

Slumbering giant awakens

Fifty years after its heyday, city regains its shine for aviation graduates, writes Elena Shipilova

In the depths of the Siberian forest, on the bank of the Yenisei River, stands the closed city of Zheleznogorsk, surrounded by barbed wire. Nobody can just go there, while residents need a pass to travel home.

The city itself feels just as it did in the days of the Soviet Union in the 1950s and 1960s. There are wide avenues flanked by five-storey blocks of flats painted in different colours. The Rodina (Motherland) cinema, a standard feature of small provincial cities in Soviet times, stands at the centre and there is the factory which, before perestroika, built the powerful Kosmos and Molniya satellites.

After perestroika, at the beginning of the 21st century, the city gained a new lease on life thanks to a programme to develop the GLONASS navigation system, attracting young specialists once again to Zheleznogorsk.

"In the 1960s the whole Soviet Union dreamed of space," says Vladimir Khalimanovich, director of the Industry Centre of the M.F. Reshetnev Information Satellite Systems company (ISS). "It was an honour and privilege to work in the industry."

He came to Zheleznogorsk 47 years ago after graduating from the Academician A.N. Tupolev Aviation Institute. Back then, every student dreamed of a place like this because only the best were recruited to closed cities with secret military establishments. Life in such a city imposed a few restrictions. If you wanted to invite relatives or friends to visit, you had to get special permission.

"That procedure applies today, too," says Yelena Prosvirina, an engineer who moved to Zheleznogorsk on the eve of perestroika. "At first it's inconvenient to have to ask permission every time, but you soon get used to it." The benefits outweigh the inconveniences. Zheleznogorsk received centralised supplies of goods that were impossible to obtain elsewhere.

Zheleznogorsk fell on hard times in the 1990s. Supplies of foodstuffs all but stopped and people were plunged into the harsh realities of capitalism. ISS lost most of its financing. The factory continued building satellites for military purposes and improved the Uragan navigation system, forerunner of the modern GLONASS. But there was a sharp slowdown in development and the workforce of more than 8,000 was halved.

It was only at the start of this century that engineers were able to breathe more easily. The government again began investing funds for the GLONASS satellite navigation system. A year ago, the system's 24 satellites were brought into full operation and now compete with the US Global Positioning System (GPS). The state accounts for two-thirds of the ISS's annual turnover of 20 billion roubles (HK\$4.93 billion). The rest comes from commercial orders.

It would all have been fine, but ISS was so busy addressing internal issues that it missed an important moment at the end of the 20th century when satellites became an important commodity on the global market. Russians found themselves almost 20 years behind the curve and effectively out of the game.

In 2008, ISS started getting international orders. First, Israel's Space-Communication ordered the AMOS-5 satellite. In 2009, Indonesia's PT Telekomunikasi bought the Telkom-3 telecommunications system. Contracts



Starting salaries, double what they can expect elsewhere, are attracting engineering graduates to the ISS, which has retained the training system for young specialists that it used in the days of the Soviet Union.

were later signed with the Ukraine and Kazakhstan. "Every year we take part in four or five tenders, of which we win one," says Khalimanovich. "One international contract per year is enough for us. That's all we can handle at the moment."

About 40 satellites are in production today, including military systems, GLONASS, telecommunications and geodesy satellites for operators such as the Russian Satellite Communications Company and Gazprom Space Systems.

The increase in orders has helped raise staff numbers. In 2005, 5,000 people worked here. Now there are 8,500, most of them young. Graduates from aviation universities in Kazan, Tomsk and even Moscow are again drawn to Zheleznogorsk, not for romantic reasons but for money. The starting salary for an engineer is US\$1,000, double what



Vladimir Khalimanovich, director of the Industry Centre of the ISS.
Photos: Ruslansukhushin

Industry seeks private investors

Elena Shipilova RGC

Does space exploration play an important role in the global economy?

The market for space technology is estimated to be between US\$300 and US\$400 billion annually. The biggest segments are satellite communications and telecommunications (over US\$100 billion), and navigation. Russia's share in these areas is less than 1 per cent.

What is preventing Russia from increasing its share in the space industry?

State financing has more than trebled over the past five years and is still growing. But there is virtually no private sector involvement.



Sergei Zhukov is the CEO of the Skolkovo Space Technologies and Telecommunications Cluster.

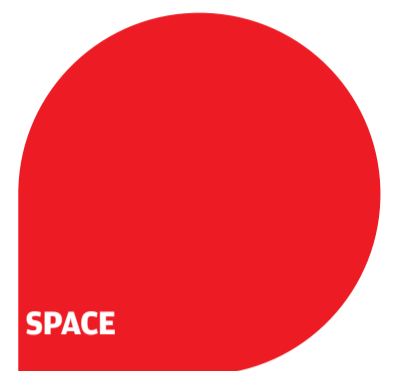
Will people spend their holidays in orbit rather than on sandy beaches some day?

The case of Virgin Galactic, which has received payment from hundreds of people for a future sub-orbital flight, shows that space tourism has a future. Russia is planning to enter the market, but we have other promising projects.

Are any other domestic "breakthrough products" in the pipeline?

Russian energy and engine technologies have a good chance, meaning rocket engines and space nuclear plants. I also don't rule out solutions in small space platforms and on board service systems.

Members of the Skolkovo project are working on such projects.



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a technical university graduate can earn elsewhere. ISS has retained the training system for young specialists it used in the days of the Soviet Union. After their fourth year in an institute, students come to the company and work for two years in various roles on full pay. They can graduate after that.

"ISS is an excellent place for training staff. If we could, we would buy up most of its specialists," says the manager of a Moscow company involved in satellite construction.

The emergence of "new blood" is bringing Zheleznogorsk back to life. There is a new housing estate, but services in the city are still not developed. A population of almost 100,000, including residents of surrounding villages with access, is served by just a few cafes, a restaurant, a single nightclub and a cinema with prices as expensive as those in Moscow.

"It's difficult to start a business in a closed city. The process requires stacks of agreements," says an ISS staff member. Every week she and her husband drive 60km to Krasnoyarsk for a break and cheaper food.

Is Skolkovo attracting private capital?

Our strategic goal is to attract scientists, engineers, industrialists and entrepreneurs from various countries.

Will man be able to mine minerals on the moon or other planets?

I do not rule that out and it might happen in a few decades. There is water, manganese and aluminium on the moon, and asteroids. These could be used for fuel and structural elements of spaceships and space stations.

American businesses have ambitious plans... I am referring to Peter Diamandis and his colleagues, who set up Planetary Resources in late April this year. The world space business is developing rapidly.