

Pioneering project model helps close Polish digital divide

Innovative business and
technology approach
set to exceed
government expectations

NOKIA



When the Polish government wanted to improve its citizens' access to broadband services, it set out an ambitious plan to connect hundreds of thousands of homes and schools.

Combining its fiber know-how with the backing of a major financial player, Nokia formed a partnership to provide competitive broadband connectivity, opening the market and enabling providers to sell services to consumers.

The extraordinary year of 2020 showed that broadband connectivity has never been more important. From working and education at home, to ordering food and other goods online, accessing the latest medical advice and keeping in touch with loved ones, being connected is now a human necessity.

This has long been recognized by the Polish government, which well before the COVID pandemic, aimed to address the 'digital divide' that meant many of its citizens had little or no internet access.

The problem was acute in rural areas and the government focused on under-served regions. Committing its own funding and resources, Poland's Ministry of Digital Affairs drew up the ambitious Operational Program Digital Poland (Program

Operacyjny Polska Cyfrowa - POPC), to deliver speeds of 100 Mbps and connect 800,000 homes and all schools in rural provinces.

The POPC program is mainly financed by the EU, through its European Regional Development Fund, within the framework of Europe's Digital Agenda 2020 program. This initiative aims at delivering fast broadband services with download speeds of at least 30 Mbps to all EU citizens, and at least 100 Mbps to 50 percent of EU citizens.

Unprecedented in its scale as a national broadband access program, the Polish government wanted to avoid what it saw as the piecemeal, regional approach adopted by some other European countries, which had resulted in a fragmented network.

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Paweł Biarda,
Chief Commercial Officer, Nexera



Wholesale model opens project to service providers

The POPC program divided Poland into 72 regions with different broadband needs. It organized tenders, initially open to Communications Service providers (CSPs), to provide open broadband access to underserved areas identified by the regulator in each region, within seven years. As an infrastructure technology provider, Nokia felt it had unique abilities and experience to offer and engaged in discussions with

the Ministry of Digital Affairs, focusing on an innovative model involving collaboration with financial investors. This led the government to open the tender to such players.

Building on its strong local footprint, Nokia also engaged with central, regional and local government bodies, presenting best practices from similar projects around the world, showing the economic benefits of broadband and highlighting how local needs could be met.

From education to health, connecting Polish citizens

Poland's Nationwide Education Network programme aims to provide all schools with free of charge access of at least 100 Mbps, along with advanced cybersecurity and educational e-resources.

Overall, the POPC program will provide more accessible e-health and digital services and deliver socio-economic benefits, as well as supporting residential triple-play services such as HD video streaming, 4K TV and real-time gaming.

Exceeding initial expectations, Nexera will deploy an extra 150,000 addresses in addition to the 460,000 households in the initial contract. With the acquisition of smaller operators facing difficulties, the aim is to finish the program with a million households connected, more than double the original target.

A key challenge for providing ultra-broadband connectivity in rural and suburban areas is doing so while achieving an acceptable Return on Investment (RoI) for all project stakeholders. From its long experience in such projects, Nokia knew this would require specific technological expertise as well as an innovative business model that would also involve private investment.

Therefore, Nokia quickly identified private financing as a key to ensuring the program was successful, and from the outset searched for an investment company interested in the project.

Innovative partnership for a compelling proposition

In June 2017, the financial institution Infracapital, together with Nokia, formed Nexera. Combining financial strength with the deep infrastructure and network building knowledge of its parent companies, Nexera met the government's requirements by proposing to act as a pure wholesaler, selling network access and services to Internet Service Providers (ISPs). By not providing services to end users, the

partnership would not be competing with ISPs, meeting EU requirements for fair and open competition.

"This innovative approach enables us to focus on providing a best-in-class network while also freeing ISPs to use their expertise to provide compelling retail offers to end users," explains Mr Paweł Biarda, Chief Commercial Officer, Nexera.

The Polish government adopted this model as it would increase broadband coverage while giving access to many more ISPs in new markets, most of whom would not otherwise have the financial backing to build network infrastructure themselves.

"The POPC project's goal is to connect as many households as possible within the available budget. The Nexera proposition fitted our needs perfectly, being technology neutral and providing open access to CSPs. Nexera was first with the wholesale model, which is now becoming more popular with more wholesale operators being set up," explains Mr Wojciech Szajnar, Director, Centrum Projektów Polska Cyfrowa (Project Centre Digital Poland - CPPC). "Our original goal

was to connect 800,000 households but by the end of the project we expect to have connected 2.5 million, covering 40% of under-served areas.”

Competitive offer wins 13 regional networks

As a partly EU-funded project, strict procurement rules applied, with the winners scoring highest on a transparent scoring mechanism. Nexera won a contract to deploy and manage 13 regional ultra-broadband networks and offer wholesale connectivity to Polish ISPs.

Deciding factors in Nexera’s favor were:

- Competitive costs, with the consortium able to provide the large financing involved, minimizing public contribution.
- The ability to meet and, for some regions, go beyond the government’s initial coverage requirements while keeping budget under control.
- The ability of Nokia to run such a large scale roll out with many regions being deployed simultaneously.
- Nokia’s long experience of meeting the needs of the public sector.

- Future proof ‘all fiber’ Nokia technology which allowed Nexera to guarantee the delivery of the required minimum speed of 100 Mbps for each connection.
- The sustainable business model, both financial and to run the network for the long-term, offering wholesale services.

The contract for a five-year roll out was won in mid-2017. Conditions of the contract were that 460,000 homes would be covered in three years, with 2,600 schools connected within 20 months. The coverage area was a mix of suburban and rural areas, requiring around 17,200 km of fiber to be installed.

Market-leading network technology

The networks feature Nokia’s market-leading fiber access platform, the 7360 Intelligent Service Access Manager (ISAM) FX, the new Nokia 7362 ISAM DF small form factor fiber access platform, along with the 7368 ISAM ONT. The networks also include the Nokia 5520 Access Management System for network management, and the Nokia Network Analyzer fiber operational support platform.





In addition to the broadband network infrastructure, Nokia provides professional services to optimize network design and roll out. This includes project management, planning, design and deployment of both the active and passive fiber optic networks. Nokia also provides managed services to Nexera, operating and maintaining the network to deliver the promised network speed and availability.

Connecting schools to ultra-fast broadband was a high priority. Nokia connected schools through a Fiber to the Premises (FTTP) deployment - homes are connected by local service providers when connectivity is bought by the household.

“Nokia played a substantial role in the project’s success, not just as a Nexera shareholder, but as the technology leader with deep knowledge of how the network should be built and operated. We now have the best and most modern network in Poland that, because it has been built and is being run by Nokia, we are confident will prove to be exceptionally reliable,” says Biarda.

Building Polish operations from the ground up in changing and challenging circumstances

Once the contract was won, the scope of the challenge really made itself felt. “We started from scratch,” says Pawel Szulawa, Nokia’s Project

Manager. “First the operator, second the service company and third the network design itself. These three components did not exist before the contract was signed, and it was really a challenge to build all this from scratch, particularly as the Polish market was short of skilled labor”. On the contract signing day, Nokia, on behalf of Nexera, swung immediately into action by ramping up all these activities simultaneously.

An early major challenge was the low quality of some of the country’s existing core network, the active part of the network which connects the passive fiber access network. In the first three months of the

project, Nokia needed to change 80% of its High-Level Design (HLD). Even though not initially planned, in the first year Nokia upgraded this core network and fully redesigned the project planning and business case.

Nexera, on its side, had to build its own organization and process, paying close attention to defining a streamlined set up, imperative to keep its model profitable.

“Nexera is a lean organization with a few tens of people that runs a business providing connectivity to more than 40 ISPs and aiming to reach more than one million households. This huge scalability is

enabled by cloud-based solutions, automated processes and reliable outsourced partners,” explains Biarda.

Professional services, a critical part for success

Service, not just the technology, is also essential to the successful delivery of a broadband network spanning almost a quarter of Poland. Nokia therefore created its own service company, selecting and training people to fill essential roles and take control of this project dimension.

Nokia project manages the contractors building the network. Again, ramped up from scratch, this process was developed to select contractors and material suppliers under public tenders to meet government rules, a specific constraint that could affect project schedules and cost. This was a complex program, involving board lawyers with expertise in EU law, as all contracts must be based on legally checked letters.

Unfortunately, market developments caused further complications. When originally selected in 2017, the construction

market was in a depression and contractors were making low offers to secure work. However, the market then picked up with neighboring countries initiating major projects. The costs from subcontractors rose 30-60% and several contractors became unavailable. Nokia and Nexera ran another tender process, selecting 14 more contractors and injecting additional resources mid-project. Nokia is also managing the EU fund collection for the subsidized parts of the civil works, offering truly end-to-end project management.

Given all these challenges and the impact of the Covid-19 pandemic, the government extended its initial plan by two years but also revised its coverage targets. Nokia’s tight project management enabled results to be delivered on time, despite all the constraints. This significantly contributed to the confidence of the authorities in Nokia and Nexera’s ability to deliver on their promises and the scope of its initial deployment has progressively expanded to more than one million households.

Working as a team is a vital part of the project’s ongoing success

says Szajnar: “We collaborated daily with Nexera, discussing issues, whether technical, legal or commercial, regularly and openly. Nexera quickly became a trusted partner presenting issues clearly and truthfully, while Nokia is a large company with great technical know-how so we know the network will be reliable.”

A positive impact on Poland’s population

Nexera started to commercialize the new broadband network and signed contracts with several retail service providers, ranging from the biggest nationwide ones to smaller local organizations, allowing them to start providing ultra-high-speed connectivity to Poland’s remote areas.

The network is bringing many benefits for people. Super-fast broadband enables easy access to a wide range of services such as banking, education, entertainment and more that were previously unavailable in many under-served areas. It has been widely welcomed.

“In 2014, fewer than half of our residents had access to a high-speed connection,” says Sylwia

Jaskulska, Deputy Marshal of the Warmia-Masuria Province. “In the Warmian-Masurian region, the subsidized network built under the POPC program by Nexera in and around Elblag, Elk and Olsztyn allowed us to connect more than 61,900 households and 473 schools.”

“Initially we thought we would need to reach out and educate people on how to use internet access and online services,” says Biarda. “But that was not the case and we found that people were easily able to make full use of their new connectivity. The COVID situation also revealed the many opportunities for people to find new ways of working from their rural homes instead of staying in the cities and to find a new way of life.”

Connecting schools was the project’s first milestone and part of the country’s wider aims to digitally transform education and teacher training. Szajnar says: “We are giving all children the same opportunities wherever they live, which is a socially important priority. It is too early to measure the impact of reliable, fast connectivity in rural areas on the economy and quality of life, yet the

benefits of giving access to learning opportunities, entertainment and enabling people to work remotely will be huge.”

“We visited a primary school in Gierzwald and its headmaster confirmed the pressing need for reliable Internet access in education. It greatly benefits both the teaching staff and students,” confirms Jaskulska.

Citizens interviewed about the project have spoken about the advantages of broadband Internet. “They have been able to keep their jobs and deal with administrative

matters during the pandemic and their children could participate in remote classes. One entrepreneur explained how living in a small town, his client range was limited. But now, conducting more of his business on the Internet, he provides services, sends invoices and settles with contractors online, already gaining a group of satisfied customers.” Added Jaskulska.

“The Nexera business model is open and cost effective. It is great from our perspective and what we wanted from beginning. We are very satisfied,” concludes Szajnar.



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