DIGITAL TRANSFORMATION

In September 2019, the Gazprom Neft Board of Directors confirmed the company’s digital transformation strategy. This new document was developed in line with the company’s wider business development strategy to 2030, and supports its implementation.

The company’s digital transformation covers its entire value chain. It is intended to improve flexibility and efficiency in business management, based on data and digital twins of assets. The company is developing its own solutions in artificial intelligence (AI), the Industrial Internet of Things (IIoT), robotics, unmanned aerial vehicles (UAV or drones), and other Industry 4.0 technologies.

The digital transformation management system uses a highly-organised, programme-based approach. It consists of a set of major change programmes in technological and operational processes at Gazprom Neft. Each of these programmes is intended to deliver key economic and business impacts in the medium and long term.

Portfolio of digital transformation tools and processes

Meeting the objectives we have set ourselves requires:

- A transparent and simple business-architecture management model to ensure flexible, rapid and efficient digital transformation;
- High-quality digital resources and cutting-edge processes;
- An efficient, readily accessible and scalable IT infrastructure.

To which end, the company has developed the following tools:

Corporate knowledge-sharing system:

- A glossary of digital transformation containing over 250 terms, designed to unify terminology used throughout the company;
- A knowledge-sharing system spanning all divisions including regular events to raise awareness of digital technologies and digital projects.

Methodological tools:

- A methodology to determine economic impact of investment programmes, IT- and digital-transformation projects;
- Regulation governing the implementation of digital projects (describing to owners of digital products and product teams the procedure for securing funds, resources and infrastructure);
- Guidelines for launching digital projects (containing a step-by-step description of the digital project implementation process);
- A procedure for securing investment and implementing digital projects to carry out a proof of concept (POC) and deliver value promptly;
- Quick-start of IT and digital-transformation projects.

Technical tools:

- A corporate cloud-based sandbox;
- Technical regulations (streamlining the process in terms of architecture approval and information security requirements, and designed to remove critical barriers to project implementation).

To establish in-house expert communities specialising in technology, and to communicate more efficiently with business units, the company has created centres of excellence focusing on:

- Machine learning and AI;
- Virtual and augmented reality;
- Video analytics;
- Blockchain;
- Robotics and additive manufacturing;
- Unmanned technologies;
- IIoT, and wearable technology.

The centres of excellence are tasked with:

- Expert evaluation of solutions;
- Identifying technological solutions and assessing their maturity;
- Providing expert support for core business projects;
- Developing implementation scenarios for Gazprom Neft;
- Developing digital projects and services that meet the needs of the business;
- Solution integration and support;
- Developing new solutions;
- Testing technological solutions;
- Prototyping.
**Breakthrough digital-transformation projects implemented at Gazprom Neft**

Digital transformation covers every stage of the company’s operations, from geological prospecting and drilling of multilateral wells to refining and delivery of finished products. Thanks to new technologies, by 2030 Gazprom Neft will halve the lead times in obtaining ‘first oil’, improve lead times for implementing major oil and gas production projects by 40% and reduce production management costs by 10%.

| AI in geological exploration | Gazprom Neft has been successfully using machine learning in its search for additional oil reserves, with neural networks using geological data to identify blocks with potential oil reserves that are undetectable using conventional methods. In 2019, a pilot project using this cognitive system at an existing oilfield on the Yamal Peninsula helped to achieve additional inflow. Using probabilistic calculations, the cognitive algorithms make it possible to build detailed digital models of fields that exceed the scale of many European countries. They can also help to achieve a significant reduction in the duration of the geological analysis cycle. |
| Electronic Asset Development (EAD) | The EAD Programme is a strategic programme comprising IT projects being implemented by Gazprom Neft in the upstream segment. Projects implemented by the company include EAD: ISKRA (an integrated design system that assists with decision-making on field infrastructure development), EAD: GRAD (a digital workstation for geological and field-development engineers), EAD: REMONTY (computer-aided well-workover management) and EAD: ProActive (comprehensive analysis of data on hydrocarbon reserves). |
| Digital logistic-management system for use in the Arctic ‘Captain’ | To ensure uninterrupted year-round shipments of all oil produced in the Arctic (ARCO and Novy Port blends), the company has developed a unique digital Arctic logistics management system. The system tracks vessels in real time, develops an optimal schedule for the fleet and for oil shipments from terminals, and monitors the movement of each vessel at every stage of its voyage. It analyses over 65 million potential options per hour, processes about 300 parameters, and allows the fleet’s operational efficiency to be assessed in real time. Using this system, the company has reduced the unit cost of oil transportation from northern fields by 15%. |
| 100% digital customer | Using a mobile app to place orders and pay for fuel at Gazpromneft filling stations can cut motorists’ time spent filling up by as much as half. The ability to issue the ‘On Our Way’ loyalty programme virtual card right in the app means the entire chain of interaction with the customer can be executed digitally, while the ‘Refill’ button allows clients to refuel their car without leaving it. This button first appeared in the AZS.GO app and is currently being replicated in the filling station network’s app, as well as in partners’ apps. Corporate clients now have the opportunity to sign an agreement with the company online, issue virtual service cards via the app and exchange documents without having to meet the company’s managers. All these transactions can be made through the personal account in the OPTI24 app. There are now legal entities who are fully-digital clients. |
| Analytical platform for managing data | This solution is Russia’s first integrated platform for data processing, storage and analysis with fully integrated Data Governance components. It is designed for big data processing and storage, advanced analytics, and for improving data management efficiency. Most importantly, it ensures the quality of various data at a Gazprom Neft unit that is responsible for motor-fuel sales. Currently, 50% of all analytical projects in this division are being implemented using this platform. The project won the 2019 Project of the Year award from Global CIO and the 2020 CDO Award. |
| Geo-analytical platform | The company has leveraged data to create a unique integrated AI-powered solution that models traffic flows and identifies the best locations for the development of the filling station network. |
2019 achievements

Gazprom Neft aims to become a leader in the digital transformation of the fuel and energy sector and a leading technology brand. It will do this by attracting and supporting qualified personnel and embedding the development of talent in the company. We have a growing number of initiatives: we are developing both digital- and IT-project portfolios and we are creating tools to manage these efficiently in terms of increasing economic benefits for the company. The transformation process has got off to a great start; it is attracting great interest, and more and more people are getting involved.

Andrey Belevtsev, CDO (Chief Digital Officer)

By the end of 2019, 30 digital transformation programmes had been approved. Once they reach their full design capacity, the programmes will have delivered their target economic effect of 3–5% of EBITDA per annum starting from 2022. Investments in IT and digital transformation in 2019 accounted for up to 5% of Gazprom Neft’s cumulative investment programme.

An important milestone in the digital transformation process at Gazprom Neft was the Digital Technology Vision (DTV), which is a long-term planning tool for developing and applying digital technologies. It is based on intelligence, information on innovative digital projects, academic research, and products offered by leading technology companies.

The DTV addresses the following questions:

– How mature is a digital technological solution in terms of its practical applicability?
– Which digital technological solutions does the company need today and in the future?
– Which technological solutions is the company ready for today and which does it need to make sure it is ready for in the future?
– What needs to be done to ensure the company is prepared for emerging technologies?

As part of its digital technological vision, Gazprom Neft has developed over 700 forward-looking scenarios for the use of digital technologies across Gazprom Neft’s entire value chain.

2019 transformation results

1,000+

digital and IT projects and initiatives

700+

scenarios analysed to assess potential technological application

30

programmes in the digital transformation portfolio

192

proof-of-concept projects completed, the results of 46 of which are currently being implemented
Plans for 2020

The company has identified several key development areas for 2020.
1. Operational transformation in IT.
   The key challenge for the company is to achieve an efficient and flexible alignment of roles in order to create a well-defined and transparent system to support the development of digital transformation programmes and assist the business to implement them. The system should also help to create digital and IT products, and to provide easy access to information infrastructure and services.
2. Development of a corporate digital platform comprising the following components:
   - A corporate platform for applications and data (Platform-as-a-Service, PaaS) as the basis of a new technological landscape;
   - Operational platforms enabling business-process integration throughout the entire value chain;
   - Application platforms allowing the delivery of centralised solutions for highly specific tasks such as video analytics, wearable technology, augmented and virtual reality, and blockchain.
3. A corporate platform for data analytics and management, and digital service development. This will help to significantly speed up project implementation and increase the scale of the launch of AI-based solutions.
4. Putting previously launched projects into commercial operation, and rolling out the results of digital transformation in subsidiaries.
5. Expansion of a partnership ecosystem for digital developments.
6. Transition to a product-based approach throughout the company.

Utilisation of artificial intelligence (AI) in the company

In order to develop and implement AI-based solutions across the entire value chain, the company has established its Data Monetisation and Development Centre (DMDC), as well as several data-science teams within Gazprom Neft’s divisions and in the Gazprom Neft Science and Technology Centre.

The Data Monetisation Centre is designed to improve the efficiency of internal processes in the company by leveraging data, analytics, and mathematical modelling and optimisation techniques. The DMDC develops solutions for all areas of Gazprom Neft’s business. The company is building a corporate data analysis platform based on machine learning and optimisation methods, in-depth training and image analysis, and natural language processing, aimed at accelerating the development and implementation of solutions based on data analysis and mathematical modelling. The most significant DMDC projects in 2019 involved processing and interpreting seismic data, analysing and processing magnetograms, and conducting core analysis.

35 projects using AI/machine learning developed

120 data analysts

100+ models with real-life application

Gazprom Neft is involved in the development of AI in Russia

As part of ongoing projects in artificial intelligence (AI), the company has become one of the founding members of the Science and Education Centre for Artificial Intelligence in Industry, cooperating to this end with Russia’s leading higher educational institutions (ITMO University (the St Petersburg State University of Information Technologies, Mechanics and Optics), St Petersburg State Electrotechnical University, the St Petersburg campus of the Higher School of Economics, the St Petersburg State University of Aerospace Instrumentation, St Petersburg State University, and the Peter the Great St Petersburg Polytechnic University).

In September 2019, Gazprom Neft, Yandex, Mail.ru Group, Sberbank, MTS and the Russian Direct Investment Fund worked together to establish the AI-Russia Alliance, Russia’s first cross-industry alliance for developing AI, with Gazprom Neft becoming the first industrial company to join the Alliance.

The Alliance seeks to facilitate the implementation of AI technologies in Russia, and is helping to develop a regulatory framework governing AI development in Russia, as well as legislation governing industrial and personal data.

The AI-Russia Alliance will also work towards developing a professional community of experts and organisations specialising in AI and data analytics. This will include an initiative to develop an advanced training programme in AI for university teachers, postgraduate students and undergraduates.