**Challenge**

**Designing high-performance drive systems**
Powertrains of high-performance mining machines and belt conveyors are very complex, subject to alternating work conditions and consist of non-linearities, such as varying rope lengths and cantilevers as well as backlash in the transmission.

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**Solution**

**Virtual optimization and commissioning**
For the ideal design and fast commissioning, drive systems and controller layouts are analyzed with SimulationX early on for their behaviors under operating conditions. This involves optimized, machine specific simulation models during the development process.

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**Benefits**

**Increasing availability and efficiency**
Fast commissioning and thus fast deployment in combination with lower maintenance requirements guarantee an increased availability of equipment. This higher productivity can already be demonstrated through appropriate simulation results at the bidding stage. Specific costs can be reduced, while efficiency is increased.