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 Institute for Alternative Futures

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Forward Perspectives

IAF Explores the Future of Cancer Medicine

By IAF Senior Futurist [Bill Rowley](#)

Recently I gave a talk on the Future of Cancer in Medicine at the 2nd C-Change Cancer Surveillance & Information Summit. During the speech I endeavored to help my audience of researchers in cancer surveillance see what is going on around them such as the recent advances in information and communication technology. These advances have transformed how patients manage and relate to their own illnesses. For example, [Patients like Me](#) is just one of many online communities out there to help patients connect with patients with their condition and discover new information on their diseases.

Using advanced health information systems, it is already possible for patients to track most of what is happening with their illnesses including linking to their medical records, recording their diet and exercise, recording medicines taken and logging their own personal experiences. Companies are already offering genetic testing that can identify future risk for disease. Early adopters are using these systems to capture rich information on genetic susceptibility, disease progression, and the effect of medication and quality of life. These early adopters are amassing a wealth of information that is rarely tapped by the medical profession.

In the near future, these systems will be augmented by better technology and will be much easier to use. Non-invasive biomonitoring technology will make it much easier to capture information about health, lifestyles and the larger environment. Digital coaching will help

patients make lifestyle changes to reduce their risk of cancer. Genetic testing will drop in price and the number of conditions that can be identified will expand. It will also be possible to identify pre-cancer states and arrest cancer before it starts with targeted therapies.

One solution is to create an invitational, trusted, secure, and purposeful database to track patients with similar conditions. This database could provide preventive advice online and educate physicians about genetic medicine as it evolves. Patients could be followed over time, and their individual information, including treatments and interventions, could provide a wealth of knowledge about matters such as lifestyle and cutting-edge therapies. If risk can be identified, early intervention would allow for a tailored health action plan, individualized chemoprevention, and behavior modification.

The key is to start now with early adopters who are already using these technologies. By starting now, we can build up valuable longitudinal data on cancer risk and its links to genetic susceptibility, behavior and environmental factors. Using the database, physicians of the future can identify those preventative methods most likely to make a difference and identify which methods are most effective for a patient's unique circumstances. Best of all, the database will allow researchers to track patients in real world conditions and find out much more about their quality of life.

Participation should be strongly encouraged as a societal responsibility in order to win the long running war against cancer. There is also great opportunity for the cancer community to design a personal health record useful for cancer research and facilitate personal health data collection & data mining to accelerate this knowledge. However, before we can begin to develop this database for the future, the public's legitimate fears of releasing their *future* risk for disease online must be addressed.

There needs to be a trusted institution (or group of institutions) that can guarantee that collected data is sanitized so personal information cannot be discovered by researchers. The use of this information must be transparent so that the public can see that it is being used wisely in producing important advances in cancer prevention and treatment.

The great challenges of human history have only been met through unity. Cancer remains one of the greatest challenges of our lifetime. The ability for patients to pool their health information provides one way that we as a society can tackle this disease and improve the quality of life for millions of Americans.

Mass Migration Will Drive the Future

By IAF Futurist [Craig Bettles](#)

Demographic forces and globalization will drive international migration to unprecedented levels by 2028. IAF forecasts, by 2028, there will be more than 380 million international migrants, more than double the 175 million international migrants at the turn of the century, and larger than the current populations of the United States and Germany combined.

Societies in the industrialized world from the United States to Japan are aging rapidly and driving demand for younger workers. Fifteen percent of the population in the developed world in 2030 will be over the age of 65 - the highest percentage in history. Developed nations, especially in Western Europe and the developed Asian nations, will struggle to replace retiring workers while India, Africa and the Middle East will have young, growing populations looking for work.

The proportion of immigrants from the younger nations of African and the Middle East will grow dramatically. Europe will be the most affected by the mass migration of African and Middle Eastern workers. America will see increased immigration from Latin America. Japan will attempt to delay widespread migration as long as possible - instead looking for technological solutions, such as advanced robotics to fill labor demand.

Multinational companies are creating a global corporate culture that is driving migration at the highest skill levels. Well known companies such as IBM and GE continue to expand their global reach while newcomers such as India's Tata Steel and China's Haier are buying up smaller, older industrial companies in advanced economies. In the process, these companies are creating corporate cultures that cross national boundaries. While each culture is unique, they collectively provide a common set of soft skills and frame of reference that makes mass migration easier.

The creation of a global corporate culture is part of a larger process of globalization that is integrating economic, cultural, political, religious and social systems. Skills transfer is easier where economic and cultural backgrounds are similar and global culture encourages migration, which in turn causes further integration. As these forces feed off each other, they create momentum for mass migration.

Governments will need to take on a delicate balancing act between policies that support global migration and those that help to mitigate the negative effects to communities. Larger immigrant communities, despite global integration, will cause even more tension between immigrant and native communities. For example, large immigrant communities in Europe remain isolated and alienated from the larger society, which lead, in part, to widespread riots in 2005 in the suburbs of France. Similar tensions, if not as violent or widespread, exist worldwide.

Many communities will see their young and well educated workers leaving for better jobs abroad. The loss of these workers will hurt local communities although this loss will be mitigated by remittances. Global remittances combined with the talent of returning immigrants will also create new sources of wealth and innovation in the developing world.

Trends and Insights

ASME Invites Leaders to Discuss the Future of Mechanical Engineering

Mechanical Engineers will be at the forefront of creating solutions to the most pressing problems of the next 20 years. To prepare for this future, ASME gathered 120 engineering and science leaders from 18 countries to develop a shared vision for the future. ASME partnered with the Institute for Alternative Futures (IAF) to facilitate the [Global Summit on Mechanical Engineering 2028](#) and to forecast future developments for the profession.

The experts gathered at the Global Summit examined the grand challenges confronting our world and aspired to be at the forefront of developing new technologies to address energy, environment, food, housing, water, transportation, safety, and health. Their vision for the profession showed the essential connection between engineering and the joy of discovery as

well the excitement of creating and applying engineering solutions that improve human life. They affirmed the importance of thinking and acting globally and ensuring the benefits of mechanical engineering reach everyone through global partnerships and locally appropriate development.

To achieve this vision, the summit participants defined a critical path that creates greater public awareness of the essential contributions of engineering to quality of life consistent with a sustainable world. This critical path requires focused efforts to improve:

- Lifelong learning for globally competent engineers and engineering leaders;
- Advocacy to influence political decision making on issues related to science, engineering and technology;
- Multi-disciplined and systems engineering approaches to multi-scale systems; and
- Partnerships among academic, industry and government to expand research and development and develop the next generation of engineers.

The Global Summit on Mechanical Engineering 2028 gave leaders an opportunity to examine changes in our world and reflect on how relevant mechanical engineers might be to the challenges ahead. The global nature of the conference affirmed a common vision for mechanical engineers around the world. The profession of mechanical engineering stands ready to learn and adapt its discipline and practices to the grand challenges we will face over the next 20 years.

The Future of Mechanical Engineering 2028, IAF's environmental scan for the future of the Mechanical Engineering profession, is available [here](#). You can also read the pre-conference materials, the list of speakers and their slides [here](#) at the Summit website.

News and Events

Spotlight on the WFS Wiser Futures Workshop

Every year, at the WorldFuture Conference, IAF holds a one day workshop on its world-class approach to aspirational futures. IAF believes futures tools are vital for leaders and the basics are easy to learn. The Wiser Futures Workshop is designed as an entry level course for leaders in a range of industries and organizations.

At the Wiser Futures Workshop, IAF Futurists Clem Bezold, Craig Bettles and Devin Fidler will lead the participants through future tools from scenario development to designing a vision and mission statements. IAF will provide an array of examples from our work as consulting futurists.

This year's [WorldFuture 2008 Conference](#) will be held in Washington D.C. The Wiser Futures Workshop will be held as a pre-conference course on July 26th, 2008. This year's program will also feature prominent futurists from IAF speaking on a range of issues. You can see the other IAF events at this year's WorldFuture Conference in the Upcoming Events section.

IAF Exploring the Future of Food

IAF is currently developing a white paper on the Future of Food in 2028 for Fleishman-Hillard and its clients. IAF has identified six key areas that are shaping the future of food and

nutrition. The first area of change in the industry, as anyone who has been to the supermarket recently realizes, is the ever rising price of food. Other key areas in the food industry have been "sustainably produced" food and ethical eating.

Three other areas shaping food and nutrition revolve around our current health challenges. Rising rates of diabetes and obesity will drive change in the food industry as consumers demand healthier food. Consumers will also demand personalized nutrition and evidence based medicine and nutrition.

The report will be available later this year for download. Keep an eye on this e-newsletter and the [IAF website](#) for more information.

Upcoming Events

Wiser Futures Workshop, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Futurists Clem Bezold, Craig Bettles and Devin Fidler, July 26th, Washington, D.C.

Health For All and a Health Care System Worth Creating, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Futurists Clem Bezold and Bill Rowley, July 27th, Washington, D.C.

Using Futures in Organizational Strategy, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Futurists Jonathan Peck, Bill Rowley and Devin Fidler, July 27th, Washington, D.C.

The Coming Decade in Air Travel, 2020 Visions from Two Blind Seers, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Senior Associate Jay Herson with David Pearce Synder, July 27th, Washington, D.C.

2021 Vision for Elementary and Middle Schools in a Global Society, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Futurists Marsha Rhea and Craig Bettles with Elizabeth Carlson, July 28th, Washington, D.C.

Key Trends and Uncertainties, Views from Corporate Foresight, [WorldFuture 2008: Seeing the Future Through New Eyes](#), IAF Founder and Chairman of the Board Clem Bezold with Klaus Heinzlbecker and Gereon Uerz, July 28th, Washington, D.C.

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