



## SCIENCE AND BUSINESS NEED EACH OTHER

A discussion at the Open Innovations international forum.

### “Science and business speak different languages”

Sergey Lyulin, Deputy Minister of Science and Higher Education, mentioned one of the reasons for the gap between science and business: Russia does not have strong applied science because it was not supported after the collapse of the Soviet Union. As a result, fundamental science evolved while applied science stalled. However, the Government now pays attention to applied science: for example, one of the metrics under the Science national project is the number of applications for invention patents. The share of innovative products created based on Russian patents is growing (up from 0.6% in 2018 to 1.09% in 2019), but is still very low. Researchers themselves do not notice any uptick in the implementation of their own developments.

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ACCORDING TO SERGEY LYULIN, DEPUTY MINISTER OF SCIENCE AND HIGHER EDUCATION, A NETWORK OF TECHNOLOGY TRANSFER CENTRES ACROSS RUSSIA WILL HELP RESEARCHERS AND COMPANIES FIND A COMMON LANGUAGE

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Lyulin has also noted some other implications of the existing situation in applied science: even research teams who could contribute to industrial development usually do not have the necessary equipment and there is no talent pool for new industries, particularly people who could act as “interpreters” in the transfer of technology between science and industry. The key issue, however, lies in poorly formulated tasks, the Deputy Minister believes. “I once heard a comment at the Krylov State Research Centre in St Petersburg that we have more engineering centres in the country than tasks for them. My experience tells me that the key problem here is in developing terms of references. Researchers and entrepreneurs speak different languages, and poorly drafted terms of reference result in the poor implementation of the task described in them.” Lyulin believes that a network of technology transfer centres across Russia will help researchers and companies find a common language.

### Projects that business needs

The session’s moderator Alexander Fertman, Director, Science, Technology and Education Department, Skolkovo Foundation, asked Sergey Tutov, Head of SIBUR’s R&D function: “What does industry need from science: patents, fundamental or applied research, or actual licences?”

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## SIBUR HAS GAINED EXPERIENCE IN ENGAGING WITH RESEARCHERS AND LEARNED HOW TO FORMULATE TERMS OF REFERENCE FOR RESEARCH AND WHAT ROLES SCIENCE AND BUSINESS PLAY AT THE DIFFERENT TECHNOLOGY READINESS LEVELS OF PROJECTS

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Tutov stressed that there is a large gap between what business needs and what researchers are capable of: “An ideal picture for corporations would be a licence with a clear technology and a convincing product portfolio. These are low-hanging fruit that rapidly attract investment, get implemented and start bringing money. But this is more about ready-to-go projects rather than about science.” In real life, research teams work on projects that still have a long way to go before getting a licence. According to Tutov, even five to seven years ago science and business had no common language to discuss technology. Researchers proudly boasted that they had many exciting developments, while companies did not understand how to use these solutions in practice and whether they would be accepted by the market. Since then, SIBUR, like other Russian corporations, gained more experience in engaging with researchers and learned how to formulate terms of reference for research and what roles science and business play at the different technology readiness levels (TRL) of projects. However, the gap persists. As a rule, support tools do not cover the middle links of the TRL chain. Moreover, many government support programmes that involve co-financing by an industry partner are not linked to TRLs at all – they actually focus on fundamental research. But the level of uncertainty at this stage is still too high for corporations as they cannot be sure that they will be able to commercialise the end product. “Therefore, the requirements of government programmes sound absurd for them,” said Tutov, “as they literally demand the following: Guarantee to us that by getting involved in a fundamental research project you will commercialise it within five years – and please send us a pile of reports every year.”



*The capabilities of scientific organizations and the needs of business in Russia are still far from each other.*

### **Why Russian science needs patents**

The participants paid particular attention to patenting and its importance in Russia. Alexander Fertman asked Sergey Lyulin whether counting the number of patents makes sense at all: “Patenting reveals your efforts, your knowledge and technology, and there is no sense in obtaining a patent unless you are planning to use your technology in the real economy. For this reason, universities snap up cheap Russian patents and avoid expensive foreign ones. The number of licences sold by universities is abysmally small.”

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ENGAGEMENT BETWEEN SCIENCE AND BUSINESS CAN TAKE DIFFERENT FORMS: JOINT RESEARCH, HYBRID STARTUPS, STANDALONE R&D ARMS OF COMPANIES OPENED AT UNIVERSITIES OR FRANCHISED EDUCATIONAL PROGRAMMES AND JOINT STUDIES

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## Pressed for time

Challenges in the interaction between science and business are also caused by macro changes, according to Andrey Yakovlev, Acting Rector of Tomsk Polytechnic University. He says that markets have recently become much more volatile and global statistics show that the average age of a company is not 70, but 15. Even incumbents, let alone startups, have to transform relentlessly and change up their product mix. What does this mean for cooperation with research teams? There is increasingly less time to develop joint projects.

The customer–contractor pattern used by universities or research institutes to carry out work under a separate business agreement with a company does not work anymore, given that an order is preceded by long research on the topic within the scientific organisation. Yakovlev believes that this pattern needs to be replaced with the partner-to-partner principle, in which the university’s business activities are combined with research.

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## Foreign experience

The speech by Neta Gruber from Israel stood out in the overall discussion as the practices she shared strongly differ from the Russian reality. The government is considered to have an obligation to finance the most futuristic ideas and projects at early stages, before the market invests in them. If successful, the startup must repay the grants, but if the project fails, the government shares the risk with the entrepreneurs behind the project and does not demand that they cover the losses.

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In practice, engagement can take different forms: joint research, hybrid startups, standalone R&D arms of companies opened at universities or franchised educational programmes and joint studies. For example, Vladimir Nechaev, Rector of Sevastopol State University, says that his university cooperated with the United Shipbuilding Corporation on projects run by Masters students to build small, autonomous research vessels.

“The new models are based on the experience of different universities,” summed up Andrey Yakovlev, “and have already been discussed by an advocacy team of rectors and directors of institutes from the Russian Academy of Sciences.” The team needs to continue its work by thinking through changes to the organisation of, and legislation surrounding, engagement. Rectors suggest that this work should be jointly organised by the Ministry of Science and Higher Education and the Skolkovo Foundation.

*The original article is available here* (<https://indicator.ru/engineering-science/u-nas-v-strane-bolshe-inzhiniringovykh-centrov-chem-zadach-dlya-nikh.htm>) (<https://indicator.ru/engineering-science/u-nas-v-strane-bolshe-inzhiniringovykh-centrov-chem-zadach-dlya-nikh.htm>)

*The video is available here* (<https://openinnovations.ru/live/443>)