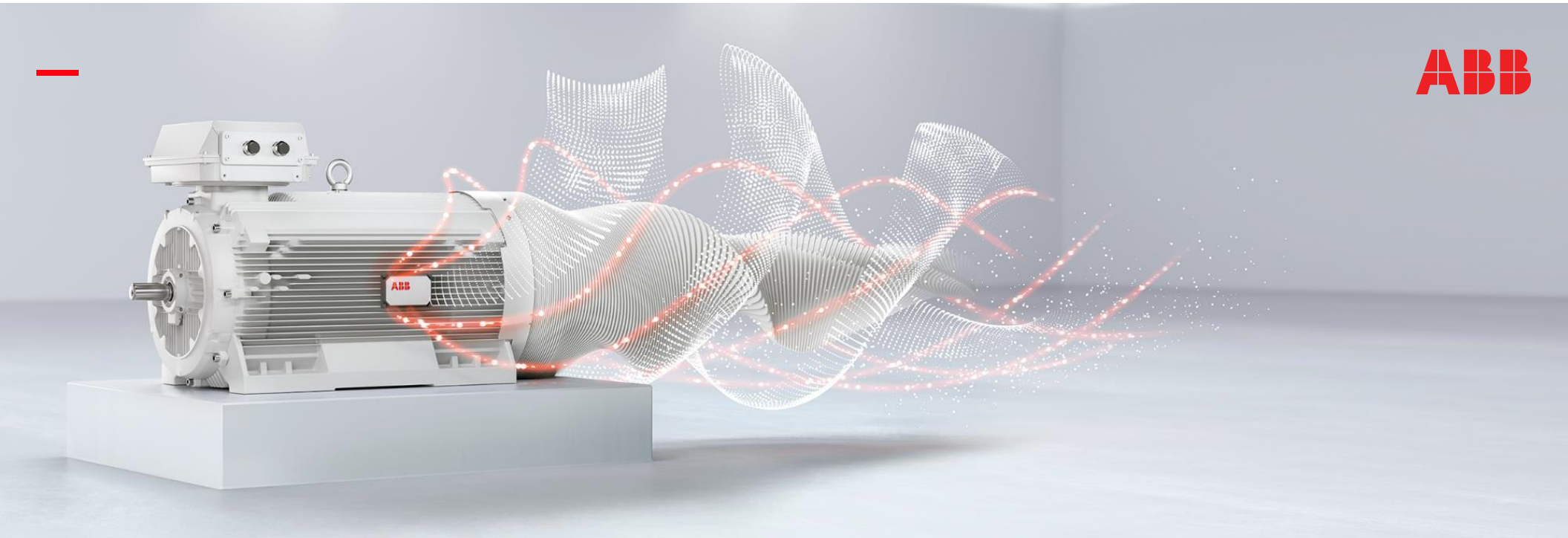


TECHNICAL DAYS, APRIL 2017

ABB Plant Fingerprint Assessment

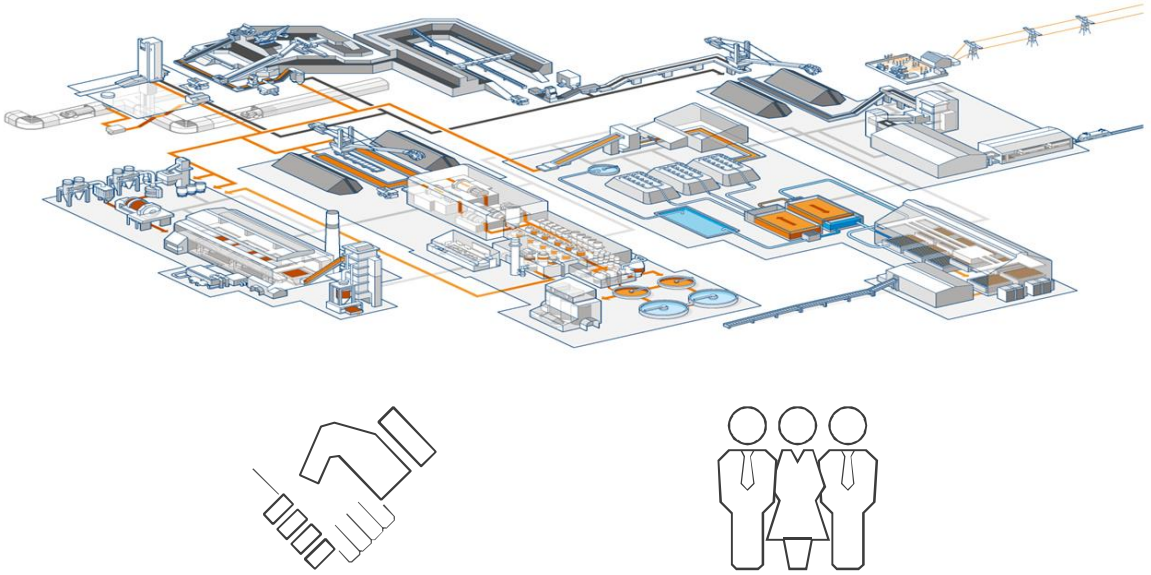
Optimizing Operations

Fernando Tobar, Country Service Manager

ABB Plant Fingerprint

What It is?

- Collaborative process to understand your value chain and identify opportunities for continuous improvement
- Holistic approach for improved plant performance
- Reliability centered approach for electrical equipment
- Quantify costs and benefit in economic (ROI) and strategic terms
- Span entire asset life cycle
- Develop a catalyst for innovation



Objective

Identify highest business impact actions for optimizing operations:

- Reduce life cycle cost of ownership
- Increase production, quality, and flexibility
- Improve compliance and safety performance
- Enhance skills and competence
- Predict cost and cash flows
- Identify and manage risks

Plant Fingerprint

Automation equipment performance assessment

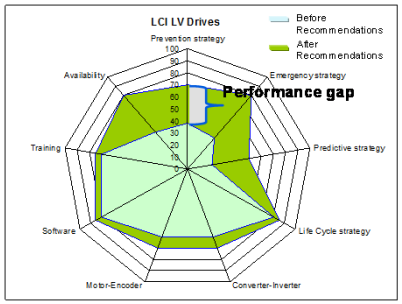
Assessment Results

The evaluation compares your equipment's and automation performance with best practices and best performing plants

The assessment establishes a performance gap

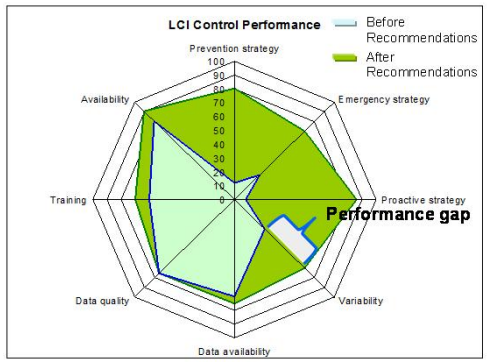
The analysis included recommendations to close the performance gap

The financial impact of closing the performance gap is calculated



GAP Analysis

DRIVE Systems



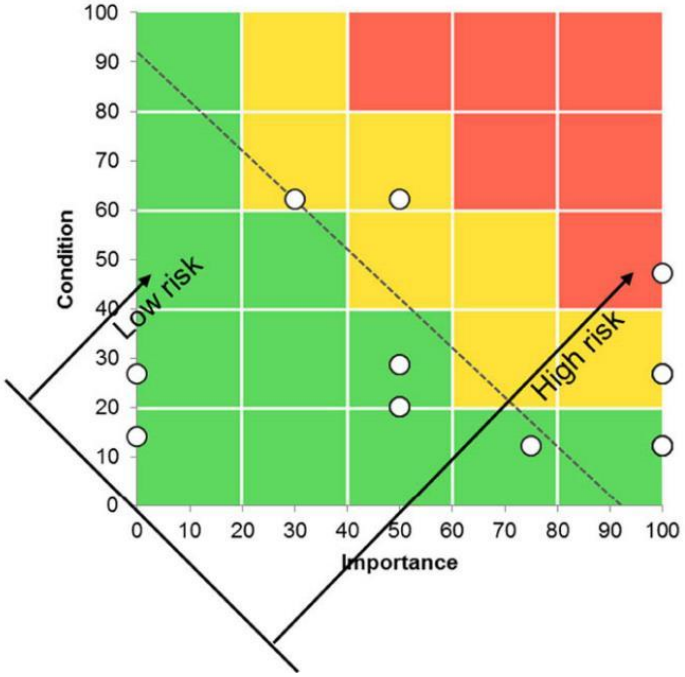
GAP Analysis

DCS Systems

Plant Fingerprint

Electrical equipment assessment

How we do	Substation assessment is a risk assessment of substations based on the components condition evaluation and importance analysis
What we delivery	The overall customer oriented objective, is to provide grid owners a decision base for planning future investment budgets
... and the result	Technical report, describing a current situation Identified risks and related consequences Recommended actions, e.g. diagnostics, maintenance, upgrading, replacement, etc List of priority, based on calculated risks



Business Impact of Strategic Collaboration

What is the value?

We have helped customers:

- Raise production availability 5%+
- Extend equipment life at 1/10th of the cost of new equipment
- Optimize process performance by up to 20%
- Improve productivity by 5%
- Increase Overall Equipment Effectiveness by 2-5%

- Reduce downtime
- Improve production & maintenance efficiency
- Energy savings
- Reduce risk & improve safety
- Life cycle management

Structured Approach

Identify Business Drivers

- Production output
- Asset performance
- Process optimization
- Maintenance
- Skilled resources
- Energy
- Life Cycle Mgt
- Safety
- Environmental

Perform Site Assessment

- Plant Fingerprint:
- Equipment performance
- Electrification RCM
- Process control effectiveness
- Reliability program
- Business priorities
- Unplanned downtime
- Plant risks
- Financial analysis

Review Findings

- Findings
- Recommendations
- Business case
- Priorities
- Costs / ROI

Implement Actions

- Action plan
- Scope development
- Commercial agreement
- Mobilize resources
- Governance/Reporting:
  Results
  KPI's
  Value creation
  Contract mgt
- Continuous improvement

Plant Fingerprint

Summary

The Plant Fingerprint utilizes a unique approach to quickly assess equipment performance and risk of a plant typically within a week onsite.

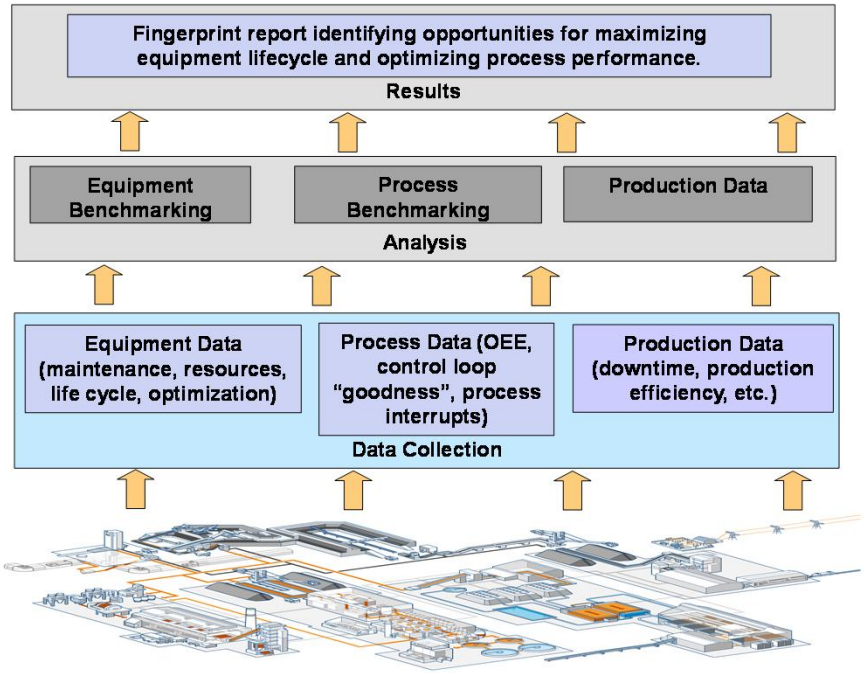
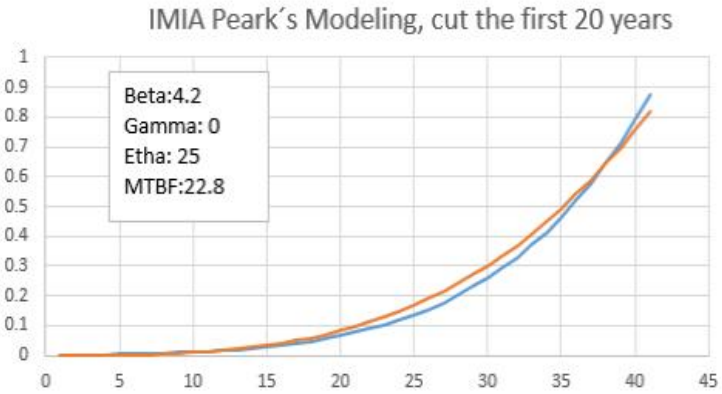


ABB Footprint Reliability

Successful Cases: Open-Pit Mine, Determinate lifecycle of main substation

- Mine of the north of Chile
- More of 20 years of operations
- Customer want to know the wear status of components of the main substation

Main Transformers



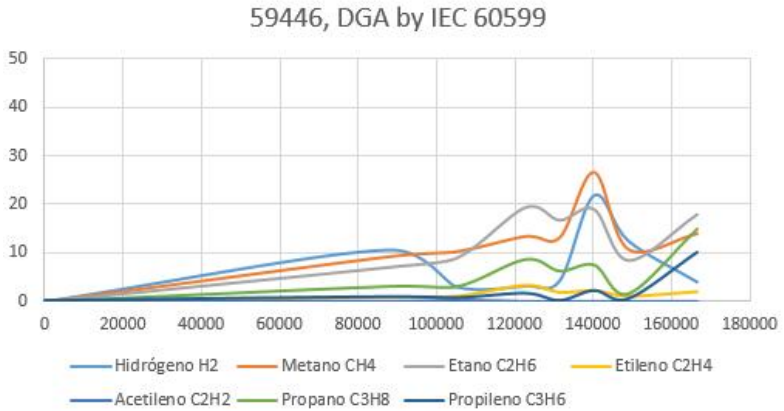
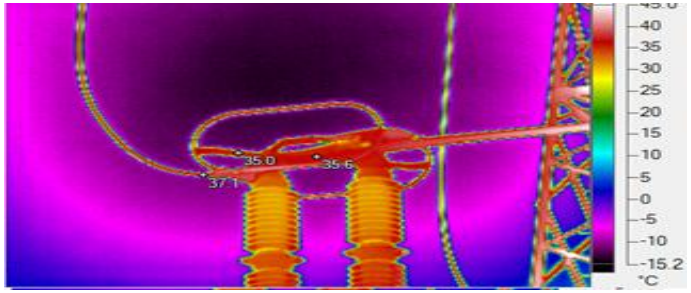
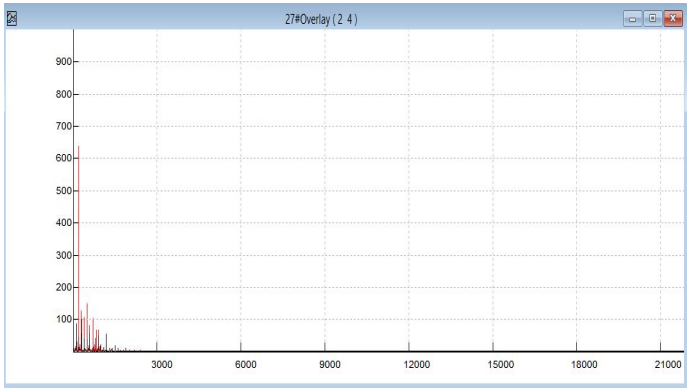


ABB Footprint Reliability

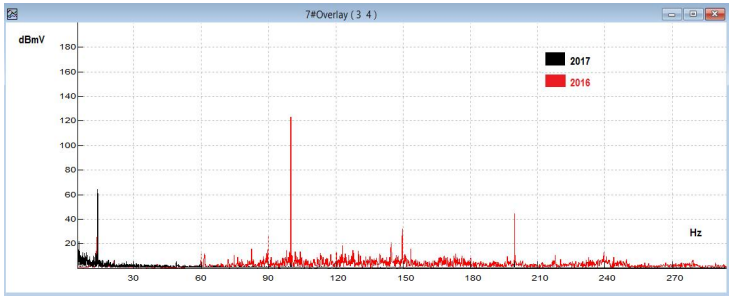
Successful Cases: Open-Pit Mine, Determinate lifecycle of main substation

Main Substation





Main Switchgear



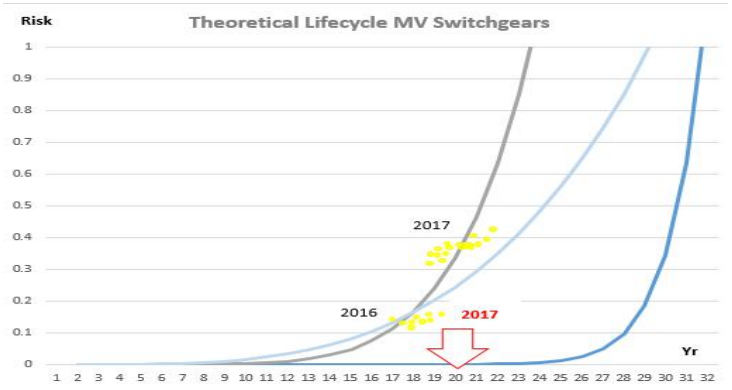


ABB Footprint Reliability

Successful Cases: Open-Pit Mine, Determinate lifecycle of main substation

Main Results for the Customer

- Check the theoretical lifecycle vs real lifecycle
- Extend the frequency of maintenance
- Detect early failures (non-solve by maintenance) in Circuit Breaker (Main Switchgear)
- Detect internal failures in High Voltage Circuit Breaker
- Modeling the level of risk of the component under analysis

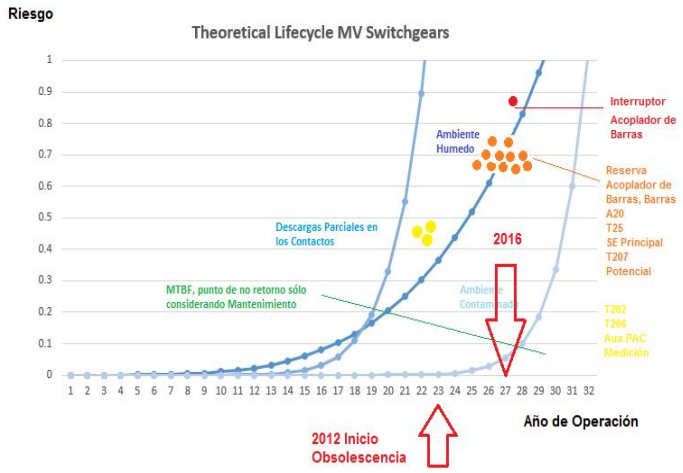
ABB Footprint Reliability

Successful Cases: Primary Crusher, Obsolete devices

- Mine of the central zone of Chile
- More of 35 years of operations
- Customer want to know how many years could survive the obsoletes devices

Main Switchgear

Before Maintenance



After Maintenance

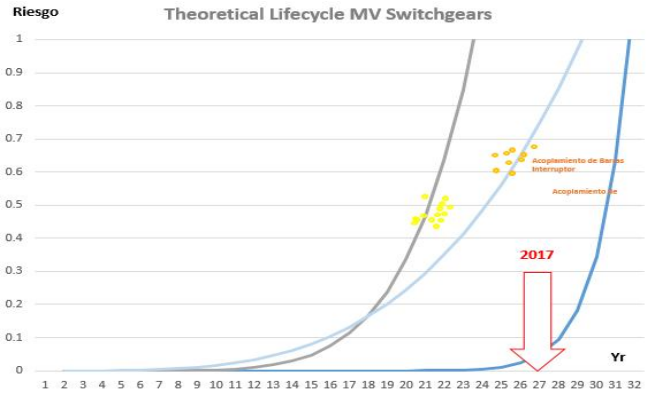


ABB Footprint Reliability

Successful Cases: Primary Crusher, Obsolete devices

Main Switchgear

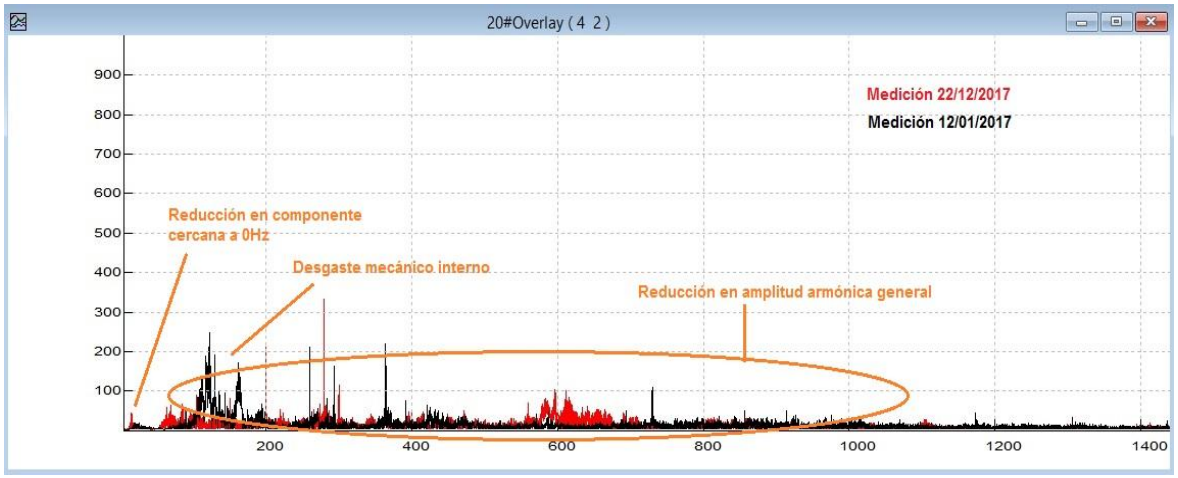


ABB Footprint Reliability

Successful Cases: Primary Crusher, Obsolete devices

Main Results for the Customer

- Detect the risk value at the beginning of the fingerprint
- Check the component of the risk
- Reduction of the risk by maintenance (non-zero reduction due the obsolesces)
- Retrofit like a business case for the risk improvement

ABB Minerals Plant Fingerprint

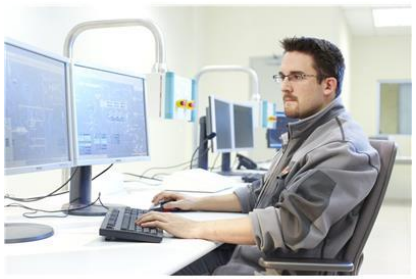
Conclusion

Opportunity

- Minerals plants want to increase production and improve efficiencies
- ABB has products and services to help increase production & efficiency

Solution

- Fingerprint identifies high-value opportunities to maximize equipment life, optimize process performance, and improve total plant reliability



Why ABB?

- Large installed base of power and automation technology in minerals
- Specific application knowledge for minerals plants
- Unique combination of electrical, automation and operational services