

## **The Industries of the Future – Open Economies Have the Edge\***

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*Alec Ross:*

*The Industries of the Future*

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As Senior Advisor for Innovation to former US Secretary of State Hillary Clinton in 2009–2013, Alec Ross played a key role in the implementation of the projects “21<sup>st</sup> Century Statecraft” and “Civil Society 2.0”. Since leaving the Department of State, he has travelled the world: visiting 41 countries, he has advised senior politicians and company executives on technology and innovation policy development. Published in 2016, *The Industries of the Future* is his debut work as an author.

In the first part of the book, he describes the technological and industrial changes that will radically transform the processes of the world economy and society in the next ten years. The key industries involved are robotics, genomics, cyber security, the digital transformation of the financial sector, and big data. In the second part, Ross enumerates the skills and economic policy measures that could facilitate adaptation at the levels of both the individual and society.

Scientists and researchers agree that the decades to come will be dominated by the development of robotics. The emergence of robots, which will have both winners and losers, is compared by the author to the internet revolution of twenty years ago. The impact of robots on jobs will vary by country. The countries currently leading the way in the development of robots, i.e. Japan, South Korea and Germany, will export the technology in the future. This is a major risk to countries with economies built on cheap labour. China’s position should be monitored from this respect as well, particularly given the considerable sums the Chinese government is spending on the development of robotics as part of the Made in China 2025 programme, while it continues aggressive urbanisation to keep wages low.

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\* The views expressed in this paper are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

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Ross believes that in the decades to come, genomics will have a greater impact on our lives than the internet, offering the potential to know who we actually are at a molecular level. Research in genomics is led by the United States, but China has been catching up fast in this field as well. The Beijing Genomics Institute is among the leading research institutes in the world and has more genetic engineering instruments than the United States. China is of the view that the economic dominance of the US is attributable to the latter's recognition and exploitation of the opportunities offered by the internet. The Chinese government has stated that genomics will be the next billion-dollar industry that is comparable to the internet, in which China wants to become the leader.

The third largest driver of transformation is the emergence of big data, which could radically change industries from healthcare to education. Currently it is the subject of an exciting debate whether this would lead to a more centralised arrangement in the world economy, and the tech companies of Silicon Valley will acquire entire industries or on the contrary, the transformation of big data into a mass product would facilitate the entry and rise of new companies throughout the world.

The emergence of the latest 'currency' of the 21<sup>st</sup> century will have an unforeseen impact on the financial system. The author argues that in the future only six currencies will be relevant: the dollar, the euro, the yen, the pound, the renminbi, and bitcoin. The spread of bitcoin is largely determined by financial stability and regulation in each country. In countries whose financial systems are not sufficiently sophisticated, such as Argentina, Iraq or Venezuela, there is greater receptiveness for alternative instruments like bitcoin, on which economists' opinions are divided. According to Paul Krugman, bitcoin contradicts the theories of both Adam Smith and Keynes and its use would plunge us back to the middle ages, when the unit of account was a precious metal, gold.

Throughout the book, the author underlines the importance of openness at both the government and corporate levels. Countries that are not led by control freaks and are making a shift towards a more open economic model could accommodate the industries that will shape the future. Ross offers the example of Estonia's economic model. In the early nineties, the Estonian government implemented economic reforms that created an innovation-friendly environment. For example, by 1998 all schools had been connected to the internet.

One of the most important and least recognised drivers of globalisation and growth is women's stronger social participation, which is expected to increase further in the future. Ross takes China's example to demonstrate the effect of equal rights for women on economic performance. In China, granting equal rights for women had already been a central effort under Mao's rule. Men and women were paid approximately the same wages, and women also received childcare allowances.

In 2013, 51 per cent of senior management positions were filled by women, and according to Alibaba founder Jack Ma, the performance of female employees largely contributed to the company's success.

Ross argues that the standard of education should be improved continually in order to respond to the challenges of the future. As the complexity of problems and the quantity of the data available is increasing, analytical skills are taking on an increasingly prominent role. That is why it will be appropriate for the next generation to master one or more computer programming languages in addition to foreign languages.

By way of criticism, it should be noted that the author's argument is based on the assumption that governments know the right direction and develop innovation. By contrast, the role of economic freedom, one of the prerequisites for innovation-based economy is completely neglected. Although the book is superficial in a number of respects, it is recommended reading, since Alec Ross interviewed the managers of companies that will play an important role in the future.