Service goes digital

Reactive service calls and maintenance according to plan are being replaced with service technologies that employ digital tools. Less unscheduled downtime, more precise troubleshooting and optimized maintenance schedules based on equipment condition are among the benefits.

Local maintenance team supported by Siemens Digital Services.

For generations, maintenance has been based on standard schedules. And up to some extent, it works. Nonetheless, unscheduled downtimes do happen, for example when a component fails unexpectedly. Until the issue is identified and rectified, hours and even days can pass – which can easily result in losses in the millions. But it doesn't have to be that way: preventive and predictive maintenance based on digital services help keep equipment running longer because possible failure sources are identified before they can become a problem. And if something does occur, equipment can be brought up more quickly with the help of data "messaging" any anomalies upfront.

Continuous monitoring as offered with Digital Drive Train Services is based on a cloud-based solution and ensures constant knowledge about the condition of the components. Before critical changes can arise, certified service experts contact the user immediately, identify the fault, and provide support with troubleshooting. Users also benefit from automated status reports and notifications that allow them to detect faults at an early stage. Connected devices can be checked on the customer dashboard at any time. This allows users to consult with Siemens service experts to obtain service recommendations. If despite these measures downtime does occur, operators can react quickly by directly connecting a service expert to the plant. Condition-monitoring services like these minimize scheduled and unscheduled downtimes thanks to optimized maintenance activities. Early planning and optimization of maintenance and service measures save a significant amount of time and money.

Fast and precise troubleshooting

An example shows the value of Digital Drive Train Services: At a customer's operations the drive train was failing during operation. Thanks to Digital Drive Train Services, the drive train was brought back into operation quickly. In this case, Siemens received information about the failure and could also refer to drive data including a fault log and event log. Historical data showed that the customer could fix the problem on its own – no need to call in field service staff. The Siemens service experts also provided support for implementing corrective steps. Through the digital-based service, 11 hours could be saved in rectifying the problem.

Digital Drive Train Services also enable long-term data analysis and trend evaluations, which serve as a basis for detailed condition assessments as well as specific service recommendations. In one instance, data collected at a customer installation showed that a bearing was about to fail as a result of inner ring damage. The bearing repair was then added to the activities for an upcoming scheduled planned downtime. By doing so, an unplanned shutdown of around eight days could be completely avoided.

Digital Industry Services for gearless mills

The digital service isn't just for medium- and high-voltage applications, but also for gearless mill assets. In mining operations, these drives are mission-critical equipment. This key equipment, if not functioning, can cause bottlenecks that impact mine productivity, so it is essential that uptime is kept high. Thus the ability to correctly assess the condition of the drives and associated sub-assets grows in importance.

With this in mind, Siemens also provides drive train analysis for gearless mill assets. The solution takes into account the specific requirements and behavior of a gearless motor, yet also covers all components – including power and cooling equipment, drives, the mill itself and the e-house. The data

collected from sensors on the different units is preprocessed at the site and transferred to a central cloud. A customer dashboard visualizes all relevant status information. The plant operator gets details on which assets are connected, their status in regard to maintenance specific KPIs, and an overview of specific alerts and notifications. The name of the Siemens service is Asset Health Analytics for Gearless Mills.

Continuous monitoring

Asset Health Analytics for Gearless Mills employs cloud-based algorithms and models to aid service experts in continuously monitoring the condition of the connected assets. In the case of anomalies or pattern deviations, an event analysis is initiated. If a weak spot is identified, an event notification with service recommendations is sent to the customer, followed up with concrete support for troubleshooting and maintenance recommendations – and that really does save time.

Fewer disruptions to ongoing operations and shorter downtimes for maintenance are the direct result of Asset Health Analytics. It goes further, though: the data can also be used to optimize performance, for example with Energy Performance Contracting from Siemens. All in all, this new digital approach to plant care is making reactive maintenance calls and service according to plan a thing of the past. Welcome Service 4.0. ■

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www.siemens.com/mining-digitalization

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Direct benefits of Digital Drive Train Services

- Minimizing of unplanned downtimes due to early detection of anomalies
- Shorten unplanned downtimes due to faster troubleshooting
- Improved maintenance scheduling based on better knowledge of equipment condition