

Session summary

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Session title: **TRAINING ENGINEERS BUILDING ON FUNDAMENALS OF RUSSIA'S ECONOMY**

Theme

Since the inception of the 'end of history' school of thought, the supremacy of the post-industrial world over the industrial worlds seems no longer obvious. The economies that are recipients of high technologies are consistently experiencing higher growth than their developers. The fundamental requirement for this trend is the existence of a highly skilled workforce, especially qualified engineers, whose numbers have declined in Russia in the past decade.

- 1) Is the 'industrial leap forward' in China, Brazil and the countries of Southeast Asia a passing phenomenon or a long-term trend?
- 2) What future can we foresee for the engineer profession in the era of industrial renaissance?
- 3) What should be the role of the state and the private sector in advancing engineering and technical education, and how does the experience of the USA, France, and China compare to that of Russia and FSU?

Moderator

Vladislav Inozemtsev, Director, Center for Post Industrial Society Research

Panelists

Dr. Elhanan Abramov, Chief Executive Officer, Baran Engineering

Gu Binglin, President, Tsinghua University

Vitaly Klintsov, Director, McKinsey & Company Moscow Office

Edward Luttwak, Senior Research Associate, Center for Strategic and International Studies

Sergei Nedoroslev, Chairman of the Board of Directors, Kaskol

Alexander Nesis, President and Chief Executive Officer, ICT Group

Synopsis

The purpose of the session was to discuss Russia's education system for engineers and to propose solutions to the issues that engineering as a field is currently facing.

Mr. Luttwak began by noting that Russia is not alone in facing a shortage of engineers. There is a lack of engineers worldwide, even in huge industrial corporations in the US. The solution should be to educate a generation of applied scientists who could add value for businesses.

Mr. Nedoroslev emphasised the extent to which the modern economy is a global one. Competition is also global and has grown significantly in the past few years. Businesses now have to compete on the global level, which is raising the bar for the quality of their goods and services.

All these factors are having an impact on the quality of engineering. The requirements for engineering qualifications are increasing, and simple engineering work is now less in demand. The demand for standard staff with ordinary qualifications is continually falling. Engineering costs make up about 5-7% of the final product, with the remaining 95% of costs covering raw materials. But 70% of a product's success is directly related to the quality of the engineering behind it.

The panellists agreed that the quality of education is the key to success in training engineers. Education in Russia today is not always sufficient to train an engineering workforce, and many employers have had to invest a lot into re-educating graduate hires to give them the professional skills they need.

Not every student can become an engineer. Gifted students should be spotted at an early age, encouraged to study engineering and given full support throughout their education. This task should not be the exclusive burden of universities. It should be seen as a part of a value-adding chain "from school through to university and further to industry". Here, collaboration between the government,

businesses and universities is required. Another important point here is the professionalism of professors and lecturers in universities. Lecturers should be high-level professionals that are aware of business needs and involved in developing modern science themselves.

Mr. Gu shared China's experiences with having a lack of qualified engineers and resolving this problem through education. In June 2010 the Chinese government launched an education programme for engineers. This programme aims to meet industry needs. The Chinese government tries to follow the three 'I' concept: build interdisciplinary education, integrate this education into real industrial needs, and make this education innovative.

At the end of the session, Mr. Inozemtsev noted that term "engineer" was developed from the Latin word "ingenio" and France "ingénieur" – the man who creates and invents using his knowledge and talent. It's important to return engineering to its original meaning, where engineers are connected with talent, competences and innovation. As a result, the future of engineering will be bright.

Disclosures

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