat of climate change is profound – the impact of scenarios such as the de-glaciation of Greenland or the diversion of the Gulf Stream is comparable only to nuclear war in its subsequent implications on areas such as global food supply, water resources, etc. For Dr. Jhirad, the world no longer has the luxury of time to research, debate, and react. With the advent of growing economies like China and India, a tripling of current global energy consumption could occur by 2050. Governments and corporations must act now in terms of accelerated technological innovation (in energy production, in manufacturing, in transportation systems), strong leadership in energy policy and regulation, and robust private capital investment.

EVOLUTIONARY SUCCESSION

The final topic – *evolutionary secession* – described a scenario where science and technology give humans control over their own evolutionary future through manipulation of genetics and physical enhancements, as well as symbiosis with machine intelligence. Dr. William Sims Bainbridge, an American sociologist and co-director of Human-Centered Computing at the National Science Foundation, introduced this third session. Besides his work at NSF, Dr. Bainbridge is the author of numerous books on topics ranging from science fiction to trends in video gaming to his controversial research into the sociology of religion and religious cults.

Dr. Bainbridge gave examples of some of the new and converging research and capabilities occurring in the areas of biotechnology, nanotechnology, information technology, genetics, and cognitive science. Some of these possibilities will be positive and beneficial; others may have totally unanticipated and dystopian ramifications. Per Bainbridge, "science is driving the future and at such a speed that we're not prepared to deal with its consequences." And whereas the debates during the 20th century were about science, religion, and evolutionary biology, those for this century will be around consciousness and what it means to be human.

At the end of this day of expert opinion and fascinating discussion, I came away with these conclusions. Each of these three discontinuities seems highly possible and if they do occur, their implications for the US and the world will be profound. Of course there are undoubtedly a few other discontinuities emerging, other scenarios that also have the potential to snowball and which need to be better articulated and understood. Each of the guest speakers felt that there is still time and opportunity for governments, policy makers, and the private sector, by their actions, to adjust and therefore help to shape the future course of events. But, they have to act now, with vision, creativity, and selfless leadership for both their respective as well as global common good. They must include an array of viewpoints and expertise in their deliberations. They must consider new and different paths towards and concepts of growth and wealth; that the market system, if encouraged, has the potential to generate innovative and just solutions. That there are risks even to established democracies – if they are unable to better anticipate or control future events, they may opt to resort to more draconian measures. In other words, each of the guest speakers reiterated the importance of Leon Fuerth's case for "forward engagement" in governance and public policy.

POINTS FOR THE CLASSROOM

(send comments to *futuretakes@cs.com*):

- *Try being a futurist. Would you add any additional discontinuities to Professor Fuerth's list? Also, what linkages might exist among the three discontinuities that he has identified? For example, will environmental dislocation impact the distribution of geostrategic power among nations and regions, and if so, how?*
- *The article discusses a shift of power and influence to Asia. What implications does this have for the dominance of US culture and values in various parts of the world? What implications for lifestyles and living standards? And, will English maintain its place as the de facto lingua franca?*
- *The trade deficit is an interesting dilemma. If China or another nation decides to sell off its US securities or even stops buying them in favor of Euros or another currency, the consequences to the US could be catastrophic – a sharp rise in interest rates and a precipitous decline in the value of the dollar. However, the other nation would be impacted too, in that as they begin selling their US securities, the value of their remaining holdings would drop. Thus, there is the seeming paradox that the trade deficit cannot be sustained indefinitely and yet both sides lose if either side moves to end it. As the expression goes, "What gives?"*
- *If the present economic model is unsustainable, what will the next generation economy and its utility function look like? Will the next economy be a growth economy (and in what sense) or a steady-state economy?*
- *The article refers to "a myopic approach to governance, problem solving, and policy formulation." Indeed, in some parts of the world,*

See Engagement, continued on page 12

DOWNLOADING EDUCATION

by Jay Herson

Earlier this summer I was asked to record a lecture that I give once a year to Master's Degree students at the Bloomberg School of Public Health of Johns Hopkins University. This was a voice-over for my PowerPoint slides to be made available over the internet for registered *internet distance learners*. The latter are a new breed of students who take graduate courses, including exams, over the internet during a specified period such as an academic quarter or semester. These students must satisfy a minimum residence requirement which is accomplished by registering for the specified number of one-week and two-week courses over a 3 week period in June-July. At that time the school is overrun by distance learners, many of whom are still unfamiliar with their surroundings despite having officially been students for the past 2-3 years.

Herson

On my way home from this recording session I realized that this digital lecture was just an object to be downloaded and easily transferable. In that sense it could be like digital music albeit with a much smaller market. While Johns Hopkins and other universities may be thinking of these lectures being recorded just for use in their own graduate courses, the larger education market may see these as objects of commercial value. This could be the dawn of a new industry. Just as it may be unrealistic to expect everyone in need of a graduate or even undergraduate education to be on-campus, resources may not allow one professor for every class taught. Today many courses are taught by graduate students and many of these graduate students are not native-English speakers. This makes it difficult for some students to learn, especially in undergraduate science, mathematics and engineering courses. Thus, there is a developing market for sharing lectures among universities, and internet lecture sharing appears to be a way to accomplish this.

Clearly universities can license their internet lectures to other universities to include in all or part of their courses or to individuals enrolled at other universities (possibly traditional on-campus students) for enrichment of their coursework. If this became inefficient, the industry would evolve to the emergence of distribution companies who would be licensed to broker lectures for as many universities as they can sign up, possibly on a non-exclusive basis. Distributors could be responsible for having lectures translated into various languages. The universities would thus become content providers, and they and their contributing faculty would be in the royalty stream. This would not be a new role for universities. They have spent decades licensing logos for merchandise, television coverage for sporting events and producing programs for public television.

Of course there will be the risk of illegal downloading, copyright violations, unauthorized translation to other languages and even counterfeit lectures (a high school teacher records a lecture and a distributor claims it was recorded by a Harvard professor). A black market could emerge such as has existed for ghost-written term papers and book reports. While litigation may seem to some as the logical way to settle these problems, eventually reasonable pricing, similar to the solution in internet music distribution, will be seen as a way to make the illegal practices unprofitable.

The university system developed as a four year undergraduate curriculum because in centuries past that was considered a reasonable time for young people to be away from the farm and the summer—off / September start of classes was made to be harmonious with the farming chores of the students. In the modern world, fewer students live on a farm, and many older students are seeking undergraduate and graduate degrees as a resume line item to higher salary. Earlier in this century an employer hiring a college graduate was hiring someone who had indeed dedicated four years of their life to this level of education and someone who learned much being in a community of faculty and other students. This learning was mutual between faculty and students and provided an opportunity to make friendships that can last a lifetime. With internet distance learning the degree means that the student sat before a computer and submitted perfunctory exercises and wrote exams over the internet at a schedule of his/her choosing. While we can process more course completion records in this way, we must understand that the final product is not the same as a traditionally college educated student.

Of course distance learning need not be used only by people learning at home. On-campus students at traditional colleges could be benefiting from some internet lectures produced elsewhere as well as those attended live on their campuses. They could even use the internet to play back the same lecture they heard live earlier in the week. Internet lectures can make use of graphics, animation and video that printed textbooks cannot match. Indeed the term "lecture" should be generalized here to mean "learning opportunity" because internet modules could consist of interactive computer directed learning and need not contain a human voice or image at all. For students studying for master's degrees in applied areas like public health and engineering, distance learners may have the benefit of learning something Tuesday night that can be applied at the office Wednesday morning. Indeed internet

See Distance Learning, continued on page 7

Ken Harris is First Recipient of Exemplary Service Award

FUTURE*takes* is pleased to name Ken Harris as the first recipient of its newly inaugurated Exemplary Service Award. Ken's selection was based primarily on his distinguished service to the US National Capital Chapter and the greater World Future Society (WFS) continuing long after his term of office as chapter president – service that itself inspired this new award.

Unlike many organizational past presidents who remain on governing bodies, often serving as little more than advisors (who by definition volunteer others to do things, at least implicitly), Ken went on to assume the thankless jobs of chapter treasurer and event registrar and also launched the chapter's Futurist Book Group.

Harris

Additional information about his chapter service is available in "Meet a Member," Summer-Fall 2006 issue. In post-presidential service to organizations, Ken sets the example.

Members in good standing of any WFS chapter who have distinguished themselves in service to their respective chapters and/or to the greater WFS, above and beyond performing the duties normally associated with their respective offices, are eligible for the Exemplary Service Award. The award will be presented on an "as earned" basis, with as many or as few awards as appropriate. It is not an annual award or otherwise linked to a particular timeframe, nor is it an automatic formality for officeholders. Send your nominations to futuretakes@cs.com.

Distance Learning

continued from page 6

lectures can be used for on-the-job training independent of any degree program. If properly enforced the internet lecture distribution system could be a way of educating more 21st century students with higher quality material than what the current on-campus system can provide. The resume of the future may not consist of merely a list of degrees but a printout of internet courses passed where some would have higher value in the marketplace than others due to the professor teaching, content, production format, etc.

It remains to be seen if college professors would like to be equated to rock stars in the internet world of if they will be as effective in talking to a microphone as they are to a sea of bright eager faces. Internet college teaching will likely attract a different kind of person with different skills than currently. When the recorded music industry began surely not all vaudeville performers transferred easily to this new medium.

A digital education industry will emerge, but it will not be because there is an increased demand for education but rather because there is an increase in demand for academic credentials. An economics professor in a traditional classroom once included the phrase in many of his lectures "the market giveth and the market taketh away." Indeed the market for credentials will take the form that makes the most sense in the 21st century and beyond. In the end, individuals can become educated by making the most of whatever resources are available. This takes motivation and commitment. These traits cannot be downloaded.

POINTS FOR THE CLASSROOM
(send comments to futuretakes@cs.com):

- *If universities share lectures, will that lead to more courses or to fewer faculty positions – and what is the future of the lecture itself as a means of education?*
- *Will IT (digital "downloadable" education), in conjunction with other trends, impact the balance between classical subjects on one hand and utilitarian, "current" topics on the other? What subjects will be taught in universities 20 years from now?*
- *Will the advantages inherent in internet-based education (namely, the ready availability of up-to-date course content in diverse subjects) outweigh the loss of face-to-face interaction among students and professors?*
- *In what other ways will internet-based education, in conjunction with the spiraling costs of college education and the demise of the "profession for life" for college graduates, impact college education, the traditional college campus, student life (including dating), faculty tenure, and university research?*

Jay Herson *is Managing Editor and a frequent contributor to* **FUTURE*takes***. *He is also Senior Associate, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD and at the Institute for Alternative Futures, Alexandria, VA.*

President

continued from page 2

strategic planning conference for Native American leadership and they were very receptive to our message of managing possible futures.

Concerning *Future Survey*, we are moving to 10 issues a year plus two special issues (in January and July) which contain mini-guide summaries by subject areas. As well, *FRQ* will soon publish a Mike Marien article on 'Suggested Reading for World Leaders.'

We expect that the new WFS Web site should be ready to launch by the beginning of next year. Much of our present content has already been transferred to the new 'under construction' site, and the additional automated features and content should provide greater member value. In late August, WFS installed twelve new computer stations, a new server, and the related software, which were made possible by a gift from a private foundation. These have significantly increased the ease of Web design and content development.

Tim Mack
President, World Future Society

CHAPTERS' CORNER

Draft for the Strengthening of the Local Chapters of the World Future Society

To strengthen World Future Society (WFS) chapters throughout the world and make them more effective, a new organizational paradigm, inspired in part by the franchise model, is proposed.

Julio A. Millán, President, World Future Society Capitulo Mexicano, A.C.

[Editor's note: This proposal was discussed briefly among some participants of the Chapter Activities Session 2006 (CAS2006) in Toronto. The national "umbrella" organizations proposed therein have potential to inspire and support WFS chapter growth in countries outside the US. As a separate matter, an umbrella organization for US chapters was proposed to help them obtain 501 (c) (3) registration that qualifies them to receive tax-deductible donations (see **FUTURE*takes*** *Summer-Fall 2006 issue). Julio's proposal supports both objectives, and* **FUTURE*takes*** *invites your commentary.]*

STRUCTURE

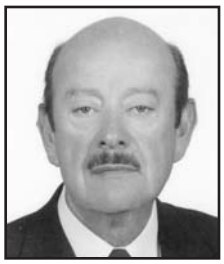
1. We recommend the following basic structure, understanding that each level must communicate with the others before performing any activity:

   The World Future Society international organization sits above everything. Below this are National Chapters chartered on a country basis and within them Local Chapters chartered on a regional basis within countries. For example, in the case of Mexico there would be a national Mexican Chapter, within which there would be a Mexico City D.F. chapter. At the National Chapters there will be a President and a manager. The head of the local chapters will be a manager. Although local chapters are independent regarding financing, structure and decision-making, they must coordinate with their respective National Chapters to schedule events, seminars, conferences, as well as other activities. They must inform the National President as well about membership levels, fees, and general activities. The National President must supervise the local chapters performance and their usage of the World Future Society's name.

   Every activity developed by a local chapter must become a bonus for the WFS National and local chapters around the world. National Presidents must be the link between the headquarters of the World Future Society and the National Chapters as well as the local ones.
2. In order to make functional this structure, a fee will be set by the World Future Society. Each chapter will pay this fee, as in a franchise, for every member registered. The WFS will not be able to receive personal registrations anymore. Members must be registered by either a National Chapter or a local one.

BENEFITS FOR NATIONAL CHAPTERS AND MEMBERS

3. The World Future Society must accredit the National Chapters and their Presidents as the official speakers of the organization facing the countries' governments.
4. A basic catalogue of products and services offered by the World Future Society must be created, including products and services from the national and local chapters. Magazines like *The Futurist and Future Survey*, the *Futurist Update*, and the newspaper *Foresight, Innovation and Strategy* are already received by the members but some new products can be included: a copy of magazines or bulletins created by chapters around the world, a futurists directory and a DVD with a professional documentary about the future and the organization.
5. A database with information about the future available to every member from the World Future Society can be generated – papers, presentations, maps, statistics, reviews, on line courses, blogs, luncheons, etc. By having a password, members will have the opportunity to search in the database any information required.
6. It will be up to each chapter to provide an additional service to its members, i.e. seminars, projects, bulletins, magazines, reading clubs, book reviews, luncheons, and working groups on specific topics for example. All of these activities can charge a small fee so that these events could be financed by the chapter itself.



Millán

7. Defining an international program of activities and a calendar of events throughout the year, and making efforts to integrate the annual program with regional events, will be achieved only by the constant communication between the headquarters of the World Future Society and the Regional Chapters which, at the same time, will have fluent communication with the National Chapters and the local ones.

   A "World Tour" performed by the President of the World Future Society is also suggested. This will help National Chapters in various ways: media coverage, interaction between members and the most important person of our organization, the opportunity to spread nationally and internationally the goals achieved by the host Chapter and the activities to come.
8. To develop a large database of all the members over the world, what they study, their interest areas, and their most recent publications, members will be able to find blogs regarding different topics related to the studies of the future where discussions will take place. Experts should and must be invited to the debates.

   Through the database every

See Chapters' Corner, continued on page 9

Geoethics

continued from page 1

INTRODUCTION – DEMATERIALIZATION, RECYCLING, AND SUSTAINABLE DEVELOPMENT

Despite the astounding growth of world's economy, its physical impact has not grown at the same pace. In fact, thanks to new technologies, new materials, and smaller components, the volume of manufactured goods is steadily shrinking. This trend is called dematerialization and is defined as: "the absolute or relative reduction in the quantity of materials required to serve economic functions" [7]. Replacing heavier and scarce materials in industry with lighter and more abundantly available materials has been a constant practice within industrial Research & Development (R+D), which has led to the astonishing saving of resources. A heavy old coaxial cable made of copper carries far less data traffic than an optical fiber cable made of silicon, a cheaper and more ubiquitous material. Plastics and resins have replaced much of the metal in cars, leading to a decreased net weight. The importance of a given material in the economy can be measured by dividing its consumption by the Gross Domestic Product. Employing this analysis makes it possible to see the dramatic decrease in materials such as timber, steel, copper, and lead since 1900; almost in an exponential fashion. This does not means that the net consumption has dropped. On the contrary, it has grown, but not at the same pace as the economy [6]. Regarding certain materials, some of the incremental consumption is supported by high recycling rates, specifically for lead and steel.

To achieve sustainable development, recycling has been encouraged and shall be pursued as a responsible and environmentally friendly practice. Recycling rates have increased over the years and for certain items, more than 50% of the amount used in industry comes from recycling. In terms of energy, recycling can be more efficient than extracting raw materials when compared to the huge amount of work and energy needed for mining ores, and waste management is an equally important issue. The profitability of recycling a given resource and its impact on dematerialization is dependant upon three factors: 1) the ease of its isolation amidst a huge amount of waste, 2) the availability of the material in large amounts in a uniform fashion, rather than being mixed with other materials, and 3) the intrinsic value of the material [6].

NOW ADD NANOASSEMBLY!

Dematerialization and recycling are two pillars of the potentially sustainable use of resources. Given the contemporary state of technology, this remains just a possibility; however, given certain state of the art developments it is possible to envisage scenarios where this possibility may become a reality and provide more efficient recycling and even greater dematerialization. One of the necessary elements for a better and truly sustainable use of resources would be advanced nanotechnology; the ability to manipulate matter at the molecular level. As proposed by Eric Drexler of the Foresight Institute [3], nanoassemblers would make the manufacturing of almost every commodity feasible (from food to solar panels, including clothes and tools), from raw materials, molecule by molecule, making an almost perfect recycling system possible. Even if these nanoassemblers prove impossible to create, nanotechnology remains promising for incremental achievements in dematerialization and recycling rates. Carbon nanotubes are being regarded as the fundamental building blocks of new technologies ranging from energy storing to microprocessors. Once it's possible to manufacture and manipulate nanotubes on a commercial scale, the substitution of heavier and scarce materials with nanotube-based materials will boost dematerialization. Nanotube construction, purported to be incredibly strong and durable, may replace many metals.

Looking closely at the pattern of the materials' importance, we recognize that the logarithmic plot and its apparent lineal trends are in fact exponential, including the decreasing importance of certain materials. This fact may be due to the exponential growth of other sectors of the economy responsible for the bulk of the growth of the Gross Domestic Product (GDP). Although greater data is necessary to form a more accurate projection, this trend can be analyzed with Kurzweil's Law of Accelerating Returns, the acceleration of the pace of the exponential growth of the products of an evolutionary process. [5]

GEOSTRATEGIC IMPACTS

The environmental effects of nanotechnology do not end with greater

See Geoethics, continued on page 10

Chapters' Corner

continued from page 8

member will have the chance to meet, to talk and to discuss with students, professionals, scholars, entrepreneurs, businessmen and any member of the World Future Society.

9. To achieve the creation of multidisciplinary working groups, and multinational also if possible, about specific topics regarding the future, these groups might, and should, eventually become groups of experts of the future located all over the world to support all chapters. These groups could talk in conferences, with governments, with enterprises and transnational corporations and get a payment for this through the WFS.
10. By having a futures experts network, the World Future Society will have international projection. Through international conferences and other events, the network members will be invited to participate, and media coverage should be arranged whenever possible.

Next Steps?

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Geoethics

continued from page 9

dematerialization and better recycling, which lead to less mining. New techniques in energy efficient nanosolar panels are projected to produce a great energy savings as they will create less of a dependency on oil and other non-renewable energy sources as coal and natural gas, thus, ending the dependence of developed countries on their traditional energy suppliers, most of them undeveloped countries. This change in the patterns of energy consumption will have a great impact upon many countries, because oil is their main trading commodity, and many others depend heavily on the exportation of raw materials and agricultural products as primary commerce activities.

The diminishing need for raw materials and non-renewable energy sources will create threats to developing world economies as their consumption decreases. If a developing country has nothing to trade, how will they be able to afford nanotechnology and even the most basic items needed for a modern society? A developing country with nothing of intrinsic value to trade would bring about environmental catastrophes. Maslow's pyramid of priorities (or hierarchy of needs) [1] suggests that people would rape the environment due to a lack of resources, because the conservation of the environment is less important than satisfying their physiological needs. Despite the criticism of Maslow's theory, there are surveys that show that in fact the rise of the GDP of a society is related to the improvement of certain environmental indicators, including decreased pollution. Primitive agriculture would devastate the rainforests at a much larger scale than at present, due to its low efficiency, if these countries lose their income sources.

GEOETHICS

There will be a need for global regulation regarding nanotechnology if we are to avoid the promise of recycling and conservation turning into increased poverty and environmental degradation. Recognizing the necessity for regulation is not a new issue concerning nanotechnology. In fact, almost since the birth of the concept, nanotechnology has been accompanied by the Foresight Institute Guidelines [4], which are updated continuously. These guidelines deal with many of the potential risks or misguided applications of nanotechnology; mostly with the effects of awry self-replicators, direct environmental damage, and nanotech-based weapons. They also deal with ethical aspects of nanotechnology applications and their use for improving living standards in undeveloped countries. "Poverty, disease, and natural disasters kill thousands, in some cases millions annually, and the potential to ameliorate their effects significantly should not be relinquished lightly, particularly by those least affected." [4] In regard to the previously stated consequences on the biosphere, these guidelines do not explicitly state actions that could be taken to achieve this nor are an encouragement to do so. At the time this paper was written, the former scenario was not contemplated in any consulted visions of the risks of nanotechnology.

According to Jamais Cascio, geoethics is "the set of guidelines pertaining to human behaviours that can affect larger planetary geophysical systems, including atmospheric, oceanic, geological, and plant/animal ecosystems. These guidelines are most relevant when the behaviours can result in long-term, widespread and/or hard-to-reverse changes in planetary systems."[2] This definition is based upon the definition given by Treder: "Geoethical means widely agreed-upon principles for guiding the application of technologies that can have a general environmental (including people) impact, much like bioethical principles (autonomy, beneficence, nonfeasance, justice) guide the application of curative technologies that specifically impact one or more patients." [7] Geoethics and its principles (see Table 1) can support an approach for a rational regulation of nanotechnology that prevents environmental disaster from happening due to the crash of the economies of undeveloped countries. Concerning this issue, the principles of Integration, Diversity, and Interconnectedness have special importance in application to human populations as a key element in the global processes. That is, human populations do affect the ecosystems and do not exist in isolation. When choices are given, they become diverse, technolog-

See Geoethics, continued on page 11

Principle	Definition
Interconnectedness	Planetary systems do not exist in isolation, and changes made to one system will have implications for other systems.
Diversity	On balance, a diverse ecosystem is more resilient and flexible, better able to adapt to natural changes.
Foresight	Consideration of effects of changes should embrace the planetary pace, not the human pace.
Integration	As human societies are part of the Earth's systems, changes made should take into consideration effects on human communities, and the needs of human com munities should not be discounted or dismissed when considering overall impacts.
Expansion of Options	On balance, choices made should increase the number of options and opportunities for future generations, not reduce them.
Reversibility	Changes made to planetary systems should be done in a way that allows for reconsideration if unintended and unexpected consequences arise.

Table 1: Principles of Geoethics, (Cascio, 2005)

Geoethics

continued from page 10

ically proficient and more adaptable to changes; therefore, their needs must be fulfilled to achieve a more steady-state, environmentally sound economy.

There are already ethical dilemmas concerning the wealth distribution. Some figures claim that there is enough food for meeting the world's needs but is not well distributed. Others point out that "The three richest people in the world control more wealth than all 600 million people living in the world's poorest countries." [9] Currently, however, the allocation of resources is expensive and resources themselves are scarce. In the future the abundance of such resources, thanks to nanoassemblers building them from scratch, will make the current dilemmas even tougher, because resources could be given to the needy people almost for free, but surely, for "security reasons," a developed nation wouldn't just give away the nanotechnology, as more motives could be argued for keeping a monopoly over this technology and its fruits. How do we avoid such environmental tragedies? How do we deal with rogue or deceitful states? A compelling ethical, economic, and ecological framework must be built to ensure that an orderly, rational and safe distribution of nanotechnology and its products is attained worldwide. In the next section, some measures for facing these dilemmas and meeting requirements of safety and welfare are proposed.

NANOTECH MANAGEMENT

The Guidelines of the Foresight Institute offer an excellent approach to nanotechnology regulation, but they are not suited for dealing with the environmental dangers posed in this work or for avoiding the economic collapse of non-developed economies. However, the necessary measures for that goal can be contemplated within these guidelines. The measures that shall be applied in the case of this scenario becoming reality must be a trade-off between assistance to the undeveloped world (to avoid the catastrophe of economic collapse) and safety, as many of these societies are not democratic or lack the ability for a proper management of nanotechnology (because of non-transparent governments and extensive corruption that could result in the sale of nanotechnology to independent actors or its use as a weapon in inner conflicts), and geoethical principles should be considered in designing these measures.

Some of the possible measures that could be used are:

- Not giving the technology away without the supervision of trained personnel from the West to instruct on its use or without the training of the local personnel in a Western developed country by people from all around the world. This training would involve not only technical but also ethical issues. This would expose the people in charge to a Western ethics model of world-unity and abundance.
- Ensuring the use of inherently safe replicators [3], which must be regarded as a priority and remain as one of the main technical measures to prevent nanotechnology misuse.
- Restricting the distribution of the assemblers to rogue states or nations while permitting them to acquire nanotechnology products. Thus, nanofactories near these states would provide the necessary commodities to their populations. However, even this distribution would have to be carefully planned to avoid the oppression of ethnic or political factions by totalitarian rulers. This distribution could take place in international waters or via a nearby friendly country.
- Giving away assemblers that are satellite controlled by an international organization and that are incapable of certain actions. If a link is broken or hacked, the assembler would destroy itself and send signals to the regulatory organizations.
- Trading nanoassemblers for improvements in human rights, women's conditions, and democracy. This could lead to a more sound global society grounded on Western values, thereby reducing the current threats of terrorism and the global dissatisfaction with the governments of developed countries that provide international help. However, this approach would not be enforceable against militarily powerful countries with weapons. Signing international treaties for the destruction of atomic weapons and transcontinental missiles in exchange for the products of replicators or the replicators themselves seems a viable option.

The aforementioned regulatory actions are grounded on geoethics and therefore must be discussed with the potentially affected people for achieving truly agreed-upon effective measures to cope with the possible environmental disaster. It should therefore be a priority to check the real plausibility of this scenario, discuss it widely, and incorporate it into the mainstream dialog on the risks of nanotechnology. We suggest that the measures developed for dealing with the proposed scenario, whether those proposed herein or others developed by experts in the field, be incorporated into the main set of measures proposed to cope with risk of nanotechnology, such as the Foresight Institute Guidelines.

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See Geoethics, continued on page 12

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continued from page 11

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POINTS FOR THE CLASSROOM

(send comments to *futuretakes@cs.com*):

- *Identify other benefits and consequences of nanotechnology to international trade.*
- *Nanotechnology can potentially provide all of the necessities of life – and perhaps even some luxuries – to large numbers of people at low cost, thereby eliminating poverty. As nanotechnology becomes more common, will it "lift all boats" (that is, benefit all people), or will it widen the gap between "haves" and "have-nots"? In addition to the author's observations, what are the other potential impacts of nanotechnology on demographics including population levels?*
- *The article refers to "a more sound global society grounded on western values, thereby reducing the current threats of terrorism and the current global dissatisfaction with the governments of developed countries that provide international help." Are there any non-western value systems in existence that can mitigate dissatisfaction and strife – and if so, which ones?*
- *The article draws a scenario where the value of raw materials drops to almost zero. What are the consequences of this, and can you suggest a name for that scenario?*
- *The article discusses a possible diminishing need for raw materials and non-renewable energy sources. As nanotechnology enables progressively more local manufacture, with possible consequences to international and even inter-state and inter-province trade, what will be the impact on the economy, on industry (beyond the nanotechnology-enabled manufacturers), on international relations, and on communities?*

Born in 1983, ***Guido David Núñez-Mujica*** *is an undergraduate student of biology and computational physics in Los Andes University, in Mérida, Venezuela. In addition, he is an amateur writer on subjects of scientific divulgation, in which he has been involved for the last six years. Currently he is doing his thesis work on the subject of mathematical modeling of biochemical systems. Among his current projects are the creation of an Open Source community for pharmaceutical development against Chagas' Disease, a parasitic infection that affects 20 million people in the Americas, and further writing on the effects of new technologies on undeveloped countries. Based on his writings on future studies and ethics of new technologies, he has recently received awards form the World Future Society Venezuela and from the World Transhumanist Association.*

Engagement

continued from page 5

two key institutions, government and corporations, cultivate a near-term mindset that favors near-term gain over long-term consequences – many politicians through their interest in re-election, and many corporations through their "quarterly earnings statement" focus. Two questions: (1) Will the long-term focus in parts of Asia accelerate the geopolitical inversion problem discussed in the article? (2) How can Forward Engagement be cultivated where the pressures of re-election and the quarterly earnings statement rule the day?

- *Professor Fuerth explains, "In the real world, things are far more interconnected than our specializations …" Will the imperative for future studies lead to education that is more interdisciplinary and less specialized?*

Professor Leon Fuerth *has had a distinguished career has spanned some thirty years in the U.S. government, including key positions in the State Department, House and Senate staff, and with the Clinton White House, where he was Vice President Albert Gore's National Security Adviser during both terms. He holds a bachelor's degree in English and a master's degree in history from New York University, and a master's degree in public administration from Harvard University. Since 2001, Fuerth has been a research professor of International affairs at The George Washington University's Elliott School in Washington DC. He has used this vantage point to further develop and promote his futures-based approach.*

Natalie Ambrose *has worked extensively in issues research and reporting, market assessment, new product/service development and marketing, and strategic planning, in both the for-profit and the non-profit sectors. Most recently, she was Director of Emerging Issues and Strategic Planning for the Council on Foundations in Washington, DC. Ms. Ambrose has an MBA in International Marketing from "Thunderbird" (the American Graduate School of International Management) in Phoenix, Arizona and a BA in International Relations & Political Science from Duke University in Durham, North Carolina. Her professional affiliations include the Association of Professional Futurists (a Board Member), the World Future Society, the Society of Competitive Intelligence Professionals, and the National Press Club. She has lived, traveled, studied and worked in Canada, Western Europe, the Caribbean, Latin America, and Asia, and is fluent in Spanish. She can be reached at (email) ambrose.natalie@gmail.com.*

Meet a Member

José Luis Cordeiro

Regional Editor—South America, **FUTURE*Takes*** and President, Venezuela Chapter, WFS

José Luis Cordeiro was born in Caracas, Venezuela, in 1962. He studied at the Massachusetts Institute of Technology (MIT) in Cambridge, USA, where he received his Bachelor of Science and Master of Science degrees in Mechanical Engineering, with a minor in Economics and Languages. During his studies, Mr. Cordeiro worked with the United Nations Industrial Development Organization (UNIDO) in Vienna, Austria. His thesis consisted of a dynamic modeling for NASA's "Freedom" Space Station (the "International" Space Station of today). He is a lifetime member of the Sigma Xi (Scientific Research) and Tau Beta Pi (Engineering) Honor Societies in North America. José became professionally interested in futures studies at MIT in 1979 having had several professors that had worked on System Dynamics, like Dr. Jay Forrester, who participated in the famous Club of Rome report "The Limits to Growth".

Following his graduation, Mr. Cordeiro worked as an engineer in petroleum exploration for the French company Schlumberger. That activity allowed him to travel to and live in more than 100 different countries around the world. For over 6 years, he served as an advisor for many of the major oil companies in the world, including Agip, British Petroleum, ChevronTexaco, ExxonMobil, PDVSA, Pemex, Repsol, Shell and Total.

Mr. Cordeiro also did studies on International Economics and Comparative Politics at the Georgetown University in Washington, USA, and then obtained a Masters of Business Administration from the Institut Européen d'Administration des Affaires (INSEAD) in France. There he majored in Finances and Globalization.

In Paris he initiated his relations with the international consulting company Booz-Allen & Hamilton, where he specialized in the areas of strategy, finances and restructuring. In Latin America, he has served as an advisor for some of the most important regional corporations, apart from multinationals from all three economic blocks. He has also taken part in the transformation of a number of oil companies in the Americas.

At present, Mr. Cordeiro is an independent consultant, writer, researcher, professor and "traveler." He teaches as a Guest Professor at the Institute for Higher Studies in Administration (IESA) and at the Central University of Venezuela (UCV), where he created the first formal courses of Futures Studies ("prospectiva") and also of Austrian Economics in Venezuela. He is a co-founder of the Venezuelan Transhumanist Association, chair of the Venezuelan Node of the Millennium Project of the American Council of the United Nations University (UNU), director of the World Transhumanist Association and of the Extropy Institute, advisor to the Center for Responsible Nanotechnology, member of the Academic Committee of the Center for the Dissemination of Economic Knowledge (CEDICE), former director of the Club of Rome (Venezuela Chapter, where he has being active promoting classical liberal ideas) and of the Venezuelan Association of Exporters (AVEX), and consultant to various companies and organizations, both Venezuelan and international. He has been included in the Marquis publication *Who's Who in the World*.

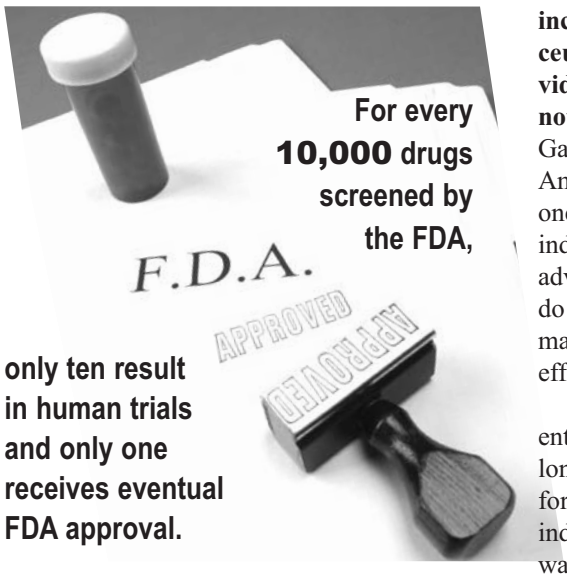
In 2000, José founded the Venezuela Chapter of the World Future Society with the support of the most famous Venezuelan intellectual, Arturo Uslar Pietri, and they quickly began to disseminate in Venezuela the importance of systematic thinking and action about the future. When Arturo Uslar Pietri died in 2001, José and several others created a university prize in his honor, "Sowing the Future" based on Pietri's famous phrase "Sowing the Oil." In this way, the Venezuelan students with the best futuristic essays receive scholarships to participate in the WFS annual conferences. This encourages futuristic thinking among young people nationwide and also helps find future leaders in several areas. Now, with the Millennium Project of the American Council of the United Nations University, José is also doing likewise for high school students

El Desafío Latinoamericano, José's first book, is a continental bestseller published by McGraw-Hill and is used in more than 100 universities in the hemisphere. Arturo Uslar Pietri, the most universal and respected Venezuelan of the 20th century, described the other books of Mr. Cordeiro with the following words: "as important to Venezuela as the independence battle of Carabobo" (*The Great Taboo of Venezuela*) and "an impressive work that describes the grave economic malady of Venezuela" (*La Segunda Muerte de Bolívar*). Mr. Cordeiro has written other books about Ecuador (*La Segunda Muerte de Sucre*) and Mexico (*¿Pesos o Dólares?*), and about special topics like education (*Benesuela vs. Venezuela*) and energy (*Energía para el Desarrollo de América del Sur*). Mr. Cordeiro has a regular opinion column in the largest and most prestigious Venezuelan newspaper (*El Universal*) and has also written and has been interviewed in other prominent media, including CNN and *The New York Times*.

The Widening Gaps in Pharmaceutical Therapies: Co$t – *Health* – TRUST

Synopsis of the October 2005 dinner program panel discussion; Panelists: Bill Rowley, Institute for Alternative Futures; Jay Herson, Johns Hopkins University and Mat Salo, National Governors Conference; Moderator: Eric Garland, Competitive Futures, Inc.; summarized by Dave Stein and Jay Herson

Pharmaceutical therapies are unquestionably scientific miracles. They address a variety of diseases, offering substantial improvements in health, many of which are significantly better than those offered by any other kind of therapy. On the average, people in industrialized nations are living longer. For its part, the pharmaceutical industry is doing well – so well that a few pharmaceutical giants, themselves the result of massive corporate mergers, invest billions every year in research and development of new therapies.



For every 10,000 drugs screened by the FDA, only ten result in human trials and only one receives eventual FDA approval.

Yet, these miracles do not come without challenges. Indeed, three major forces are posing an interesting dilemma for US healthcare. **First, healthcare costs (including pharmaceuticals) are increasing faster than wages**. Every year Americans are spending more on pharmaceuticals, paying either through pharmaceutical benefits plans when available or through personal funds otherwise.

Secondly, many new, expensive therapies offer only marginal improvements over generics. Even with the money spent, many pharmaceutical researchers and healthcare professionals believe that the "bang for the buck" is decreasing in healthcare research. Hundreds of millions of dollars are poured into development of drugs that may have marginal improvements on older, cheaper, and equally efficacious generic drugs. Other sources indicate that the number of new drug applications is decreasing, making companies, stockholders, and other stakeholders nervous.

The third challenge is that the American public is becoming increasingly suspicious of pharmaceutical companies, the benefits provided by advanced pharmaceuticals notwithstanding. According to the Gallop "Trust in Institutions" poll, the American popular perspective is often one of mistrust. Instead of seeing an industry that provides revolutionary advances in health, they wonder, why do they profit so much? What information are they hiding about side effects?

In combination, these factors present a dilemma. One might ask how long the US can continue paying more for healthcare while distrusting the industries that provide it. This issue was the focal point of the panel discussion.

PHARMACEUTICAL INDUSTRY FACTS AND TRENDS

Panel moderator Eric Garland began with some drug industry facts and trends. Said Garland, the cost of health care in the US is increasing at a rate far faster than wages are. At the same time, mergers have created corporate giants that dominate the pharmaceutical industry. Concurrently, pharmaceutical research has been increasing at a "breakneck" pace – a seven-fold increase in the past 15 years alone! Impressive as this sounds, the pharmaceutical industry has its challenges, too – not the least of which is the fact that for every 10,000 drugs screened by the Food and Drug Administration (FDA), only ten result in human trials and only one receives eventual FDA approval. In addition, seven years of sales are required to pay back the cost of developing a new drug and to pay the research costs of drugs that fail or that prove unprofitable. Not surprisingly, pharmaceutical companies are highly dependent on "blockbuster" drugs, i.e., those that produce $1 billion or more per year in revenue.

An additional cause for concern is that the FDA perceives that the quality of new drug approval applications is lower, even though it continues receiving a constant level of approval requests. Then, too, the public's trust in the pharmaceutical industry has eroded, partly because of the cost of drugs in comparison with pharmaceutical company profits and partly because of litigation regarding the effectiveness and/or side effects of particular drugs. Reminded Garland, the goal of the panel discussion was to get different perspectives or visions of the panelists on the current state of the pharmaceutical industry.

NEW MODELS FOR BUSINESS AND THERAPY – WHICH FIRST?

First to present a vision of the industry was Bill Rowley of the Institute for Alternative Futures and a healthcare futurist for several companies. Rowley's view is that the pharmaceutical industry world has changed and that pharmaceutical companies must re-invent themselves, to include a new business model. The blockbuster business model used successfully for so long is losing relevance. The new model will not be business as usual, and high profit margins will probably be impossible to achieve.

Panelist Jay Herson of Johns Hopkins University suggested that a big mistake in US healthcare has been to think of the pharmaceutical companies as "private NIHs" rather than profit making entities. Envisioned

See Therapies, continued on page 15

Therapies

continued from page 14

Herson, the biggest challenge facing the industry is to tailor treatment to each individual patient once we learn more about the fundamental nature of disease, adding that this will take a very long time.

A third perspective was presented by Mat Salo of the National Governors Conference. Cognizant of the balanced budget constitutional requirement of every state except Vermont, Salo noted that the cost of healthcare greatly affects state budgets because the Medicaid program, which covers the cost of healthcare for the poor, currently covers 55 million people and is largely paid for by the states. Put in perspective, the cost of Medicaid to the states is greater than the cost of K-12 education and of higher education. It was also pointed out that with certain Medicaid patients shifting to Medicare drug coverage after January 1, 2006, the issue of who really pays is not completely resolved.

HEALTHCARE SPENDING

Garland then asked the panelists what are the limits on healthcare spending. Rowley noted that the US now spends $1.93 trillion on healthcare per year but that the industry wastes money on bureaucracy, adding that no healthcare cost cutting measures will be effective until the public reins in its expectations for healthcare. Noting that much of the pharmaceutical industry has moved to the US because the government does not limit drug prices, Rowley anticipates that this will change because of the new imperative to control drug costs. Continuing, Rowley stated that the pharmaceutical companies do care about creating good drugs but that the industry is simply reacting to public demands and expectation, adding that Pfizer, for example, wants to go beyond drugs to provide services that promote health and effective management of diseases.

For his part, Salo addressed the budgetary issues. Stated Salo, the current level of Medicaid spending, 22% of state budget growth, is unsustainable. Many things can be done to limit spending, especially limiting waste. For example, electronic medical records can be used to minimize paperwork, while electronic prescriptions can help avoid prescription errors.

Herson noted that the trend toward mergers in the industry results from the high cost of developing new drugs and the fact that there are not enough blockbuster drugs to otherwise support these costs. There are many failures in new drug development, and the cost of clinical trials is high. Continuing, Herson pointed out that companies in other industries (e.g., in the aircraft industry) do not have the same high failure rates in new product testing because their tests are grounded in the laws of physics whereas there are not yet similar rules to guide pharmaceutical development. An additional point made by Herson is the need for expectation management regarding medical cures, especially in the case of expensive drugs that at best extend lives of terminally ill patients by only a few months.

Rowley then proposed that one way to limit government healthcare costs is to have a two-tiered system like Oregon has. In this system, all beneficial therapies are ranked in order of cost effectiveness as well as in relative benefit to patients and to society. Based on this rank ordering, the state pays for a certain basic level of care, and the individual pays for care above the basic level. Oregon's experience was that good therapies were available for virtually all diseases, but expensive treatments were excluded as not the wisest use of limited funds. Modifications were subsequently made for political acceptability, especially to accommodate children and to provide supportive care for people suffering from incurable diseases. Salo added that Florida has instituted defined contribution levels per individual in its Medicaid program. This provides an incentive for managed care.

NEXT GENERATION PHARMACEUTICAL SCIENCE

Turning from policy and budgetary matters to science, Garland posed the question, "What will happen in the science of drug development?" Herson envisioned that in twenty years, we will have drugs that are based on new developments in genomics and that we will be able to predict their successfulness. Salo suggested that there is a need to avoid over-medicating, citing Governor Huckabee of Arkansas as a case in point. Tremendously overweight, Governor Huckabee was given only a few years to live unless he went on a radical diet – which he did, to the loss of more than 100 pounds, becoming fit enough to run marathons.

Rowley envisioned that there will be biomarkers to indicate the progression of a disease in the patient and how his/her body metabolizes drugs. He further mentioned the possibility of a patch on the head to indicate how well anti-psychotic drugs are working – adding that these developments will require many years. As an alternative to the blockbuster business model, Rowley proposed the possibility of open source pharmaceutical development in a manner akin to present-day open source software development.

Q&A (as best captured):

Q: What would be the global impact of an Indian company producing cheap anthrax medicine?

A: Drug development will have to become more global. Indian and Chinese companies definitely have a role. Considerable progress has already been made in the area of harmonization of national approval requirements that will someday result in same- day approval by many countries. The next Pfizer could be a company based in India.

POINTS FOR THE CLASSROOM

(send comments to *futuretakes@cs.com*):

- *According to the **Pocket World in Figures 2005** published by **The Economist**, the US ranks 37th in longevity, even though it also ranks first in per capita healthcare spending as a percent of GDP. What can be learned from healthcare systems in other nations, with respect to both effectiveness and administration?*

See Therapies, continued on page 16

From one of our own!

Common Destiny: Filipino American Generations

by Juanita Tamayo Lott
[Rowman & Littlefield, 2006; paperback, 112 pages, ISBN: 0742546519]
Reviewed by Luceli C. Cuasay

The Filipino Americans provide a scene by which others may view the history, customs, traditions, and values of Filipinos. *Common Destiny* serves as an account of the Filipino American's history, as well as a framework for understanding the future of the United States. Juanita Tamayo Lott provides an analysis of the complex and diverse American society and its destiny through a vista of four generations of Filipino Americans, of which she is a part. The author gives a glimpse of the Filipino mind and character and calls attention to the significant contributions made by Filipino Americans to the American society, culture, economy, and politics. She succeeds in depicting Filipinos, the second largest immigrant population in the United States, as persevering, resilient, family-centered, caring, and hospitable people.

Through this book, the author connects the past, present, and future. She begins with the first annual Tamayo family reunion in Vallejo, California in May 2005. It is a "moment of pride and recognition" for four generations of Filipino Americans, ranging in age from 6 months to 90 years old. She recounts relationships with family and describes her father and uncles to be among the pioneer generation of Filipino Americans, who had dreams and aspirations as teenagers and twenty-year-olds. They were not afraid to speak up as a minority in the U.S. and paved the way for the next Filipino American generations. Through personal and historical narratives, the author highlights, that for at least four generations, the Filipino Americans have been active participants in the U.S. She recreates the four generations in detail, making good use of the analysis of scholars and interviews with surviving Filipino Americans in their 60's to 90's, including her own relatives. Her style of using names of individual family members when referring to a particular generation is effective. *Common Destiny* brings to life the story about the Filipino Americans' struggles, courage, and determination in pursuit of the American dream. One deficiency in this otherwise fine book, however, is the lack of photographs to illustrate Filipinos who have immigrated to the United States, to make them more real.


Lott

After an introductory overview of the four distinct Filipino Americans generations, a chapter is devoted to each one, with a witty title that is descriptive of the generation, such as "Flying Across Skies: The Post-1965 Immigrant Generation." The chapters narrate changes in the Filipino American experience over time and present important historical bases for understanding some of the issues facing Filipino Americans today. Although Lott focuses on the post-1898 migrants, she mentions the first wave of Filipino migration (1565-1815) to the United States, by Filipino seamen, who jumped ship off Acapulco, Mexico during the Galleon trade era and settled along the Pacific and Gulf of Mexico. Then, she describes the next wave of migration, that is, the pioneer generation. Her allusions to the different generations may be confusing to the reader at times, as there are two pioneer generations, and more than one generation are discussed in later chapters.

The first pioneer generation migrated to the U.S. during the first three decades of the 20th century to

See Filipino, continued on page 17

Therapies

continued from page 15

- *How serious of an economic stressor are the various entitlement programs, including healthcare, relative to rising energy costs, trade imbalance, and environmental degradation? If entitlement programs are cut back, what are the implications?*
- *In addition to the two-tier system mentioned in the synopsis, several other alternative healthcare paradigms have been proposed – the "Chinese" system (in which patients pay the doctor only when they are well), increased emphasis on preventative healthcare, lifestyle changes (including improved balance between work and leisure, to include time for exercise, healthy meals, family, and friends), and complementary or "alternative" medicine. Which of these alternative systems, if any, are likely to become more prevalent, and why?*
- *How will next-generation pharmaceuticals (genomics-based) change present healthcare paradigms?*
- *The synopsis discusses possible new business models, including offshore (global) development of the next pharmaceuticals and open-source development. How will open-source development, if implemented, impact investment? Specifically, will healthcare no longer be a lucrative investment, precipitating a shift of investment dollars to other industries?*
- *Advances in medicine and bioscience offer substantial promise for improved health and wellness into ripe old age. At the same time, the failure of some traditional retirement systems is forcing some people to postpone retirement and remain in the workforce longer, well into their senior years when the challenges to their health are greater. Delayed retirement affects different people in different ways, providing a social net for some and work-related stress for others. Given these countervailing trends, what can tomorrow's senior citizens expect in health and wellness?*

Filipino

continued from page 16

find opportunities for employment, education, and adventure. They are the "pensionados" (scholars), non-sponsored students, unskilled workers, who mostly found job opportunities in Hawaiian plantations, California agricultural fields, and Alaskan canneries, and the second wave (1946-1965) of military personnel who served with the U.S. Armed Forces in the Philippines during World War II. They are the "Manong" generation of farm workers and manual laborers in lowest-paid occupations, who were subject to social, economic and political discrimination on the basis of race, color, and citizenship, yet later succeeded as active civic participants, citizen soldiers, and an important labor force in the American society. The second pioneer generation comprise the post-1965 migrants, also called expatriates, who were mostly professionals-doctors, nurses, lawyers, engineers, and entrepreneurs. These two pioneer generations gave birth to the second generation who were American citizens by birth or naturalization. They were minority Americans, but were taught by their parents to be proud of their Filipino heritage and of their extended families in the U.S. and the Philippines and foremost, to believe in their power to achieve their dreams. Their mastery of the English language and of the American educational system helped them survive as minority citizens. Lott and her cousins are members of this second generation, described as "Children of the Pioneer Generation" in the third chapter.

I share the author's view, that the post-1965 Filipino American generation was crucial in ensuring that the Filipino Americans did not decline demographically and decrease by the third and fourth generations. They are beneficiaries of chain migration resulting from evolving immigration laws to meet the needs of the country and are instrumental in producing subsequent multiple generations of Filipino Americans. The fourth chapter provides interesting comparisons of the post-1965 immigrant upper or middle class professionals and the working class domestic workers; the voluntary and involuntary immigrants; as well as realistic discussions of dual allegiance. Being part of the post-1965 immigrant generation, I would have appreciated a more in-depth analysis of the experiences of my generation, our successes and struggles, compared to second generation American-born Filipinos and the pioneer generation.

Generation X, millennial generation, and digital generation are appropriately labeled as "Fast-Food Take-Out" multicultural, multiracial children, grandchildren, and great grandchildren of the pioneer generation. Whether they can be expected to build upon the successes of prior generations remains to be seen. Their ability to obtain higher education, in her view, will play a major role in how their lives will unfold. The author seems optimistic about these generations' ability to be major players towards the formation of a common destiny. The final chapter centers on civic participation in the U.S. and becoming world citizens who play a part in ensuring future generations in a common destiny. I concur with Lott's theory that "the 21st century will be defined not so much by the color line, as by a more basic human relationship – the adult/human connection, the continuity and change from generation to generation that allow survival of the species." Furthermore, "Common destiny, emanating from common ground, shared principles, and shared values, reaffirms the connection from one generation to the next."

Cuasay

Lott imparts a complimentary message that "the Filipino Americans' history can be valuable in shaping the common destiny of freedom and equality for mutigenerational Americans in the 21st century. The Filipino American generations' contributions towards the common destiny are their renowned skills of caring and hospitality, and interpersonal skills rooted in Filipino heritage and nurtured in full civic participation in the U.S." The rich heritage of diverse customs and traditions make the Filipino presence a welcome addition to the American society. This book would be of interest to futurists because it deals with the transitional thinking between the old and new paradigms. Futurist Lott is presenting this as a guide to "understanding the future of the United States given this country's unique emphasis on the individual and the rights of minorities." This is also a good book for younger generations to learn the history of Filipinos in the U.S. and build upon the good lessons from prior generations. The author's description of the distinct periods of Filipino immigration to the U.S. is well-researched and very educational not only to Filipino Americans, but also to other Americans. It provides Filipino Americans with a much-needed glimpse of their past and a window to their future.

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*The book author, **Juanita Tamayo Lott**, is a member of the senior staff, Human Capital Management at the U.S, Census Bureau. She is a trained social scientist from the University of Chicago and has held numerous policy analyst / demographer positions in a three-decade career in federal government. She has been active in Filipino and Asian-American affairs and has been particularly interested in the generational transition of Asian Americans. She has authored several books on Asian American demography and serves as an Associate Editor of* **FUTURE*takes***.

At the Woodrow Wilson International Center for Scholars

Ten Tips for Creating More Powerful Future Stories

Synopsis of the June 2006 workshop presented by ***Joseph Tankersley*** *of Walt Disney Imagineering, an event co-sponsored by the WFS US National Capital Chapter and the Woodrow Wilson International Center for Scholars; summarized by Lindan Johnson.*

"A story is the best way to weave together analysis of the predetermined aspects of the future with imagination about the uncertain. Stories are the way to make the link between planning and dreaming."
– Pierre Wack

1. Use the Secret Story Formula

We've been constructing good stories the same way since Aristotle wrote The Rhetoric in 350 B.C.E. There's a reason – it works. The three parts of any good story are designed to fulfill very specific goals. Use the structure to help you build your story.

The Beginning

- ***Lay the foundation.*** Begin by asking, "Who are we?" "Where do we come from?" "Where are we today?" Understanding these elements is critical to laying the foundation for your story. Stories, like future visions, are about change. In order to understand how we might need to change and what change is possible, we need to understand where we are starting. Ultimately, what we can become is determined largely by our organizational DNA.
- ***Make connections.*** Readers will "buy-in" to the most far-out future if you connect with them. These connections need to be established in the very beginning of the story. It is critical that the audience see how this future relates to them, today and in their own future.
- ***Start with the problem.*** The most powerful stories begin in the middle of a conflict. Establish early on the reasons that change is going to be imperative. What are the potential consequences of inaction?

The Middle

The middle of a good story takes the reader on an adventure or grand journey. Your future story needs to show the reader what they will have to do to achieve the preferred future you lay out for them.

The stuff of this future adventure includes emerging trends, potential countertrends, and wild cards that you have identified in your research. Emerging trends lead the reader to those critical moments where it becomes clear that their action will influence the course of the future.

The Resolution

We reach our goal. We see our preferred future and, most importantly, we know how we got here. In a good story the conclusion is always inevitable. It has to turn out that way, because of the steps that led to the conclusion. For the future storyteller this becomes the case for the preferred future he/she envisions.

2. Stories Need a Hero

The hero of a good story is our avatar. He/she becomes the person we can see ourselves becoming in the future we are trying to create. The hero is the bridge between the esoteric concerns of most strategic plans and the real world. He/she needs to confront real situations, real concerns, and real problems.

Heroes **do not** have to be amazing early adopters or even supporters of change. Heroes in stories are transformed by their acts of courage. In our case those acts of courage are represented by the decisions to embrace the vision and to confront the challenges that stand in the way of change. The story should demonstrate how the value of the future vision changes non-supporters into proponents.

3. Technology is NOT the Hero of Your Story

"The nature of the future world will be an expression of emotions at least as much as rational deliberations, programs and practices. Emotions are critical to what happens, both those emotions driving creativity and reasons, aspiration, power seeking, greed and the will to control, and those emotions responding to the existential questions of being human."
– Donald N. Michael

Stories are about people and relationships. The future will be about people and relationships. Future stories that idealize or demonize technology take control of the future out of our hands. They create a "Futurelandia" – a world where technology has already taken over the future and we are at best supporting characters. This is not a vision of the future that will encourage anyone to take on the challenge of change. Technology should be the supporting player, or maybe just the scenery.

4. Fill Your Future Story with Conflict

Conflict is reality. The present is filled with conflict. The future will be too. In a future story, conflict appears in the guise of wild cards, negative trends, countertrends. Conflict moves the story forward. Conflict compels us to work toward a goal. These obstacles will be difficult to overcome. Too often scenarios tend to dismiss the challenges. Identifying and confronting obstacles should be the core of your future story.

5. Stories Must Be Internally Consistent

Anything is believable if it follows the laws of the story's physics. In a future story we have to be able to understand why things happen the way they do.

If the world of your future works different from today then you have to make clear how and why. "How does it work?" "Why did it change?" Until you do that convincingly you cannot get readers to give serious attention to

See Ten Tips, continued on page 19

Ten Tips

continued from page 18

the much more important issues that your future story is based.

6. Tell One Story

There is no "one" future. The strength of futures inquiry comes in considering multiple versions of the future. However, when crafting a particular future scenario is it critical that you limit the focus to one main theme. It's a time tested rule—Keep it simple and your readers will follow along and be more likely to accept the story you have created.

7. Embellish for Effect

Too many scenarios get caught up in proving themselves with tons of minutiae. Selectively pick the details that add to the intent and interest of the story. Just because you can imagine some new idea or technology is possible doesn't mean that it is contributing to the type of futures thinking you want to encourage. Always ask: "How does this detail move my story forward?" Too many details can simply lead readers to conclude that the future is too complex for them to begin to consider.

8. The Problem with Endings

James Ogilivy argues in his book, *Creating Better Futures*, that negative scenarios are easy to create but psychologically difficult to entertain. Positive scenarios are easy to entertain but intellectually much more difficult to draw in a plausible and convincing way. No matter how brilliant your logic, or exhaustive your analysis people do not change to avoid disaster. People change because they see a brighter future.

9. Change Your Story Often

"Writers have a harder and harder time keeping up with reality. We have not yet learned to conceive, research, write and publish in 'real time.'"

– Alvin Toffler, Future Shock, 1970

One of the most basic tenets of foresight is that the future is constantly changing, yet we create permanent documents that tend to be out-dated almost as soon as they are completed. It's no wonder that so many scenarios are developed and then immediately shelved. A useful futures story is one that is constantly being rewritten and revised. One of the great benefits of modern technology is that we now have tools that make it possible to transform any story into a constantly evolving record of the journey we are taking.

Stories should not be changed just to satisfy upper management whims. Change should be directly tied to ongoing scanning activities that provide early warnings of events and trends that might invalidate key conclusions inherent in your futures story.

Tankersley

10. Give your Story Away

Once the story is polished and perfect give it away. Invite the critics and naysayers to feast on the story. They will challenge the story, attack it and begin to rewrite it. Resist the temptation to demand that the story be unadulterated. You want it to be dissected and attacked. Why? Because now you have an entire organization practicing futures thinking. **If nothing else comes from the exercise this is worth the effort**.

Over time a transformation takes place – in both the story and the audience. As it becomes "my" story I'm much more willing to invest in it. I want it to work.

If the original story had validity it will be built around the core of a potentially realistic future and that core will remain even as others make the story their own.

And Finally, Trust in the Power of Story

"In dealing with the future it is more important to be imaginative and insightful than to be 100% right. The maps of the world drawn by the medieval cartographers were so hopelessly inaccurate, so filled with factual error that they elicit condescending smiles today when almost the entire surface of the earth has been charted. Yet the great explorers could never have discovered the New World without them."

– Alvin Toffler, 1970

Story-telling remains one of the most powerful tools for change. Future stories, based on sound research and prediction, can become the blueprint for any organization trying to envision and achieve a preferable future.

***Joe Tankersley** is a storyteller, futurist and senior show writer for Walt Disney Imagineering.*

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