



*An ongoing research effort to identify and analyze the most important trends shaping our world out to the year 2030.*



### **Revolution 3: Technology**

**What changes are we going to see in computation, robotics, biotechnology & nanotechnology?**

#### **RESOURCES**

##### **Sample discussion questions**

- Who should control our personal information? What will happen when an individual's genome is routinely digitized and archived? Who should control such information? The government? The private sector? The individual? How can such information be secured? To what benefits and dangers does this information expose an individual?
- In a coming age of personalized medicine—medicine based on the genetic makeup of an individual—scientists are predicting life spans of 120 years of age and beyond for children born today in parts of the developed world. How will longer, healthier lives change concepts of retirement? Of social security and pensions? This technology is unlikely to be widely available. What consequences will result from this furthering divide in access to healthcare between rich and poor, developed and developing worlds?
- Only in its infancy, nanotechnology has already yielded materials harder than diamonds and technologies to attack cancer at the molecular level. It will likely be a trillion dollar industry by 2020. Surprisingly, it may also be the first industry to emerge simultaneously in the developed and developing worlds. How can we begin to address the massive technological gap between the developed and developing worlds in other fields as well?
- Why is it important that developed countries not simply leave behind the developing world as they continue to innovate? Is Thomas Friedman correct in his statement that information technology is bridging the gap and allowing geniuses in developing countries to "innovate without having to emigrate"?<sup>40</sup> Will we see the end of the emigration of skilled workers from the developing world or more internal migration of skilled workers within it?

\* From, [Educating Globally Competent Citizens A Tool Kit for Teaching Seven Revolutions](#)

## Web Resources

[CSIS Technology and Public Policy Program](#)  
[CSIS Global Strategy Institute](#)  
[The Top 500 supercomputers in the world](#)  
[The Center for Responsible Nanotechnology](#)  
[The Project on Emerging Nanotechnologies](#)  
[The New Atlantis](#)

## Videos

[Hans Rosling: Debunking third-world myths with the best stats you've ever seen](#)  
[Kevin Kelly on the next 5,000 days of the web](#)  
[Nicholas Negroponte on One Laptop per Child](#)  
[Unveiling the genius of multi-touch interface design](#)  
[Christopher deCharms looks inside the brain in real time](#)  
[Ray Kurzweil: How technology's accelerating power will transform us](#)  
[Craig Venter is on the verge of creating synthetic life](#)  
[The Myth about Ethanol](#)  
[Top Gear - Vegetable oil for your volvo diesel - BBC](#)  
[Nova - Car of the Future](#)

## Further Reading/Podcasts

Garreau, Joel. [Radical Evolution](#). New York: Doubleday, 2005.  
Kurzweil, Ray. [The Singularity is Near](#). New York: Penguin, 2005.  
Standage, Tom. [The Future of Technology](#). London: Profile Books, 2005.  
Teich, Albert H. [Technology and the Future](#). New York: Wadsworth Publishing, 2005.  
[Business's digital black cloud](#). The Economist, July 14, 2005.  
Miller, John H. and Scott E. Page. [Complex Adaptive Systems: An Introduction to Computational Models of Social Life](#). Princeton, New Jersey: Princeton University Press, 2007.  
Herskovits, Zara. [DNA Technology Brings Personal Gene Maps Closer](#). Boston Globe, August 15, 2005.  
Allen, George. [The Economic Promise of Nanotechnology](#). Issues in Science and Technology 21, no. 4 (Summer 2005), p. 55.  
['Wired For War' Explores Robots On The Battlefield](#) (podcast).  
[\(So-Called\) Life](#) (podcast).