



# Mining Interoperability & Smart Mining

Future Mining Summit 2017 GMSG

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# ¿ What is Smart Mining ?

Action

To integrate knowledge, technology and decision making

Object

based on data record, processing and modeling

Purpose

in order to achieve a productive, safe and sustainable mining.

# Mining Interoperability

“The ability of information and communication technology (**ICT**) systems, operational technology (**OT**) systems and the **business processes** they support to exchange data and to enable both the **sharing of information and the transfer of control**.

This in turn, provides the ability of **systems and organizations to seamlessly work together** (inter-operate).”

– Mining Interoperability Study (BHP Billiton, Rio Tinto, Roy Hill, MMH & CORFO)

# Why interoperability in mining ?

- Raising needs to support and control:
  - End-to-end process integration
  - Remote operations
  - Multi-vendor equipment automation
  - Massive field data gathered, managed and processed

# Mining Interoperability Working Group GMSG

To facilitate the development and adoption of open systems and solutions, and international standards for interoperability of all mining equipment, processes, and operating personnel. Ensuring that the industry automation and integration will not be constrained as new technologies and processes emerge.

# Mining Interoperability Working Group GMSG

## Business case and Requirements

Identify and describe the business/operating requirements of interoperability in mining, capturing industry challenges, and communicate value of interoperability.

## Guidelines

- Technical terminology
- Interoperability Use Cases (Objects & Equipments, Data, Process mine, and Process mine-to-mill)
- Interoperability Reference Architecture Framework

Collaborative WG's participation: Autonomous Guideline, Interoperability, and Open Data working groups

# From Chile to the International Mining Industry

1. International organization to promote the development and adoption of open standards for mining interoperability.
2. Maturity model and self assessment system for mining interoperability capabilities.
3. Technical Committee Mining ISO TC-82

# International organization for development and adoption of open standards in mining interoperability.

- Participation and commitment of Codelco y BHP
- Fundacion Chile is designing and creating the organization.
- Involved in the design are Codelco Tech, CSIRO Chile (Mining3), International Society of Automation (ISA).



# Maturity model and self assessment system for mining interoperability capabilities

To define, register and assess an interoperability maturity model and its capabilities for mining companies and suppliers.

- Release of first version of maturity model
- Self-assessment system to measure these capabilities with suppliers and mining companies.

# ISO Mining Technical Committee TC-82

- Get an active role in reviewing, voting and proposing new mining standards for this committee.
- Active participation of 15+ industry and government organizations in mirror committee.
- Organized and hosted the international meeting of TC-82 last September.



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