

High-Speed Network Will Link Russia's Far-Flung Universities

MOSCOW—On 10 June, Russia's far-flung scientific enterprise suddenly seemed a little less dispersed. At a new university computer center in Yaroslavl, northeast of Moscow, science education officials and journalists took part in a 2-hour teleconference over the Internet with a similar gathering 3500 kilometers away at Novosibirsk University in Siberia. The topic was computer networking plans in Russia, and the event's technical underpinnings provided a glimpse of the future: fiber-optic cables that allowed data to be exchanged four times faster than over most connections in Russia and, at each end, a spanking new Internet center equipped with dozens of workstations.

Over the next 5 years, 30 similar university Internet centers will be set up all across Russia as part of a \$130 million initiative jointly financed by George Soros, the American businessman and philanthropist, and the Russian government. The symbolic unveiling of the first two centers drew a crowd worthy of a major state function. Participants included Vice Premier of Russia Vladimir Kinelyov, Minister of Science and Technological Policy Boris Saltykov, and Deputy Chair of the State Committee on the Higher Education (Goskomvuz) Alexander Tikhonov, along with a handful of university rectors. They all came to pay homage to the power of computer networking. These and future centers, they hope, will enable Russian scientists and academics to tap into the information resources of the global Internet (see other stories in this special section) and collaborate more effectively with their colleagues at home and abroad.

"In a few years there will be a large community of people in the universities who cannot imagine their life and work without the Internet, which we don't have at the moment," says Pavel Arsenyev, the director of the Internet Centers at Universities program, as the Soros initiative is called. The centers are also meant to play a broader role in society, by laying the groundwork for local social and educational programs. In a letter read at the ceremony, Soros predicted, "The full impact of the centers will be felt by the year 2000, when Russia together with the rest of the world will fully enter the Information Age."

The initiative, announced on 15 March,

came as a surprise because the American billionaire had more than once declared that he would end his support of Russian science by 1996. Instead, the announcement marked the largest single commitment Soros has yet made in Russia: \$100 million over 5 years to set up the Internet centers, equip them, and cover their operating costs. The Russian government will provide another \$30 million through Goskomvuz and the Ministry of Science. The government's contribution will fund high-capacity fiber-optic cables and satellite links, to fulfill the program's goal of providing each center with a 256-kilobit-per-second link to the Internet.

SOURCE: SOROS FOUNDATION



A broad net. Universities at 32 sites across Russia will have high-speed links and Internet centers like the one just opened in Yaroslavl (below).



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The program will concentrate on upgrading Internet access from provincial universities—a change from the focus of Soros's past support, two-thirds of which has gone to the scientific institutions in big centers, mostly in Moscow and St. Petersburg. Arsenyev says that Soros wanted to redress the balance, and Saltykov applauds the shift. "It would be very just and fair," he told *Science*, "to develop the provincial centers of education and research." Saltykov points out that Russia has "old and very good universities in many provincial cities, particularly in Siberia, like Tomsk, for example. They are strong in both education

and research, and connecting them to the global communications network would give them unlimited access to the information and enormous opportunities to develop."

By 18 April, Goskomvuz had drawn up a list of 32 Russian universities, and less than 2 months later the centers in Yaroslavl and Novosibirsk were ready for business. Saltykov notes that the first two centers had a head start. In Novosibirsk, Soros funding had already helped to link the 26 research institutes in Akademgorodok (Academic Town, a special area where most of the research institutes are located) and the State Public Scientific-Technical Library of the Siberian Branch of the Russian Academy of Sciences into a single network and couple it to the Internet through links with a capacity of 2 megabits per second. In Yaroslavl, too, a local network was already in place, with connections to the European academic network and the FREENet, an existing

low-capacity network that links Russian Academy of Sciences institutions, research centers, and universities.

To help professors and students take advantage of these links, the new centers offer PC computer labs, Web-authoring facilities, and training in the use of the Internet. The Yaroslavl and Novosibirsk projects are also meant to establish an Internet infrastructure for the outside community. In Yaroslavl, for example, the university center will serve as an Internet access provider for the local schools, all of which are linked to the center

through dedicated telephone lines, and for other local nonprofit organizations like libraries and museums. The center will also host a World Wide Web site giving information on the city, its culture and education, and the research that goes on in local institutions.

In spite of the enthusiasm for the project from Russia's top science officials, some of those involved in the project have a nagging worry: uncertain government funding for the new cables and satellite connections. The Russian government managed to fund only about two-thirds of its commitments under last year's science budget. "I hope that there will be no delays in funding," says Saltykov.

German Mironov, the Yaroslavl State University rector, is certain of the ultimate payoff. Besides benefiting the academic community, he says, the proliferation of Internet access "will help Russia's formerly closed society become fully open."

—Andrey Allakhverdiv

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