DRi Platform unifies iSeries rotary drills

Sandvik's latest digital offering is one that unifies all Sandvik iSeries rotary drilling solutions

DRi is built on top of Sandvik Intelligent Control System Architecture (SICA), which is the standard architecture of Sandvik's iSeries family of surface and underground solutions.

"It emphasizes the control system, which is the heart of the system," said Demetre Harris, product manager, of automation and technology, Sandvik.

DRi was first implemented on Sandvik iSeries rotary drilling solutions in 2021. With DRi, all iSeries drills are on the same platform — one software version — making it easy to deploy, support, and enhance. SICA has been utilized by Sandvik iSeries rotary drilling solutions for over 7 years. The DRi extension of SICA has been in place for a little more than a year, but has now been streamlined, Harris said.

"We have this common development platform throughout the whole mining portfolio, so that enables us to quickly roll out product enhancements across all iSeries rotary solutions," Harris said.

In addition to unifying the beneficial drilling features into a single version, DRi focuses on three core pillars onboard Sandvik's iSeries blasthole drilling solutions: automation, digitalization and integration.

AUTOMATION

Prior to DRi, Sandvik had to develop new features and copy them over, one model at a time, but now, Sandvik can develop it once and make it available across all iSeries models. With DRi, this capability is currently available across all four iSeries blasthole drill models, which include the DR410i, DR412i, DR413i, and DR416i.

"We can roll out changes across all the models because they're all sharing the same platform now," said Nellaiappan Subbiah, Product manager for rotary drills. "Before, if we did an upgrade to one, it wouldn't necessarily trickle down to the other drill models. Now once we develop new functionality, the functionality is available to all. So, everyone's on an even playing field."

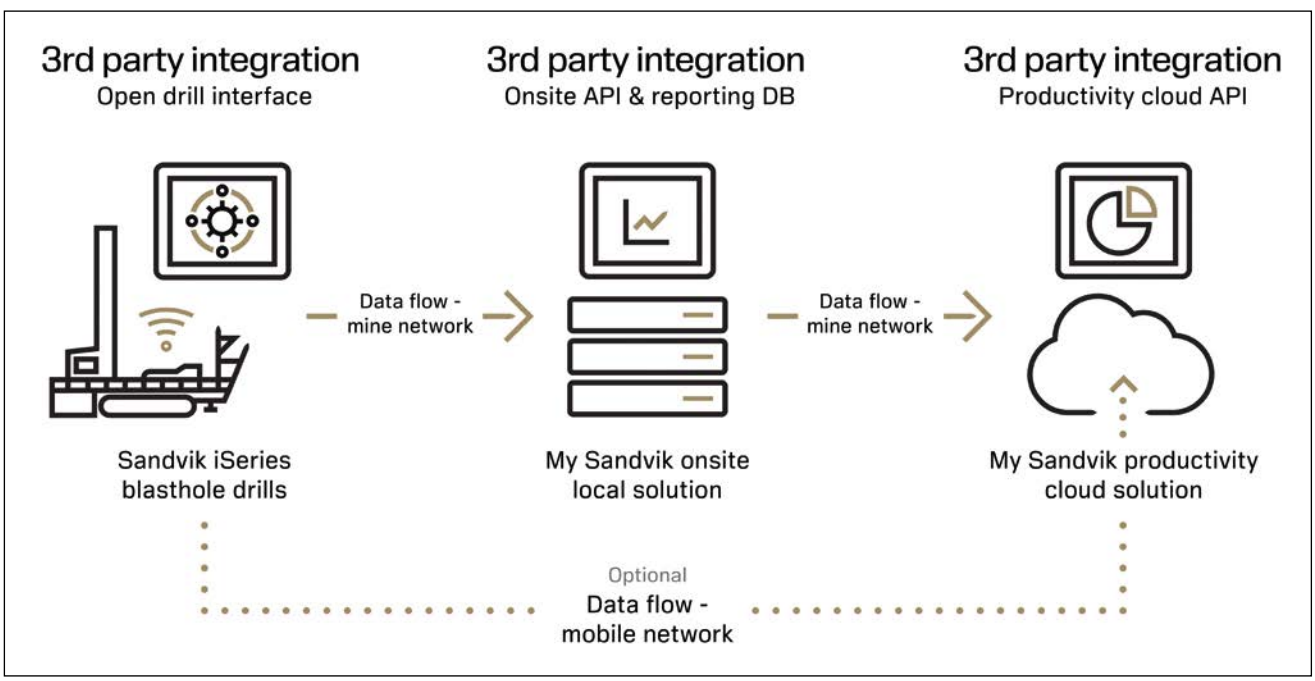
When new features are added, the customer has the luxury of accessing all the new benefits across all products, Subbiah said. There is a sense of sustainability since companies do not have to simply replace their equipment with a new machine.

Subbiah compared the process to when an update comes out for Apple's iPhone. "If a new iPhone is rolling out with different software, it doesn't matter what model you have, within a reasonable timeframe, everyone's getting the same thing and it's pushed out," Subbiah said. "We're trying to make sure that once we sell the iSeries rig to customers, they don't have to replace it soon considering the asset life of blast hole drills in open pit mining operations."

DIGITALIZATION

The technology developed within DRi serves as the gateway for Sandvik's digital offering. DRi software is also the foundation of Sandvik's TIM3D High Precision Navigation Solution. While the rig models might be

Integration is enabled by the new solution



The DR412i blasthole drill is designed to deliver dependable penetration and greater return on investment

different, since they all utilize DRi, the user interface is the same.

"The drilling process is similar across all rig models," Harris said. Positioning, leveling, and drilling follow the same sequence, he added.

The technology solutions available onboard Sandvik iSeries blasthole drills include equipment status tracking, equipment health and diagnostics, and measurement while drilling capabilities.

The onboard technology features are also scalable ensuring that the solutions provide value to all mining operations regardless of where they are on their technology roadmap. Some features might vary slightly, but the onboard module operation and functionality are the same regardless of the iSeries blasthole rig model.

There are different mechanical components to each model, but it goes through the same process and DRi. How the user interface works, how the screen looks, how an operator controls the machine through a joystick, and the buttons are all the same. "The uniform interface is all made possible through our DRi software," Harris said.

Additionally, the data that is being generated while drilling, which is used for optimizing the, blasting sequence is common across all our iSeries models, Subbiah said. "The only difference is the type of drilling application," he added.

INTEGRATION

The outputs are the same across all rig models as well, making it easier to integrate with other systems. DRi helps facilitate these connections. One of these integrations is with Dyno Nobel. When paired together, Sandvik iSeries rotary drilling rigs and Dyno Nobel digital blasting solutions are designed to help customers achieve precise fragmentation.

Another key component is Sandvik's ability to support the products. Sandvik support teams can remotely access the software to help with problems the operator might be experiencing, simplifying the troubleshooting process.

The operators on the ground are also able to perform diagnostics and monitor performance to catch a problem before it impacts production.

Operations can receive daily, weekly, and monthly status reports. In addition, Sandvik specialists can provide health analyses. "All those things are in one quick shot, rather than having to spend a lot of time manipulating the data," Subbiah said. "Regardless of what model you have, we've taken that data and formatted it the same across all different operations."

This allows operations to access the data, make decisions, and take action based on the real-time data they receive. Mining operations can use this data to benefit the entirety of their operation.

Also, if a customer has limited operators and one of the operators must switch to a different rig model they will need minimal training since the controls are the same.

"It'll be all the same controls," Subbiah said. "The control system is the same, so there's no need for extensive training for a new model."

"This is only the beginning, new versions of DRi will be available shortly" Harris said. "Everyone should keep their eyes open on our digital space."

"The drilling process is similar across all rig models"