

Global Mining Standards and Guidelines Group

www.globalminingstandards.org



Global mining collaboration
on solutions to common
industry problems, needs
and technology through
standards, guidelines
and best practices.

*Creating community to drive
operational excellence.*

Partner
Organizations



AusImm
THE MINERALS INSTITUTE

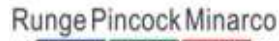




Mandate: Global mining collaboration on solutions to common industry problems, needs and technology through standards, guidelines and best practices.



Global Mining Standards and Guidelines Group



Suncor, BHP Billiton, SMART Systems, Desert Falcon Consulting



Collaboration





Working Groups

6 Active Working Groups

- Data Access & Usage
- Situation Awareness
- Technology & Connectivity
- Underground Mining
- Operational Safety & Risk Management
- Industrial Comminution Efficiency

3 Pending Working Groups

- Collision Avoidance Technology
- Integrated Operations
- Occupational Standards & Skills/Training
- Mine Planning & Engineering





Current Projects



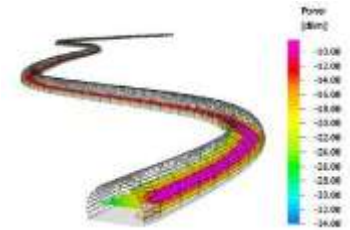
Access onboard data



Common shovel user interface



Safety: 3-tiered strategy



Underground Communications Infrastructure



Data requirements & KPIs



Comminution efficiency



GMSG Strategic Plan



Unified Shovel Interface and API

- **Goal:** access/manipulate independent data feeds for visualization on a single unified display

Multiple Phase Roll-out

1. Proof of Concept: shared screen
2. Suppliers send information to screen, define content, display
3. Support shared services from display



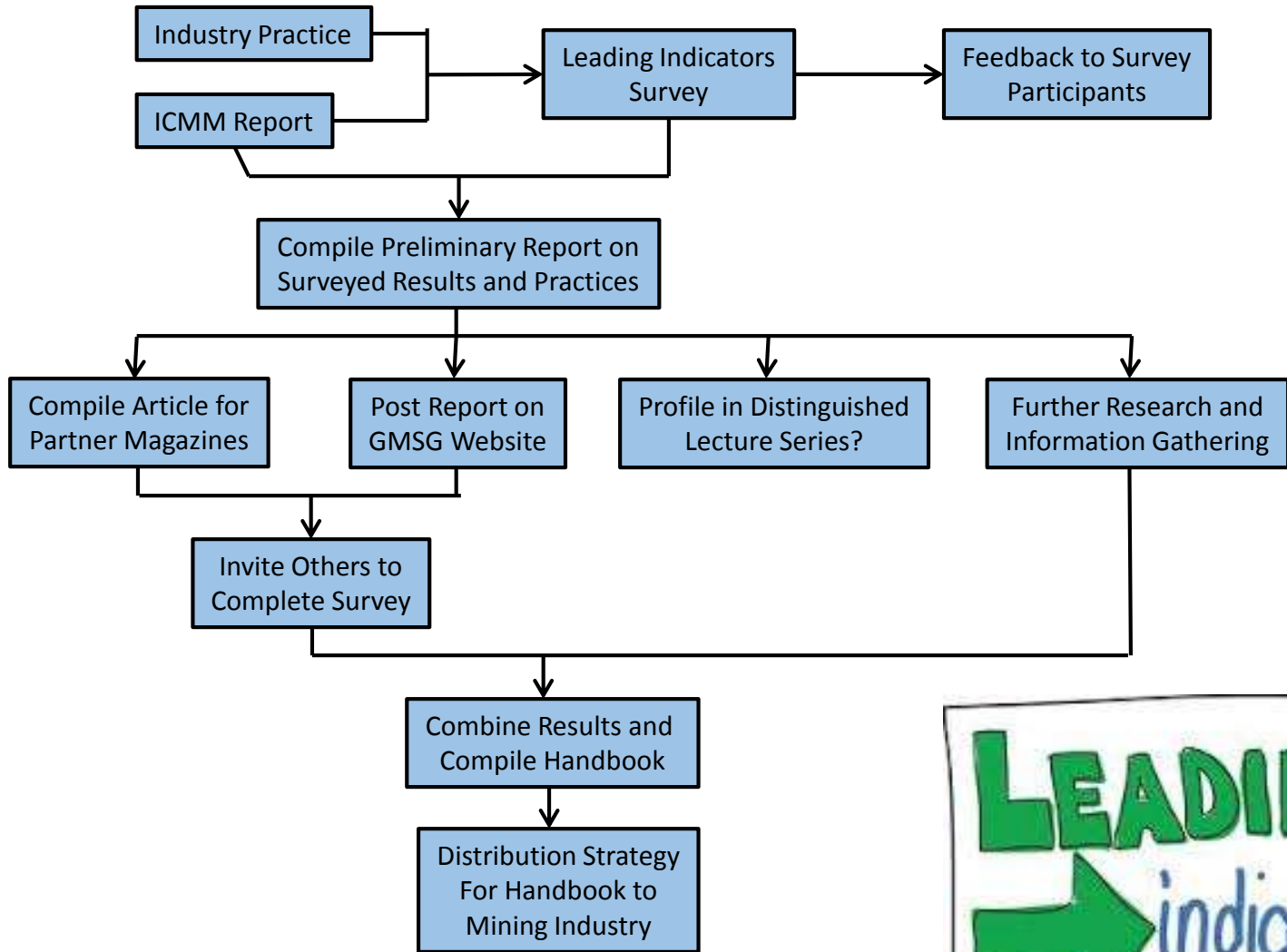


Next Steps: API Development



Global Mining Standards and Guidelines
Operational Safety and Risk Management Group

Leading Indicators for
Mining Safety





Data Usage and Access

Objective: To provide operator open access to information they need

- We are not looking for: Algorithms, supervisory and control data and proprietary data that may be sensitive for competitive reasons.

Survey:

- What does operator need?
- What does OEM have available?

The sub-group will determine the gaps that may exist in the OEM systems and will facilitate agreement on a draft industry standard for the supply of on-board data.



Data Usage and Access

Develop common definitions for KPIs and a consensus Time Model

- Draft built from corporate definitions and KPIs
- 2014: focus groups to build consensus-based final version

Phase 2: Reliability data requirements and KPIs

- Begin later 2014
- Sub-committee forming



Collision Avoidance: New Group

- Open pit and underground
- Testing, selection, implementation of systems
- Many mining companies: large volumes of work
- Regulators getting involved.
- Group leader from CRC Mining

With the use of a collision avoidance system prior to takeoff, this could have been avoided.





ISO TC 82 - Mining

- History
 - 1955 – Founded
 - 1995 – Dormant
 - 2012 – Re-activated
- Current Scope
 - Specialized opencast machinery
 - All Underground Machinery
 - Calculation of mineral reserves
 - Reclamation
 - Design of mining structures
 - Excluded – surface mining equipment

Significant Overlap with

ISO/TC 127 Earth-moving machinery

ISO/TC 195 Building construction machinery and equipment

Liaison with 13 ISO Technical Committees

12 participating countries: Chile, China, Finland, France, Germany, Iran, Russia, South Africa, South Korea, Spain, Sweden, UK
Missing – Canada, Australia, Brazil, USA

Current Development Plans

- 5 Year update of existing 36 standards: 2014 - Mine Wire Ropes
- Continuous Surface Miners
- Shearer loaders and Plough Systems
- Mine Reclamation
- Rock Drill Rigs
- Mobile Underground Mining Machine Safety
- Design Structures for Mining Shafts



ISO Actions and Status

- TC 82 is well underway
- Oct 2013 - Canadian voting member
- Dec 2013 - Attended South Africa TC 82 meeting
- Observations:
 - Missing mining countries—strong European presence and minor mining countries e.g. reclamation(lead by South Korea)
 - TC82 Committee presence dominated by OEMs, Gov't/Regulators, Academics, no operator presence
 - TC127 program directly impacts mining operators – their safety programs and systems, key infrastructure
 - Hazard detection systems, vibrations, energy use, safety: fire, autonomous machines, control systems, test methods, ergonomics,
 - TC82 Mining needs to establish joint projects

ISO Standards

Basis for National standards

Technical requirements for regulations

Mining global harmonization

Help for Canadian manufacturers to export



Canadian Actions and Status

- Establishing Canadian TC82 mirror committee
 - 5 stakeholder groups: Mine Operators, Equipment Suppliers, Service Industry, Gov't/Regulator, General Interest
- Canvassing Canadian expert participation for: wire ropes, underground equipment safety, reclamation, drills, mine shafts structures
- CSA is official standards group administrator/lead
- CSA costs \$60,000/year, proceeding on “good faith”
- May 2013 – CIM Agreed to 5yr fund (\$15-20K), along side other key Canadian mining organizations
- United Nations approach failed with MAC, PDAC, CMIC
 - “Why call me”, Not my job, point to someone else
- Approached CIM to lead for 3 years, while pursuing funding contributors
- Looking to coordinate with USA Tag, and Australian body
- Next ISO TC82 meeting Seoul, South Korea