



Target outcome – costs reduced, since 2020, by

USD **200–300** m

Efficiency improvement programme

The comprehensive programme was enabled by the platform created in the past, including industrial automation and automated control systems, ongoing ERP deployment, and new production processes and standards.



We must ensure that all our process chains are built in the most efficient manner aligned with our objectives.”

Vladimir Potanin

Shaping a comprehensive cost reduction ecosystem

Base programmes

Upgrading production assets

Developing and integrating new production processes and standards

Reconfiguring and shutting down outdated production facilities

Introducing ERP / automated control systems

Introducing industrial automation systems

Introducing new approaches to management

IT infrastructure upgrade as a tool for achieving operational excellence



SAP ERP deployment

- Pilot project completed
- 2017 – Chita project, 2018 – Polar Division



New DCP architecture

- Upgraded server infrastructure and data storage systems according to the Company's needs
- Upgraded data network



Underground radio communications and positioning systems at the mines

- 369 km of optic fibre cable
- 1,052 Wi-Fi spots
- Real-time control of mining personnel and machinery



MES layer (Manufacturing Execution System)

- Machinery control system pilot project in Norilsk
- Completed 3D modelling of one mine's shafts; now the system is rolled out to other mines
- Talnakh Concentrator successfully piloted the metal balance project; the system is rolled out to other plants and mines

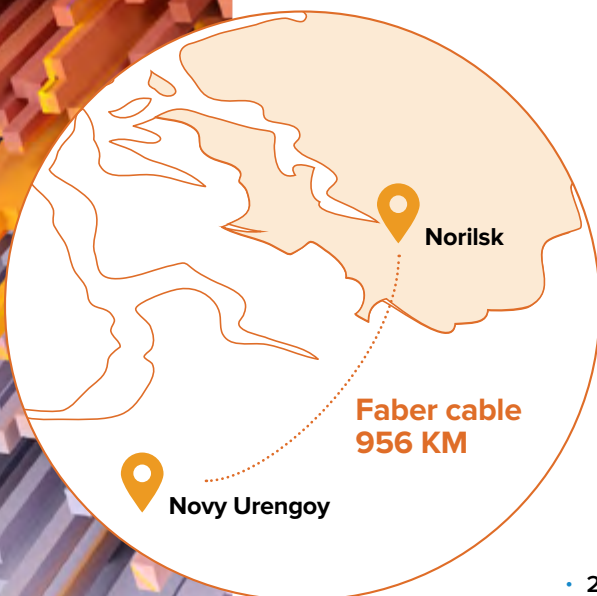


Optic fibre line to Norilsk

- The 956 km 40 Gbps line is now live
- Unprecedentedly challenging line construction environment
- Enabling the use of advanced IT systems
- Better living standards in Norilsk

More details on the project

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**Fiber cable
956 KM**

Novy Urengoy

Norilsk