DIGITAL TRANSFORMATION

EVRAZ DIGITAL TRANSFORMATION PATH

2017-18

- Pilot projects and proof of concept
- Outcome analysis

2019

- Broad discussion of digital transformation approach, objectives and outcomes
- Decision to systematically employ digital tools on a large scale throughout enterprises and business units

2020

- Decision to make digital transformation a strategic priority of EVRAZ
- Launch of major digital transformation projects

Results in 2020

68 projects

implemented with an annual effect of

US$ 17 million

Plans for 2021

- Implement a major programme with more than 100 projects
- Implement projects with cross-functional product teams
- Focus on production projects with direct economic impacts

Plans 2021-2023

- Generate an total effect of US$150 million

ADVANCED ANALYTICS PROJECTS IN 2020

Advanced analytics is a trend in digitalisation based on solutions involving machine learning and other artificial intelligence elements. It is a digital transformation priority at EVRAZ.

Advanced analytics systems are forward-looking, predictive and prescriptive. They help manufacturers to make more timely and informed decisions, as well as to improve efficiency and productivity, in the following ways:

- Rapid response to changes in the production process.
- Reduced probability of defects.
- Stabilised concentrate quality.
- Minimised costs for charge and auxiliary materials.

In 2020, EVRAZ engaged an external consultant to help with the successful launch of six advanced analytics projects:

Urals division

- Dynamic ore concentration management at EVRAZ KGOK.
- Optimisation of loading parameters at EVRAZ NTMK's coking plant.

Siberia division

- Dynamic ore processing management at the Abagur ore processing plant.
- Optimisation of extra-furnace processing and ladling at EVRAZ ZSMK's electric steelmaking shop.

Coal division

- Dynamic ore processing management at the Raspadskaya ore processing plant.
- Advanced analytics at the Raspadsky open pit mine's operational control management centre.

Digital transformation goals

- Improve client service.
- Improve industrial safety.
- Assist operators of complex technological processes in order to improve the efficiency of equipment, reduce costs and improve product quality.
- Enhance efficiency and streamline business processes by eliminating internal barriers.

Key digital technologies

- Advanced analytics based on machine learning and artificial intelligence.
- Basic industrial analytics (modern BI tools).
- Expert systems (from vendors).
- Computer vision.
- IoT (Internet of Things) sensors as data source for analytical and decision making systems.

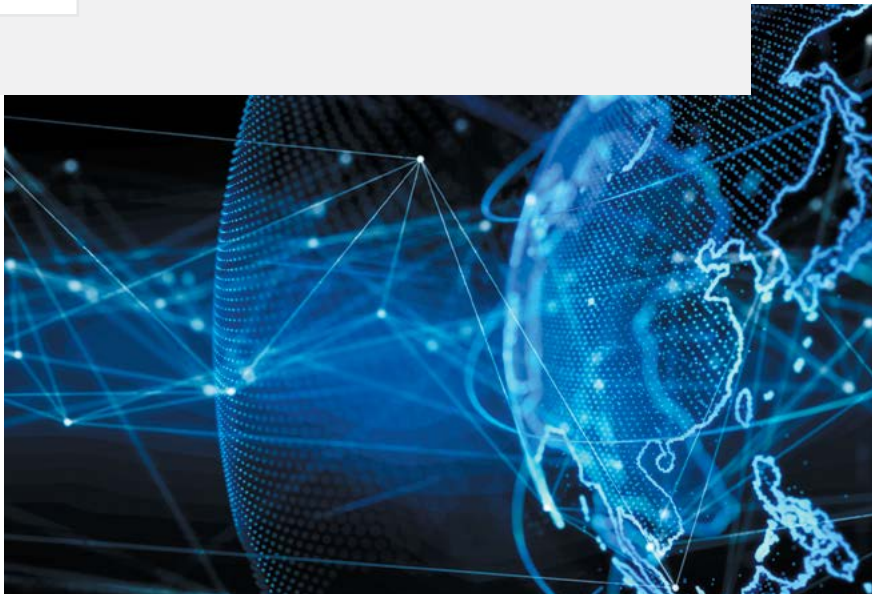
EBS

Read more on **page 16-17** →

Digital transformation is closely linked to EVRAZ Business System

The EVRAZ Business System is an important partner in digital transformation project development, planning and implementation throughout the Group's divisions:

- Bottom-up digital innovation.
- Effective interaction within digital product teams.
- Change management.



CASE STUDIES

Risk Hunting: a unique mobile app

EVRAZ developed the Risk Hunting mobile app with the aim of helping to identify and eliminate production risks. By using the app, Group employees can upload information about unsafe areas or processes at their sites directly to a central database to get advice about how to eliminate the issues and ensure a prompt expert response. Risk reports are automatically sent to dozens of people at EVRAZ, including senior executives.

EVRAZ NTMK's central control room

The concept and minimum viable product were developed for the unified dispatch centre at EVRAZ NTMK. The system contains a series of dashboards displaying the facility's key working indicators: financial, production, performance, quality, energy consumption and HR. The system can be accessed via computers and mobile devices. In 2021, the development of the system's functionality will continue.

Steel Radar online project

Working with leading Russian metal trading companies, EVRAZ launched an online project designed to develop the ecosystem for steel construction and improve client service. Steel Radar (www.steel-radar.ru) is a resource that aggregates data about the presence of I-beams in the Russian warehouses of traders taking part in the project. Transparent and up-to-date information allows a customer to find the closest warehouse. The site has functionality for searching for availability by region, profile sizes, steel grades and traders.