Technology and Innovation: The Next Wave

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"Distant water will not put out a fire close at hand," goes the Chinese proverb - a reminder that the urgent will easily overshadow the important in the time of crisis.

For companies grappling with decreased lending and declining consumption, the benefits of scientific research and development may seem far too remote. Such an outlook should be rejected.

While terraforming Mars or disproving the Higgs mechanism in particle physics may seem like lofty, far-off goals, science will drive future growth.

Investors and governments abandon or ignore scientific research at their peril. The United States, Europe and Japan led technological innovation throughout the 20th century. The scientific community has become increasingly decentralized in just the early years of this century.

To nurture the new global scientific ecosystem, stakeholders should focus on three goals:

First, while national security and intellectual property remain legitimate concerns, knowledge and talent must flow more freely across borders.

Second, whenever possible, private enterprise should fund new science.

Finally, the private and public sectors should partner to ensure regulatory structures that enable innovation and sufficient financing for long-lead research.

This is particularly true when research addresses collective global concerns like clean energy and our common stewardship of the environment. Old competitive models of knowledge protection will eventually yield to cooperative models of sharing research across borders and even between corporations. This has stark implications for the existing intellectual property rights regime.

"The bad news is that intellectual property is no longer protectable," said Neil Gershenfeld, Director of The Center for Bits and Atoms at the Massachusetts Institute of Technology. "The good news is that intellectual property can still exist, but it will not be based on control of scarce resources."

Companies will be compensated based on their abilities to add value rather than on tight control of intellectual property, Gershenfeld argued. National governments must also allow the world's best and brightest researchers to collaborate more freely. "There is a genuine worry in the scientific community that we can't communicate with everyone that we'd like to," said Brian Cox, Royal Society University Research Fellow at the University of Manchester. Scientific development in the US and United Kingdom have suffered because of more stringent visa requirements, especially since 9-11, that make it difficult for foreign researchers to work in those countries.

International cooperation is vital to large-scale research that is not driven by commercial interests. The largest scientific experiment in history, the Large Hadron Collider (LHC), aims to recreate the conditions at the beginning of the universe. This project would not have happened were it not for cooperation among 86 countries and funding of its US$ 9 billion price tag.

While the US has reduced its funding for the space programme, the International Space Station keeps humming

thanks to 16 other countries that contribute to its operation. China may soon add its expertise and capital to the project. After a successful space walk mission that took place at the beginning of the Annual Meeting in Tianjin, China is likely to follow the US by landing a spacecraft on the moon. While governments and foundations will fund most longterm research, the private sector can reap rewards from investing in new science, as capitalism is efficient at deploying capital to create value. If harnessed to scientific research, it can also be an effective promoter of new technologies.

Businesses that invest in biotechnology and nanotechnology are enjoying superior returns on investment. Globalization, after all, has helped expand the market for life science products. Developing countries with little or no pre-existing medical infrastructure can more quickly integrate healthcare advances than countries in the Western world where, too often, insurance companies impede medical progress. Even space exploration can be made profitable.

A World Economic Forum Young Global Leader, Space Adventures President and Chief Executive Officer Eric C. Anderson brings private citizens into orbit and sees the cosmos as a fertile vineyard. Mineral companies might one day mine asteroids; pharmaceutical companies harvest crystals in zero-G; and transportation companies use sub-orbital flights to slash intercontinental travel times. "It is in our collective interest to bring the solar system within our economic sphere of influence," said Anderson.