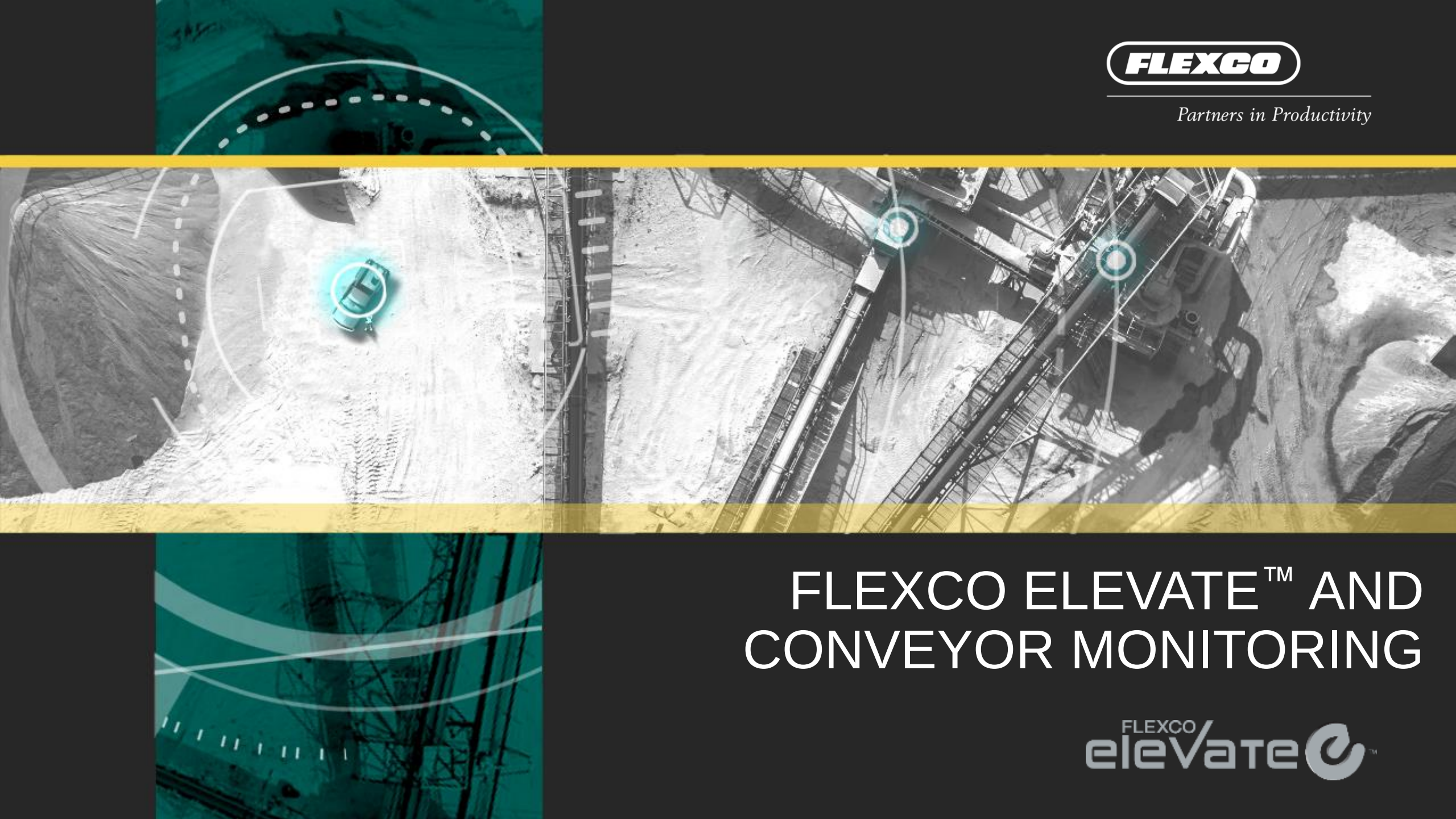


FLEXCO

Partners in Productivity

FLEXCO ELEVATE™ AND CONVEYOR MONITORING

FLEXCO eleVate™

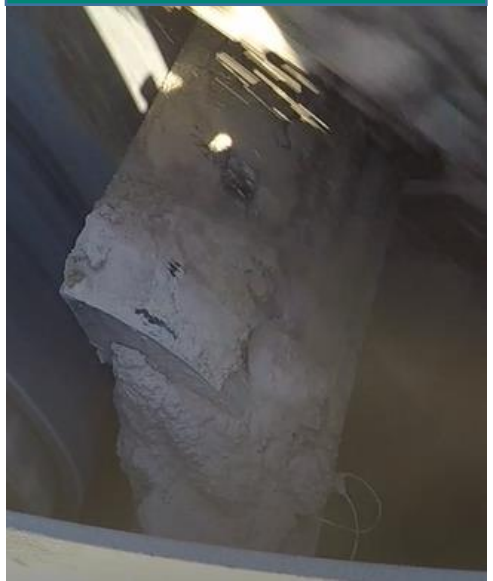
SOLVING TODAY'S MOST CRITICAL ISSUES

Flexco Elevate™ is a real-time, remote monitoring solution that leverages the power of action-oriented insights to bring transparency and predictability to your operation.

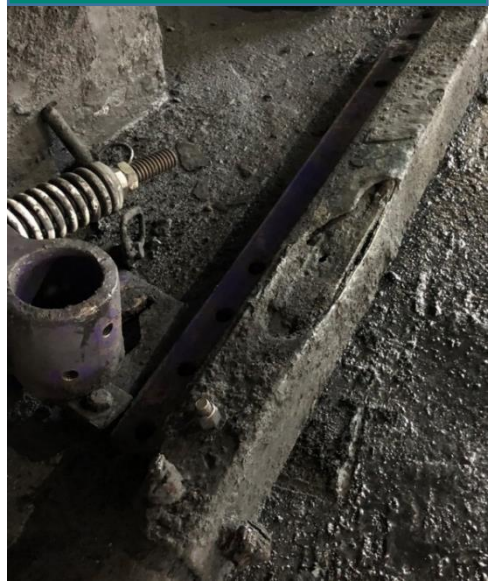
EMPLOYEE SAFETY & TIME MANAGEMENT
Wasting time on inspections

BELT HEALTH
Maintaining optimal belt condition

PRODUCT WEAR
Changing parts too soon or too late



FAILURE MODES
Inadequate maintenance routine



CARRYBACK
Unnecessary maintenance and part damage

WHAT IS FLEXCO ELEVATE™

i3 DEVICE

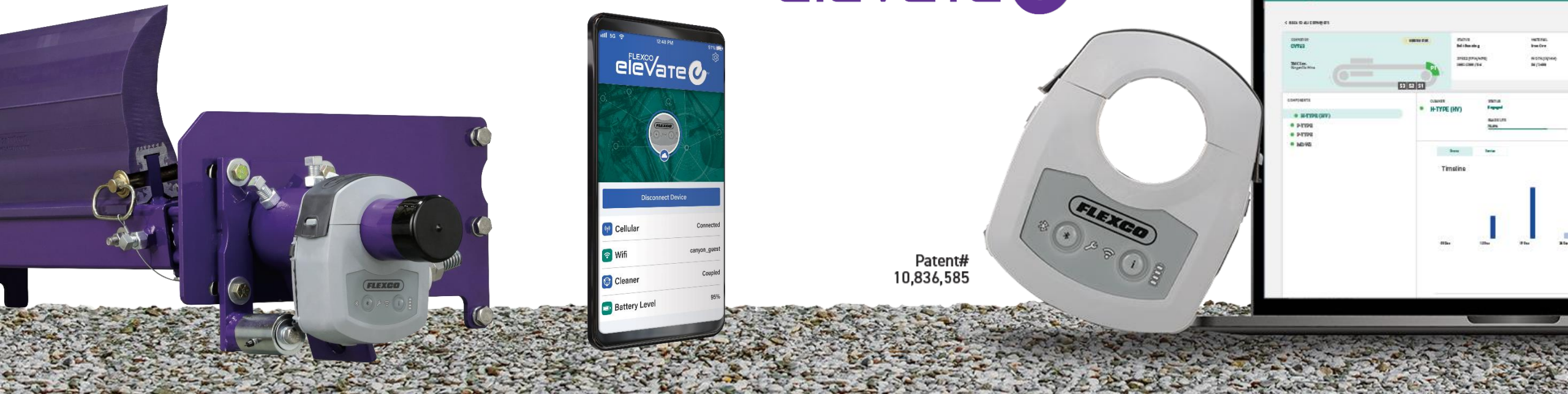
- Sensor, communication & power in a single unit—no need for additional equipment

i3 MOBILE APP

- Create digital service records

i3 DASHBOARD

- Remotely monitor real-time insights



DECREASE MAINTENANCE COST & TIME

Flexco Elevate™ takes the guesswork out of tasks by highlighting predictive insights early, and often.

Benefits in Practice:
Time wasted performing inspections and travelling to each cleaner.

Reactive practices can be caused by a lack of experienced labor and a lack of information necessary to address a situation before it becomes an issue.

Benefits in Practice:
Cleaner needs anticipated and safety hazards minimized with historical insights in the remotely accessible i3 Dashboard.

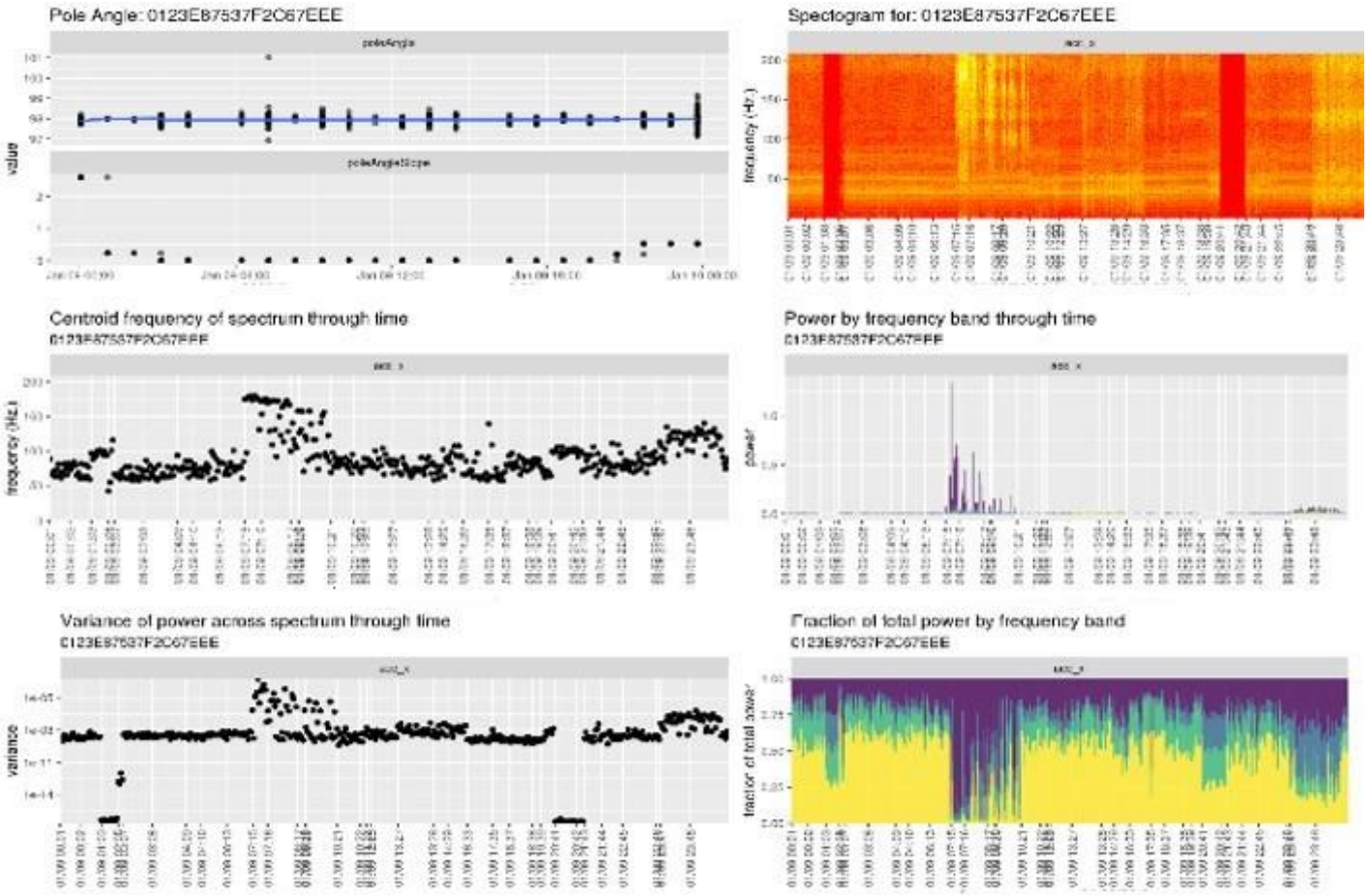
Maintenance time can be reallocated when teams shift from a reactive to predictive strategy.

Benefits in Practice:
30% time saved and decreased exposure to potential hazards thanks to setting a maintenance plan.

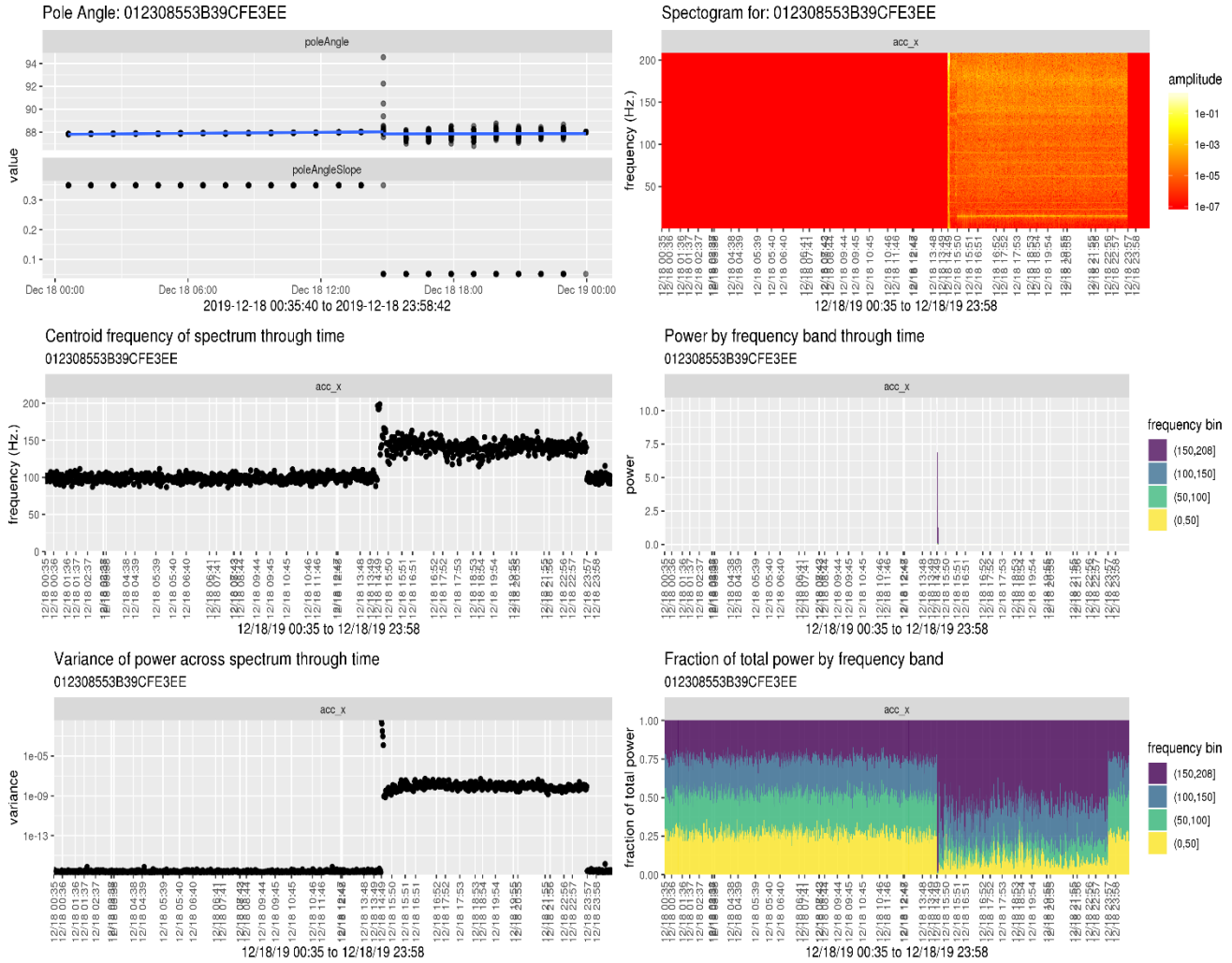
FLEXCO ELEVATE™ IN THE FIELD

DATA GATHERING AND GROWTH OF INSIGHTS

- Reviewing thousands of data points that are co-related to real observations and events.
- As additional data is gathered over time and additional devices, further correlations will be gained
- Pinpoint more specific failures and additional belt performance insights will be gained
- All is software/AI related, all seamlessly updated to the devices via over-the-air updates and software updates.



REAL WORLD APPLICATION…



REAL RESULTS, REAL IMPACT

Mine in the southern US implemented Flexco Elevate™ and avoided costly damage to cleaners, lagging and the conveyor belt—saving thousands of dollars and time.

i3 DASHBOARD OBSERVATION
Several abnormal and chatter events for this MMP precleaner prompted an on-site investigation.

Insight Name	Cleaner Type	First Insight Time
Abnormal event detected	MMP	8/25/2020, 9:41:00 PM
Abnormal event detected	MMP	8/24/2020, 9:28:00 PM
Abnormal event detected	MMP	8/24/2020, 8:41:00 AM
Chatter detected	MMP	8/23/2020, 11:09:00 AM
Abnormal event detected	MMP	8/23/2020, 10:53:00 AM
Abnormal event detected	MMP	8/22/2020, 11:54:00 AM
Chatter detected	MMP	8/22/2020, 9:26:00 AM
Abnormal event detected	MMP	8/21/2020, 5:43:00 AM
Chatter detected	MMP	8/21/2020, 5:43:00 AM

ON-SITE INVESTIGATION
A cleaner pin came loose and the MMP blade traversed to the edge of the belt, eventually contacting the pulley lagging.

DIGITAL, PHYSICAL CONNECTION
The unlocked / unsupported blade caused the abnormal vibrations which triggered action before further damage occurred.

REAL RESULTS, REAL IMPACT

Quarry in the southcentral US implemented Flexco Elevate™ and managed to prevent uneven blade wear, cleaner damage, poor cleaning performance and eventually possible belt damage.

i3 DASHBOARD OBSERVATION
Following a tamper event during the install, the cleaner experienced abnormal events. At times, new cleaners and new belts can trigger abnormal events when they start up, but the repeated events day after day prompted investigation.

Insight Name	Cleaner Type	First Insight Time
Abnormal event detected	Y-TYPE	4/16/2020, 6:51:00 AM
Abnormal event detected	Y-TYPE	4/15/2020, 6:49:00 AM
Abnormal event detected	Y-TYPE	4/14/2020, 6:52:00 AM
Abnormal event detected	Y-TYPE	4/13/2020, 6:57:00 AM
Tampering detected	Y-TYPE	4/10/2020, 12:39:00 PM

ON-SITE INVESTIGATION
The Y-type had been inaccurately installed causing uneven contact with the belt leading to uneven wear and poor cleaning performance. From first glance nothing looked wrong, but upon closer inspection based on the frequent alerts the issue was discovered.

REAL RESULTS, REAL IMPACT

Port in Europe implemented Flexco Elevate™ and discovered previously “hidden” issues like poorly maintained equipment which increased the likelihood of belt damage and downtime.

i3 DASHBOARD OBSERVATION
Persistent chatter and abnormal events were observed in the i3 Dashboard and the crew thought it was because the belt ran dry much of the time.

Insight Name	Cleaner Position	Cleaner Type	First Insight Time
Abnormal event detected	SECONDARY 1	MHS	9/16/2020, 10:51:00 PM
Abnormal event detected	SECONDARY 1	MHS	9/15/2020, 8:40:00 PM
Abnormal event detected	SECONDARY 1	MHS	9/15/2020, 3:51:00 PM
Chatter detected	SECONDARY 1	MHS	9/15/2020, 12:48:00 PM
Chatter detected	SECONDARY 1	MHS	9/14/2020, 3:27:00 AM
Abnormal event detected	SECONDARY 1	MHS	9/13/2020, 9:24:00 PM
Chatter detected	SECONDARY 1	MHS	9/13/2020, 12:46:00 PM

ON-SITE INVESTIGATION
Upon inspection, the crew found the MHS cleaner had seized from lack of maintenance, causing no relief points and transferring all the vibration through the pole versus being absorbed in the cushions and spring. The alerts drove the team to take action, increasing cleaning efficiencies and reducing risks across the site.

REAL RESULTS, REAL IMPACT

Quarry in the southcentral US implemented Flexco Elevate™ and was instantly alerted of abnormal events which was the result of a problematic mechanical splice which could have caused excessive belt cleaner wear and belt damage near the splice – potentially leading to a splice failure.

i3 DASHBOARD OBSERVATION
Persistent abnormal events surfaced immediately after the i3 Device was installed and the belt was started up. These alerts prompted further investigation.

Insight Name	Cleaner Position	Cleaner Type	First Insight Time
Abnormal event detected	PRECLEANER 1	MMP	8/8/2020, 11:37:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/7/2020, 8:01:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/6/2020, 8:04:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/5/2020, 8:00:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/4/2020, 8:00:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/4/2020, 2:53:00 AM
Abnormal event detected	PRECLEANER 1	MMP	8/2/2020, 8:41:00 PM
Abnormal event detected	PRECLEANER 1	MMP	8/1/2020, 8:40:00 PM
Abnormal event detected	PRECLEANER 1	MMP	7/31/2020, 8:08:00 PM
Abnormal event detected	PRECLEANER 1	MMP	7/30/2020, 8:08:00 PM

ON-SITE INVESTIGATION
The abnormal alerts were caused by an unskived fastener installation. While the splice posed no immediate threat, the cleaner was slowly wearing the belt down after the fasteners and it would have caused more damage if not addressed.

REAL RESULTS, REAL IMPACT

Mine in the southeastern US implemented Flexco Elevate™ and detected abnormal events with chatter events, which led to an investigation of the system. A failing splice was determined to be the cause as well as a poorly tensioned cleaner, respectively. Ultimately, the savings from a potential dropped belt were in the tens of thousands with significant downtime.

i3 DASHBOARD OBSERVATION
Several abnormal and chatter events for this MMP precleaner prompted an on-site investigation.

Insight Name	Cleaner Type	First Insight Time
Abnormal event detected	MMP	8/25/2020, 9:41:00 PM
Abnormal event detected	MMP	8/24/2020, 9:28:00 PM
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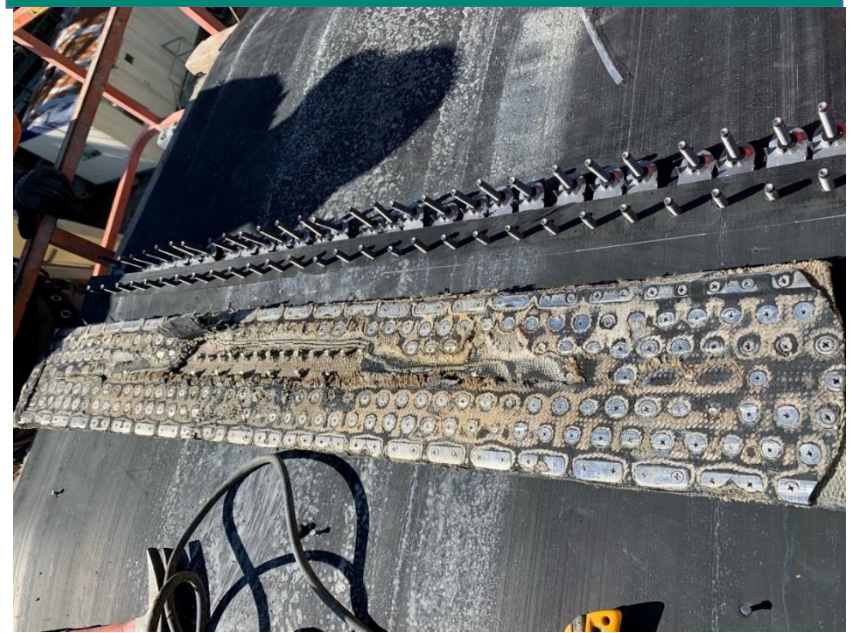
Chatter detected	MMP	8/21/2020, 5:43:00 AM

ON-SITE INVESTIGATION
The splice degradation was severe enough to nearly fail and warrant replacement. If undiscovered, the belt could have failed.



DIGITAL, PHYSICAL CONNECTION
Determining abnormalities in the running condition led to discovering failure in a predictive manner.

REAL RESULTS, REAL IMPACT

Transfer conveyor in US implemented Flexco Elevate™ and discovered previously “hidden” issues like poorly maintained equipment which increased the likelihood of belt damage and downtime.

i3 DASHBOARD OBSERVATION
Persistent High G Events were observed in the i3 Dashboard, and the cause was unknown until “ground truth” gathering with an onsite investigation could take place.

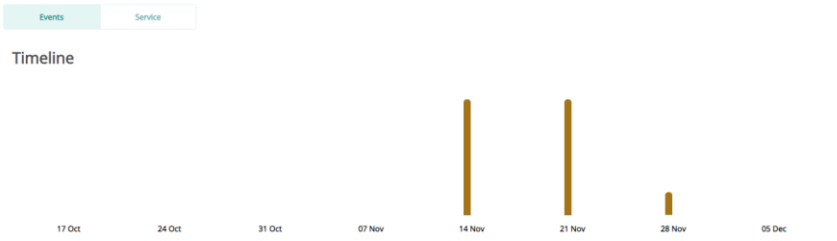
☐	High G Event	Addressed	30 Nov 2021 08:18 am
☐	High G Event	Addressed	30 Nov 2021 08:01 am
☐	High G Event	Addressed	30 Nov 2021 08:00 am
☐	High G Event	Addressed	30 Nov 2021 07:52 am
☐	High G Event	Addressed	30 Nov 2021 07:46 am
☐	High G Event	Addressed	30 Nov 2021 07:24 am
☐	High G Event	Addressed	30 Nov 2021 07:16 am

ON-SITE INVESTIGATION
Upon inspection, the crew found the EZP1 cleaner tensioning system had been set improperly, causing no relief points and transferred all the vibration through the pole due to no absorption from the spring. The spring arm was against the hard stop. The alerts drove the team to act and correct the issue on multiple cleaners, increasing cleaning efficiencies and reducing risks across the site.

REAL RESULTS, REAL IMPACT

Mine in the northern US implemented Flexco Elevate™ and avoided costly damage to the cleaner and the conveyor belt—saving thousands of dollars in material and time.

i3 DASHBOARD OBSERVATION
Several High G events for this H-Type precleaner prompted an on-site investigation.



EVENTS	STATUS	TIMESTAMP
High G Event	Addressed	24 Nov 2021 06:06 pm
High G Event	Addressed	24 Nov 2021 05:19 pm
High G Event	Addressed	24 Nov 2021 05:12 pm
High G Event	Addressed	24 Nov 2021 05:03 pm
High G Event	Addressed	23 Nov 2021 01:24 pm

ON-SITE INVESTIGATION
A cleaner segment appeared to have material build-up behind it, causing it to protrude from the belt.

DIGITAL, PHYSICAL CONNECTION
Lack of segment relief with the rock/sticky material build-up eliminated system relief and caused high force transmissions.

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THANK YOU
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