



Russia – India: Prospects and Constraints for Technology Cooperation

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Introduction

This paper analyses the dynamics of Russia’s technological cooperation with India. Its aim is to demonstrate how historical cooperation modalities, market structure, institutional and macroeconomic factors, as well as business culture come together to shape present-day constraints and windows of opportunity in Russia-India cooperation, and what this means for Russian companies and the corresponding institutions for supporting businesses in the technology sector.

For the purposes of this analysis, technological cooperation is defined as encompassing projects and initiatives that meet the following criteria: (a) repeatability and/or long-term planning horizon which makes one-off deals irrelevant for the purpose of this study; (b) scale and depth for sifting out purely trading transactions and those lacking a systemic or recurring nature, (c) sectoral consistency: low-tech sectors such as extracting and exporting minerals, or making low-tech consumer goods and services will not be studied as part of this report either.

As part of research conducted throughout 2024–2025, the authors examined the bilateral dialogue by analyzing key success factors and the specific constraints Russian companies encounter in the Indian market. This study included a series of interviews with Russian businesses operating in India and with experts on bilateral economic cooperation.

1. Russia and India: A track record of cooperation in technology

Cooperation between Russia and India started with the latter's independence and developed on a step-by-step basis. In the mid-1980s, it received a powerful impetus when India focused on enhancing its technological capabilities, while the USSR sought to reinvigorate its network of ties in science, technology and economics with other countries. These processes culminated with the signing in 1987 of a bilateral agreement listing a wide range of initiatives, including energy projects, creating joint research centres and launching the Comprehensive Long-Term Programme for Scientific-Technical Cooperation which covered various research and development activities.

However, with the dissolution of the USSR and the ensuing economic crisis in India, this bilateral dialogue failed to live up to its potential. Of course, the two countries did maintain their ties in certain domains. The Comprehensive Long-Term Cooperation Programme remained in place, even if in a somewhat trimmed-down version. It was even extended in 2000. Russia and India also maintained their contacts in science and technology, while their research institutions and universities remained in touch with one another on a working level. There were manufacturing projects in the technology sector too, both discussed and implemented. In particular, Technopromexport took part in building the Tehri hydroelectric complex (1992-2008). That said, there was a sharp decline in terms of the dialogue's scale and depth.

The late 1990s marked the dawn of a new era in cooperation, which gained even greater momentum in the early 2000s, as both countries managed to achieve greater economic stability. There were major and important deals in military technical cooperation, but this is a different topic. This included, for example, BrahMos – a joint venture for making cruise missiles. India bought and later localised the production of the T-90 tanks and the Su-30MKI jets.

In the civilian sector, major energy projects had the biggest impact on bilateral cooperation. Apart from the Tehri hydropower plant, Russia also contributed to building the Balimela and Loktak hydropower projects, upgrading thermal power stations, including the Obra Thermal Power Station, etc. Nuclear energy became another major and important aspect of the bilateral dialogue

between Russia and India. This included the construction of the Kudankulam NPP – the agreement was signed in 1998 and the first bloc connected to the power grid in 2013. This was a complex and large-scale project, a genuine international undertaking involving a wide range of Russian and Indian companies from various sectors. There were also other infrastructure projects, including the construction of gas pipelines and delivery ducts by Stroytransgaz – it has been active on the Indian market since 2002.

At the time, specific export and import transactions aside, two factors defined bilateral cooperation.

First, all the projects in the 1990s resulted either directly from the agreements dating back to mid or late 1980s, or the USSR's experience in working with India in manufacturing, energy and technical infrastructure. Therefore, these undertakings built on the track record of bilateral relations and contacts in the technology sector, something reminiscent of the path dependence effect. In fact, the dialogue on building an NPP started at the official level at least in the mid-1980s. There was a similar timeframe for the talks on delivering fighter jets. As for the hydropower projects involving Soviet and Russian specialists, they date as far back as the 1960s and 1970s. Time is key major factor in major projects. Since negotiations with India tend to take a lot of time, it is not surprising that these initiatives bridged two eras, signalling the transition from USSR-India to Russia-India cooperation.

The second factor was linked to interstate agreements and strategic technological projects and initiatives. In fact, just as in any other country, efforts to build and expand India's generating capacity go far beyond business relations. This is a matter of national energy security and economic development. Accordingly, the national government, as well as regional authorities where the corresponding facilities were built contributed to these projects in important ways and helped mitigate cooperation-related and business risks for both sides, while also guaranteeing the financial and economic viability of these projects.

However, this dialogue has its natural boundaries and limitations, as demonstrated by the focus on strategic bilateral agreements following the path dependence pattern. Projects may have achieved quite a big scale while still lacking a recurring or permanent nature and failing to go beyond one-off, isolated transactions. This could not offer a solid foundation for promoting lasting and comprehensive cooperation in their respective

sectors. The USSR used to rely on granting state loans to support contacts of this kind, but with this system gone, coupled with a severe economic downturn, Russian corporations found it impossible to expand their trade, investment and technological operations in India. As for India, and South Asia and Southeast Asia in general, there was little, if any, demand or resources for acquiring machine building hardware, including electrotechnical products and services on a systemic basis. Therefore, neither exports, nor having Russian and Indian corporations create production and technology chains could serve as drivers for promoting dialogue. As for the Indian corporations, they were still in their early days and were just starting out on the path toward global market expansion.

The fact that there was virtually no cooperation between private technology companies and the private sectors of the two countries in general further complicated the situation. This was especially true for knowledge-intensive products, consumer goods and B2B solutions which form the bedrock of the global tech market and play a key role in attracting international investment in the high-tech sector. Of course, Indian pharmaceutical companies, including Dr Reddy's Laboratories, worked on the Russian market, while certain Russian digital services such as Kaspersky Lab's software products were available in India. That said, these were purely trade transactions which did not go beyond distribution.

Once again, it was the state of the economy which defined the overall bilateral landscape. On the one hand, the economic environment was far from ideal for both countries. Even if it steadily improved in the 2000s, the effective demand for complex technological solutions was still limited, while the two countries struggled to make more science-driven consumer goods and services. Both markets also faced stiff competition from Western and Asian transnational corporations with their greater resources. To an outsider, it could seem that the way Russia and India developed their digital services demonstrated potential for synergies. In reality, there was very little space for cooperation. India's business outsourcing sector (IT-BPM) focused on the larger Western markets. As for Russia's consumer-grade solutions and platforms, they were scaled to operate either just in Russia or in CIS countries. Some of them were also exported to the United States and the EU. This made it impossible for digital corporations to promote mutual investment expansion for financial reasons, as well as in terms of their competences. To put it simply, it was impossible for the two countries to benefit from the potential of their respective software developers and other IT specialists because there was no funding to back these projects or the objectives the two countries pursued were also headed in different directions.

2. Russian businesses in India after the 2000s: From revival to stagnation in relations?

2.1. Russian tech businesses in India since the late 2000s

The effort to breathe new life into Russia's bilateral ties with India and the attempts by Russian companies to expand their foothold of the Indian market can be traced back to the late 2000s. But it was in the 2010s that this process gained even greater momentum. The fact that the Russian Federation succeeded in placing its economy on a more solid footing during the preceding decade mattered too, just as the overall growth pattern resulting from higher prices of energy and other minerals. By that time, major Russian corporations accumulated sufficient resources for expanding their operations, which included upgrading their businesses in terms of their technology by relying on the best available global solutions. They started spending on R&D once again and launched ambitious efforts to expand their international presence. State-owned corporations started dominating strategic sectors, while major corporations partly owned by the state also reinforced their positions. Economic growth in India was picking up momentum too, which also played a role in this process, alongside India's commitment to promoting manufacturing and technology, with this policy crystallising under Prime Minister Narendra Modi.

Just as before, infrastructure-related sectors continued to play a fundamental role in Russia's cooperation with India. However, there was a wider range of projects, even if the Kudankulam NPP remained the biggest of them all. The two countries agreed on adding more blocs, bringing the total project to six units. Apart from energy and fuel deliveries, this project helped promote cooperation outside India too, hence the Rooppur NPP project in Bangladesh. Russian companies remained involved in building and upgrading India's generating capacity, including the Sipat and Vindhyachal thermal power stations. There was also an effort to work closer together in the metals sector, including for providing maintenance services at the facilities built with the help of the USSR. Therefore, the ties between the two countries

were becoming increasingly diverse, with this process primarily driven by the chemical sector.

The acquisition by Rosneft of a controlling stake in India's Nayara Energy in 2017 enabled the Russian corporation to access the Vadinar refinery, a major fuelling station chain and logistics infrastructure. The creation of a joint venture by Sibur and Reliance Industries in the 2010s was an important undertaking which demonstrated the ability of the two countries to work together – this project paved the way for building a butyl rubber plant.

Finally, there was also an effort to expand trade cooperation in the processing sector by following the same logic of benefiting from guaranteed demand. This included mineral fertilisers. In this sector, PhosAgro signed long-term contracts with Indian Potash Ltd., which enabled the Russian company to benefit from stable demand for its exports to one of the world's biggest markets. In addition to this, Alrosa opened an office in Mumbai as an effective channel for selling rough diamonds.

Nevertheless, there was less success in more sophisticated sectors, even if there were major success stories in this domain as well.

For example, Kamaz launched an assembly plant in Hosur and went on to localise its production through Kamaz Vectra. But it was the arrival of Lighting Technologies, a Russian company, to the Indian market which really made a splash. Its local subsidiary chose a wise localisation and development strategy and succeeded in becoming a leading actor on the Indian market of urban and, to a somewhat smaller extent, industrial lighting. It has also potential in enhancing its positions in the retail segment. Russia and Indian pharmaceutical companies also had some success in promoting their cooperation, as will be demonstrated in section 5, even if this cooperation operated in the opposite direction with India, not Russia, playing a defining role.

Sometimes, however, cooperation at this new stage in its various aspects failed to deliver.

A major project in the metals sector by Severstal and NMDC failed to materialise which was due to issues with acquiring land, accessing ore and the enterprise's economic viability. EPC projects by Power Machines and Tekhnopromexport to build energy capacity at the Barh Super Thermal Power Station also faced major challenges, causing delays and forcing the sides to refer their disputes to courts. There was also a plan to set up a joint venture between the Power Machines and their Indian counterparts to make

power-generating equipment, but it never got off the ground either.

The aviation sector seemed to have everything for creating a solid cooperation framework by building on the military contracts of the 1990s and 2000s. But there were many failures in this domain as well, primarily the fact that Russia and India abandoned the idea of developing and making a fifth-generation fighter jet. There were many other promising avenues for promoting bilateral dialogue, including SSJ-100 deliveries, which never received much traction.

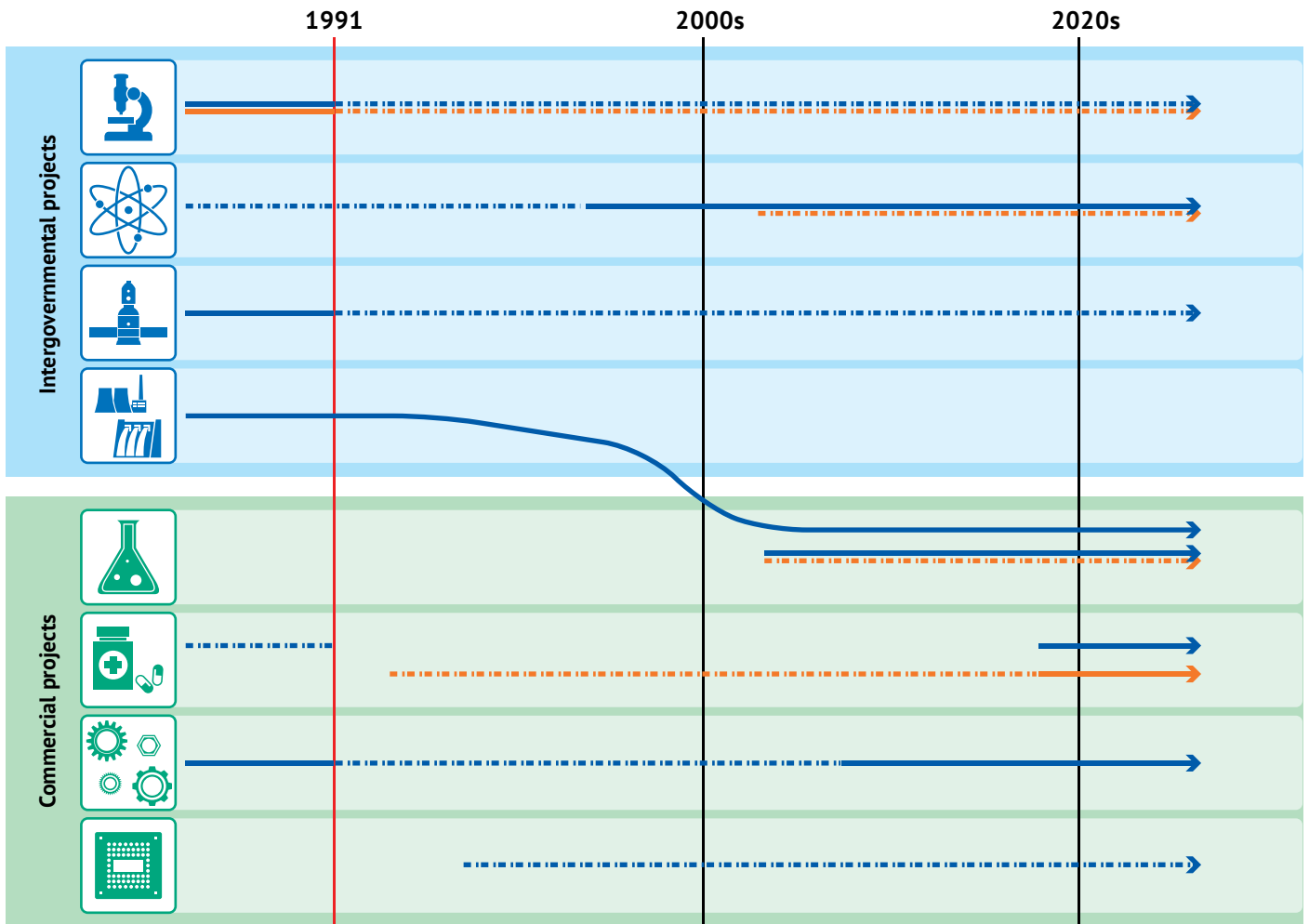
The IT sector must be mentioned on a separate note. Russia used to enjoy a niche presence on India's IT and cybersecurity market with Kaspersky Lab as the biggest actor. The company opened an office in Mumbai in the 2010s to sell its cyber security solutions. It went on to launch joint undertakings with the Indian telecommunications and IT companies. There were also standalone Russian systems integrators and software development companies offering corporate solutions for the financial sector, telecommunications and education. That said, Russian IT companies have not been able to win a substantive share of the Indian market.

By the same token, Russian businesses failed to gain a stable foothold of the telecommunications market. AFK Sistema's bid to become a major service provider by operating through its subsidiary, Sistema Shyam Teleservices, was unsuccessful. The fact that it invested, according to certain estimates, over \$1 billion from its own funds, did not help, just as the initiative to set up a joint venture with the relevant subsidiary of Reliance, an Indian diversified conglomerate. In fact, it was Reliance that upended India's mobile communications market in the second half of the 2010s. India's Supreme Court ended up cancelling SST's licence in 2012, forcing AFK Sistema to withdraw from the market.

Overall, all these developments demonstrate the evolving nature of the modalities governing Russia's interaction with India.

In the 1990s and early 2000s this interaction mainly focused on supplying equipment and standalone, albeit sometimes relatively big, projects in the aviation and power machinery sectors. Starting in the mid-2000s, and especially since the early 2010s, there was an effort to expand and gradually institutionalise this interaction. Russian companies, including the Power Machines, started opening their representative offices and subsidiaries in India back in the 1990s for selling their products. This did not go beyond supporting their sales. But since the mid-2000s, this process reached a substantial scale. In particular, this included the chemical industry, IT (Kaspersky Lab, MTS, Yandex since 2020), as well as the banking sector (VTB, Sberbank).

HISTORY OF TECHNOLOGICAL COOPERATION BETWEEN RUSSIA AND INDIA



Russian projects

- High activity
- - - Moderate/low activity

Indian projects

- High activity
- - - Moderate/low activity

Cooperative efforts / Joint ventures

- High activity
- - - Moderate/low activity



Science

Comprehensive long-term scientific and technical cooperation program, followed by bilateral grant competitions



Nuclear power

Kudankulam NPP, Rooppur NPP



Space projects

Intercosmos Program, testing of the Indian spacecraft Gaganyaan in Russia, training of vyomanauts



Hydro and thermal power

Projects of Technopromexport and Power Machines: Teri Hydroelectric Power Station, Obra Thermal Power Station, etc.



Petrochemicals

Investments of Sibur and Rosneft



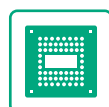
Biopharmaceuticals

Dr. Reddy's and other Indian pharmaceutical companies in Russia (from distribution to manufacturing and R&D), Sputnik vaccine production in India



Mechanical engineering, electrical engineering

Investments by Kamaz, Lighting Technologies, and others in India



Digital technologies

Kaspersky's entry into the Indian market, MTS and Sber's localization efforts

The next stage started in the mid-2010s, specifically, with the transition to greenfield- and portfolio investment in Indian projects, such as the Sibur-Reliance venture, Rosneft's project with Nayara Energy, and MTS. Some companies like the Power Machines tried moving in the same direction.

But the limits of this cooperation framework also became obvious at this stage. For various reasons as will be described later in this paper, apart from the sectors where the Russian Federation could compete on a natural globally-significant scale, and putting aside specific companies, there were no meaningful progress in terms of expanding and deepening cooperation. Moreover, knowledge-intensive sectors fell behind in this regard.

2.2. The 2020s: Coming to terms with reality in an era of hope

In 2020 and 2021, bilateral relations followed as it would seem an upward trajectory. Biopharmaceuticals could have become one of the sectors for achieving a breakthrough. By developing the Sputnik V and Sputnik Light vaccines, Russia re-established itself as a major actor on the vaccine market and in drug manufacturing in general. And despite all the challenges of the so-called vaccine wars, and the problems with the evidentiary basis and making enough doses, over 70 countries registered the Russian vaccine, and 45 of them went on to administer it.

The lack of adequate manufacturing capabilities has been a traditional constraint for the Russian biopharmaceutical sector. It had a direct bearing on international cooperation as a way to address this shortcoming. In this regard, India was the most natural and organic partner. Without elaborating on the long-standing track record of working together on vaccines in the Soviet era, including on the polio vaccine, it is important to note that unlike China or other vaccine producing countries, India was less prone to adopting protectionist policies in the vaccine sector or enacting other restrictions against third parties. Apart from a rational bid to make more vaccines and earn a higher revenue from exports, the social factor and the imperative to ensure reliable vaccine supply for its own people played a major role too.

Against this backdrop, Russia and India were able to set up an effective cooperation framework. Indian companies launched Russian vaccines into mass production through India's leading vaccine maker, the Serum Institute of India, as well as other major and smaller entities including Gland Pharma, Morepen Laboratories, Hetero Biopharma, Virchow Biotech, Panacea Biotec and other companies.

The special military operation and the resulting international process may have created an illusion of injecting new momentum and creating new opportunities for Russia-India relations. First, there was a need for parallel imports, replacing technology products from unfriendly Western countries and the related objectives – all this seemed to offer a solid foundation for cooperation across a wide range of products from electronics (India has been steadily expanding its production since the mid-2010s) to certain car parts and hardware. Second, there was a surge in Russia's oil exports to India which resulted in a sharply increased export imbalance (with the issue of the so-called stuck rupees included) and this also seemed to offer a financial and economic foundation for expanding dialogue. The rapid expansion of India's venture capital market since the late 2010s constituted an additional factor for promoting closer ties. It attracted small and medium-sized Russian technology companies and entrepreneurs at a time when their domestic venture capital investment market entered a stagnation phase, pushing them to look for new markets and relocate their business operations.

However, all these factors proved ineffective for forging closer ties or stepping up dialogue. Biopharmaceuticals was probably the only sector where the special military operation seems to have had any meaningful impact. Even here, all it did was help major Indian corporations expand their foothold of the Russian market as described in Section 3, without enabling Russian companies to tap the Indian market, for example, by licensing or selling Russian formulas to Indian manufacturers. In other words, Russia's presence did not go beyond the tried and tested tracks, while the path dependence effect remained in place even in a new environment.

This was a logical and predictable outcome for major corporations. Faced with Western sanctions, they had to quickly rearrange their logistics chains and had to invest substantial resources for replacing the imports of Western parts, goods and services. Moreover, they found themselves in a hostile financial environment after Russia lost access to SWIFT and had to quickly come up with a solution. All this tended to favour stepping up dialogue with China instead of India where many processes had to be started from scratch.

Transmashholding's winning bid in a 2023 tender to supply and provide long-term maintenance for 120 electrical trains for the Indian Railways was the only exception from this rule, albeit a big one. It paved the way

for creating a joint venture with India's RVNL – Kinet Railway Solutions Limited. This enterprise has a mission to develop new technology. It is developing an engineering centre in Hyderabad and investing in expanding machine building capacity. Judging by the available statements, apart from supplying railway hardware for the Indian railways, there are also plans to export these products to third countries, including Russia. However, even this contract cannot be regarded as a radical breakthrough. In fact, it was a logical step in expanding dialogue. Moreover, achieving these results took many years of hard work.

Small and medium-sized businesses have also failed to achieve any meaningful success. This statement mostly applies to mid-to-big companies employing anywhere between 250 to 1,000 or 2,000 people. The special military operation has been going on for more than three years, but despite all the business missions and other efforts to step up dialogue, as well as relocation-related processes, there are too few Russian technology SMEs on the Indian market with their number in the lower dozens. Geopolitical factors aside, there is every reason to claim that the current constraints in terms of technology cooperation cannot be ascribed exclusively to the special military operation. There are several other system-wide challenges in the dialogue between Russia and India on technology-related matters.

2.3. Russian businesses: Factors of success and failure in India

Several key factors of success for Russian companies and Russia in general on the Indian market can be deduced from the preceding sections, as well as from the interviews with experts.

Factors of success

1) It has already been noted that being able to offer a **competitive solution** is an effective way for Russia to promote cooperation. For example, in petrochemicals and fertiliser sectors, being able to access national mineral resources offered Russian companies a price advantage, as well as an opportunity to streamline their business processes, while also acquiring positive experience on the global markets. In terms of making power generating equipment and transport vehicles, Russia has been a strong player for quite a long time, and Russian companies succeeded in generating substantial positive momentum since the 2000s.

2) The second aspect deals with the fact that cooperation with India has had quite a **long history** and includes historical ties, established reputations, and the existing major technical systems – operating and maintaining them helps build natural bridges between counterparts from the two countries.

3) The fact that the **capabilities and interests of Russian companies coincide with India's own national present-day priorities**, including programmes like Make in India, is another major factor. This includes sectors where international cooperation not only does not contradict New Delhi's focus on achieving technological sovereignty, but operates as a prerequisite for achieving it. For example, even without defence manufacturing, efforts to develop the energy sector and railway transport offers a solid foundation for economic growth. The state has been paying a lot of attention to this matter both at the national and regional levels. It must be emphasised that this has nothing to do with the pretended uniqueness of Russian technology. In fact, India has a genuine interest in developing the corresponding sectors of its economy based on the best available technology. Siemens, Alstom and other global corporations have been successfully competing with major Russian corporations in machine building. What makes Russia competitive? The simple fact is that considering the size of the Indian market and what it needs to avoid dependence on specific supplies, as well as India's requirements for localising production and cost imperatives, there is a niche for Russia in this sector too.

4) Securing a **competent local partner** – be it a firm or a key individual, such as a senior executive – is a critical success factor. Such a partner provides Russian businesses with vital market intelligence, often more nuanced than that offered by general consultants, while also reducing transaction costs. Crucially, a local partner acts as a cultural interpreter and operational facilitator. They can help navigate India's distinct business culture, adapt core processes like recruitment and personnel management to local norms, and ensure that all managerial and ownership practices comply with local regulations. This compliance is not merely a bureaucratic hurdle for securing subsidies or contracts; it is a foundational requirement for rational and sustainable market operation.

5) Finally, enterprise-level **people-to-people ties and historical memory** also play a role, to an extent. The elites, technical specialists and even experts remember the proactive dialogue the USSR and then Russia had with India in manufacturing, healthcare and international politics. Some of them studied

in the USSR and Russia, or at least have visited the country and know what it can do. This creates a natural foundation for stepping up cooperation. However, it must be reinforced and reinvigorated all the time. Otherwise, these bonds may weaken.

Factors of failure

Still, there are much more factors limiting Russia's presence on India's technology market. These restrictions can be notionally divided into several groups: systemic limitations, including priority tracks, general economic factors, including financial matters, market factors, as well as business-related factors, including the business culture and management practices.

There is no need to elaborate on several apparent constraints: these include the lost decade of the 1990s when Russian industrial giants became much weaker, forcing IT corporations and other leading technology companies to start embark on a race to win the Indian market from far back. The same goes for the complex and costly logistics, even considering the gradual effort to normalise the operation of the North-South transport corridor and perfecting the route linking Mumbai and Vladivostok. There are also the Western sanctions, including on financial transactions.

Paradoxically, one of the main constraints on Russia's limited presence in the Indian market stems from the simultaneous alignment and divergence of the two countries' technological priorities.

Their national priorities in key fundamental areas – such as artificial intelligence, microelectronics, and space technology – broadly coincide. Yet neither Russia nor India is prepared for deep cooperation or joint development in these fields. Both nations emphasize technological sovereignty and their own leadership in practice, viewing a partner primarily as a donor of resources, technologies, or market access.

Of course, it is not that there have been no interactions but they were constrained to specific sectors. For example, Russia and India have been promoting cooperation as part of a programme to help India with piloted space missions since 2010. India tested its Gaganyaan spacecraft in Russia, while Indian cosmonauts (vyomanauts) received their training from the Gagarin Space Training Centre, etc. However, this cooperation project has run its course.

This dynamic is relevant for both the state sector and major corporations. Although these corporations are involved in carrying out national technological development programmes, major Russian and Indian companies still lack the capacity to share key leadership factors.

This goes hand in hand with the capabilities of the two countries in science and technology. Both Russia and India, for example, are committed to developing microelectronics and electronics at home. At the same time, both countries currently lack the capabilities they need for delivering on their ambitious agendas, with the exception of just a few specific projects. This demonstrates the imperative of working with external partners.

A special emphasis must be placed on India's focus on localising manufacturing and technology. Apart from technological sovereignty and development, including import substitution, there is an important social dimension in terms of this priority. Creating more jobs is a vital necessity for a country with over 1.5 billion people and a low quality of life.

This, in turn, doubles the impact from direct investment which requires substantial capital, a powerful management framework and other related operating costs in the conventional processing sectors and IT. Both factors can be viewed as a natural barrier for major Russian corporations, especially considering the issues of technology transfers or the fear of losing intellectual property.

Funding availability has been a major challenge for both countries, especially in terms of accessing long-term funding, including long-term loans with reasonable interest rates. These high borrowing costs and the fact that SMEs may struggle to obtain them have two predictable consequences. Major Russian corporations can take part in large-scale projects only when there are government contracts or interstate loans, or both. This naturally confines the possible undertakings to the so-called strategic sectors, including nuclear, defence and dual-use technology industries, among others. SME owners do not have the resources and do not generate enough revenue for covering all their development needs while lacking the possibility to project their business undertakings in India within a longer planning horizon. This automatically limits their potential for expanding operation on the Indian market.

As far as lending is concerned, Sberbank and VTB with their Indian operations could be part of the solution. The two lenders have been quite effective in accompanying bilateral deals by carrying out settlements and granting loans, while also supporting business development. However, considering the scale

of these transactions and, from an even broader perspective, what these banks can offer in India, it would be premature to expect Russian banking institutions to offer system-wide solutions for promoting business dialogue at this juncture, let alone cover the needs of the tech sector.

The special, if not peculiar, nature of the Indian market is another systemic factor, defined by a range of aspects from particular consumption patterns to climate. For example, high humidity means that goods, nodes and parts require enhanced anti-corrosion properties. Even more importantly, Indian consumers and the B2B market are extremely cost-sensitive, which forces companies to adopt exceptionally aggressive pricing policies. Shrinking margins and delayed profitability can be a major impediment for Russian businesses, especially considering that demand for technically sophisticated goods and services can be itself quite marginal. Indians often opt for conspicuous consumption, prioritising brand value, while Indian companies focus on the supplier's global reputation.

Intense **competition** is also a major challenge. All the global producers are present on the Indian market, and Indian businesses have also been making a lot of progress, including both major corporations and SMEs. This is especially true for the IT sector. This places Russian companies in a tight spot when it comes to creating successful service aggregators, i.e., platforms, or exporting consumer-grade digital services and solutions. US companies have taken over certain segments of the online market, while home-grown companies filled other niches, including as part of an effort to achieve digital sovereignty. Moreover, Russian companies lack any obvious competitive advantages in this sector compared to other available solutions. Quite often they fail to comply with the inclusivity requirements in terms of offering low cost and usability, etc.

There is also a host of political, legal and technical factors involved. This includes a wide range of matters, from the availability and quality of infrastructure services to constantly changing regulations, including in terms of land use, legislation, lengthy court proceedings, etc. Cumulatively, such factors frequently undermine even the most promising and mutually beneficial projects.

Finally, another inevitable systemic factor is that major Indian corporations can fear the so-called **sanctions**, including secondary ones, or reputational risks associated with working with Russian counterparts, or both. This is especially true for Indian conglomerates with substantial exports to, and assets in the United States and the EU, as well as those of them affiliated with Western elites, including naturalised individuals of Indian descent.

Apart from these systemic factors, **business culture and practices** constitute another major impediment. In fact, culture has often been mentioned among the key challenges in terms of doing business in India in general. This is especially true for specific projects involving Russian entrepreneurs and managers. Speaking of the Indian business culture, Russians tend to complain about the fact that negotiations take too long and often fail to advance. They also often point to the importance of personal contacts in various dialogues, which sometimes may place Russians in a stressful situation and cause other issues too.

At the same time, when it comes to building successful business strategies there are several major stumbling blocks on Russia's side too. The main ones include, first, overestimating the unique nature and quality of Russian technology and believing in its universal nature, which could spare Russian businesses the need to adapt their solutions to the Indian market. Trying to stick to Russian and European market practices is a separate challenge. Poor knowledge of India and what it means to operate there is an even bigger problem. Apart from underestimating or failing to factor in risks and challenges, this creates heightened expectations when assessing potential demand, failing to understand how long every step in the business creation process could take, as well as underinvesting in adapting products and business models.

Russian businesses also suffer from **short-termism and reductionism** in their approaches. This shortcoming primarily manifests itself in their tendency to reduce all the cooperation to trade transactions and nothing more. In theory, this could be a path to minimising risks and maximising profitability, but in reality, this vision comes up against the harsh reality: there is a lot of competition on the market which makes restraining business operations to straightforward sell-and-forget trade model ineffective, if not counterproductive. Importantly, this model is irrelevant for Indian counterparts. The fact that many Russian businesses are not ready to engage in long-term and meaningful dialogue and promote localisation in every sense of this word constitutes another stumbling block. There is simply a lack of appetite for being "permanently present" in India for the sake of doing business.

Quite a few of the abovementioned cultural constraints result in what amounts to missteps of a purely administrative nature, with attempts to set up and manage businesses from afar as the most obvious one. For India, this option is simply off the table. Some SMEs have been trying to develop their Russian businesses in India instead of adapting them to the local reality,

in anything from the way they interact with their partners to business practices. This approach appears to be equally misguided.

3. Indian tech businesses and Russia

Indian companies have been expanding their foothold of the Russian market in a gradual and somewhat modest manner since 1991. Apart from their effort to invest in the oil sector, the biopharmaceutical sector was where they achieved the most by establishing themselves as major players and even integrating the Russian added value chain, at least in part.

Sun Pharma, Ranbaxy, Dr. Reddy's Laboratories and several other major private Indian companies launched their foray into the Russian market back in the 1990s. They created their own distribution networks, opened representative offices and ensured a regular stream of generics and OTC drugs.

Gradually, they forged closer ties. When Dr. Reddy's tried getting hold of the Russian market back in the 1990s by setting up a joint venture, it ended up withdrawing from the project, which was attributable to financial and management challenges it faced. However, the situation changed in the 2010s, just as it did for Russian businesses in India. Indian companies managed to start making several drugs locally, making it easier for them to access government procurement in Russia and reducing barriers for Indian imports. This paved the way for more dialogue on technology-related matters too. In particular, Pharmasintez and Emcure Pharmaceuticals signed a technology transfer agreement.

Biopharmaceutical companies established by Indian nationals in Russia deserve a special mention. These include Vikram Punia's Pharmasintez, Satya Karm Punia's PSK Pharma and its Rus Biopharm company, as well as Rajesh Sharma's Advanced. These companies have been proactive on the investment front, and also as pharmaceutical producers. Their portfolios include, among other things, pharmaceutical substances. They have been increasingly active in developing new treatments too. As Russian companies, both de jure and de facto, they managed to integrate the government support framework, while remaining a major factor in bilateral trade, economic and technological ties.

Dialogue between Russia and India in the biopharmaceutical sector did not go down the path traced by the overall canvass of bilateral relations. It picked up steam not only in 2020 and 2021, as has been mentioned above when discussing Covid-19 vaccine, but also after 2022. Faced with the task of coming up with alternatives to Western suppliers to the domestic market in terms of both imports and import substitution, and seeking to expand domestic production in general, Russian leaders became increasingly inclined to search for new partners, including in India. As for India's pharmaceutical sector, considering its vast scope and extensive experience in working on the global market, including in terms of ensuring compliance with various requirements, standards and certification procedures, it had the requisite capability and technology for delivering on these tasks.

India became the biggest supplier of generics and pharmaceutical substances to Russia. There has been growing momentum in talks on enabling mid-to-large Indian companies to set up local production facilities. For instance, Cadila Pharmaceuticals announced plans to invest 10 billion roubles in building a plant for making injected drugs and pharmaceutical substances as part of a joint venture with the Russian Direct Investment Fund (RDIF). Safecon Lifesciences and Anicare Bio Science also made their manufacturing plans public as part of partnerships with RDIF. And in 2025, Russia's Kaluga Region, Pharmasintez and BDR Pharmaceuticals announced plans to set up new production sites. Since these projects have yet to materialise, it remains to be seen whether they would impact bilateral dialogue in any meaningful way. That said, India has already emerged as a leading investor in the Russian pharmaceutical sector and one of the biggest foreign investors in general.

As for IT, Indian companies still have a limited presence on the Russian market, at least for now. There was Tata Consultancy Services (TCS) which supported its Moscow office and undertook integration projects for Russian banks, oil and gas companies, including SAP and automation. Infosys, Wipro and HCL worked with Russian customers by mainly focusing on remote development and outsourcing while steering clear of creating teams with boots on the ground. In the telecommunications sector, Indian operators and vendors failed to get any meaningful traction with their project reduced to one-off equipment delivery contracts, such as Tejas Networks delivering optical solutions, and applying for specific tenders. Meanwhile, major international and Russian companies stayed in control on the market. Modest as they were, these ties had to be further scaled back with the start of the special military operation.

There were initiatives in other technologically sophisticated sectors too, but they failed to see the light of day. In particular, Tata and Mahindra had plans

to make strides in localising car manufacturing in Russia but did not go beyond assembling pilot series. They did not build any major plants. The situation may change by the late 2020s and early 2030s, even if this remains in jeopardy, considering their focus on other major emerging markets, as well as their close ties with Western countries.

In fact, the roadblocks Indian business projects face in Russia are somewhat similar to the system-wide challenges Russian companies have been facing in India. These include heightened regulatory and forex-related risks, the fact that localising manufacturing remains an uphill battle, as well as having to compete with both Russia and Western companies, at least before 2022. Since 2014, and especially after 2022, sanctions-related threats and international uncertainty, and volatility, were added to this mix of challenges. In this sense, the biopharmaceutical sector remained the only exception from this rule, since healthcare was spared by the sanctions regimes and did not face any other restrictions as imposed by the West against Russia, and also because of the massive state support in Russia.

In most cases, the relatively modest size of the Russian market was also a major factor. The North American, European and Japanese markets all dwarf Russia, and the same largely applies even to South and Southeast Asian markets. Moreover, Indian companies can only have a niche presence in most markets, apart from biopharmaceuticals.

Conclusion

If the history of cooperation between Russia and India in the technology sector is any guide, it demonstrates that the cooperation model which took shape in the mid-2000s proved to be quite sustainable, and resilient. This collaboration revolves around major state-to-state mega projects and a limited number of major corporations representing traditional technology-driven sectors. The following imperatives are required for these projects to materialise:

- the ability to benefit from **state support** in one form or another, ranging from government loans to involving regional governments as customers / co-investors
- long investment and technology cycles

- sectors where Russia **already has a competitive edge**, i.e., the emerging sectors of the future are less relevant for Russia's Indian partners who tend to focus on obtaining the best available technology here and now from their foreign partners
- **strategic nature**, which means
 - commitment to achieving India's national objectives which do not contradict efforts to make Indian players stronger
 - operating as an integral part of India's present-day priorities including the Make in India initiative, as well as achieving goals in terms of developing manufacturing and technology, such as localisation, technology transfers, working with local contractors, etc., as well as improving employment.

The scale of these businesses, the involvement of the state and the so-called path dependence effect help mitigate short-term and systemic risks, including economic, regulatory, market-related and cultural risks, while also keeping the dialogue going. This does not mean, however, that there are no new opportunities beyond the existing spheres of technological cooperation. It would be more accurate to argue that they can take shape whenever at least most of the abovementioned imperatives are met. In particular, Transmashholding's recent foray into India's machine building market not only does not contradict this logic but can be viewed as confirming it.

By the same token, attempts to rely on private companies for stepping up dialogue in sectors which do not meet these criteria are destined to have only limited, if any, success. This is especially true for sectors offering B2C and B2B solutions which tend to be dominated by a purely market logic, and applies not only to technology-driven SMEs, but also corporations.

This distortion is primarily attributable to the objective challenges related to the bilateral dialogue, including institutional, financial, economic, market-based and cultural ones, as well as the strategic culture which guides Russian companies in their operations. However, overlooking factors dealing with science and technology would be equally misguided. There may be a lot of potential and a solid foundation for achieving more, but Russian companies are not always ready to properly scale their global competitive solutions here and now, or offer solutions which do not create any added value compared to Western or Chinese solutions. Quite often, Russian companies do not have the required financial resources, competences and other strong points for fine-tuning their offerings. Can we

expect the Indian market to pay for what they present as unique products hoping that they succeed somewhere down the road? The answer to this question is a definitive “no.”

For Indian businesses, constraints for entering the Russian market and promoting technological partnerships with Russia can be presented as three groups of factors:

- a purely market-based logic, i.e., modest market size, having to compete with major Russian, Chinese and other companies, etc.
- Russia’s traditional challenges, which have a lot in common with the issues India faces such as institutions, the fact that entering the market takes a lot of time, macroeconomic risks, cultural differences, etc.
- Since 2022, Western sanctions and fears of reputational or business damages related to working in Russia while also operating on the Western markets.

Biopharmaceuticals stand apart in all these respects. Indian companies and business leaders have been able to consolidate their positions on the Russian market as early as in the 1990s and 2000s. Meanwhile, Western suppliers have been losing ground on the Russian market over the course of the special military operation, enabling Indian companies to move from making generics, biosimilar drugs and a limited range of products to becoming essential market players playing a systemic role.

These challenges may seem too big and complex to be able to overcome them, but this does not mean that addressing them is impossible. It can be argued that this primarily requires building a regular, systemic and rational bilateral dialogue, in particular by

- offering state support mechanisms in dialogue on trade, economics and technology taking into consideration the actual interests of both sides instead of chasing allusive dreams about their priorities or interests. In particular, this means placing a greater emphasis on the dialogue’s investment component
- working with Russian and Indian companies at an expert and cross-cultural level
- resolving the corresponding technical, financial and business-related issues.

Another thing worth stressing on a separate note is that Russia and India could benefit from launching major bilateral technological projects and programmes involving higher education institutions, research centres, major corporations and SMEs in priority sectors such as biopharmaceuticals, cybersecurity, clean energy and transport, space technology, new-generation power engineering, etc. However, these initiatives must include a research and educational dimension. These system-wide solutions could pave the way for more technical cooperation in the 2030s, subject to the availability of long-term funding and resources.

At the same time, systemic efforts to improve the institutional architecture by going as far as offering settlement mechanisms and communications platforms play a key role in this regard, supplanting abstract political declarations and initiatives which fail to create added value such as holding various meetings, appointing commissions, convening conferences, sending business missions, etc.

There is also the need for more expert support by having more specialised analytics and offering a wider range of educational products. This paper demonstrates that the challenges both Russia and India have been facing are attributable, by and large, not only to objective factors, but also to the simple fact that they do not know whom they are dealing with and fail to understand what their counterparts want. The lack of support for a real, system-wide dialogue is also a major impediment. Without it, the favourable international environment and a growing mutual interest would not be enough to foster lasting technology projects and processes.

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СОВЕТ ПО ВНЕШНЕЙ
И ОБОРОННОЙ ПОЛИТИКЕ

