China Development Forum 2021

China on a New Journey of Modernisation

11:25-12:05 Plenary Session II

The Next Disruptive Innovation

Moderator
Xue Lan, Dean of Schwarzman College, Tsinghua University

Speakers
Xue Qikun, President, Southern University of Science and Technology; Academician, Chinese Academy of Sciences
Elon Musk, CEO, Tesla Inc.

Synopsis
Humanity have gone through several industrial revolutions and seen the impact of disruptive innovation on the economy and society. In what areas could new disruptive innovations appear and how might they impact the future of the world?

Elon Musk noted that in addition to the expected discovery of extraterrestrial life, disruptive technologies are set to emerge in areas such as artificial intelligence, DNA and RNA synthesis, self-driving vehicles, and 3D tunnels as a solution to traffic congestion.

Xue Qikun, a quantum physicist, spent little time discussing quantum computing and quantum networks, but instead talked about the development of sustainable energy. He cited BP statistics released last year that suggest global resources have become scarce after three industrial revolutions, and that petroleum and natural gas are expected to run out in 50 years if current patterns of development and consumption continue. He proposed "sustainable recycling", i.e. the use of clean energy, including solar, and barely any fossil energy, to ensure the sustainable application of the technologies that emerged from the three industrial revolutions, as a solution.

Where will "electricity" come from in future? What fuel will engines use? The most scientific answer is hydrogen, according to Xue Qikun. Hydrogen is efficient and clean to use instead of coal, oil and natural gas. It can also be obtained from solar energy. Sunlight can be converted into electricity through highly efficient solar cells, made

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easily accessible through advanced energy storage technology, and then used to decompose water into hydrogen without being exhausted.

To create disruptive technologies, talent is needed to imagine and develop innovations, so how can higher education help young people make such revolutionary innovations, Xue Lan asked.

In his answer, Elon Musk said first that students need to connect knowledge with practice and understand the meaning of learning to become self-motivated. Second, Musk added, teaching methods should become interactive, with classes used more for interactive discussion than one-way teaching. Xue Qikun responded to Musk's view by pointing out that higher education should not only enable students to understand the basic laws of nature and society, but also encourage them to apply what they have learned to increasing wellbeing for humanity.

He proposed that Tesla could set up a university to train talent in a more targeted way. Musk replied that since there is an urgent need for robotics programmers, robot programming could be a training focus at "Tesla University".

Innovative technologies benefit society, but can also have adverse effects, such as large-scale job substitution and privacy violations. In this regard, Musk and Xue Qikun agreed that AI and human intelligence have their distinct advantages and should be differentiated, and it is necessary to supervise technologies at different stages of development.

Finally, addressing the issue of competition and cooperation between China and the US in science and technology, both delegates said they hoped the two countries would establish mutual trust, and then view competition and cooperation in science and technology from the longer-term and broader perspective of human society. By seeking common ground while maintaining our distinct characteristics, we can maximize our common interests, they suggested.

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