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# **SMART MAY 2011**

## **Mining Industry Technology Standards for Mobile Mining Equipment**

### **Organizational Evolution**



# The Problem

## Islands of Technology



- High Cost
- Long Time Frames
- Vendor Barriers
- Data Access
- Operator Impact
- Stifling Mines Capability, Opportunities, & Innovation
- Tail wagging the Dog

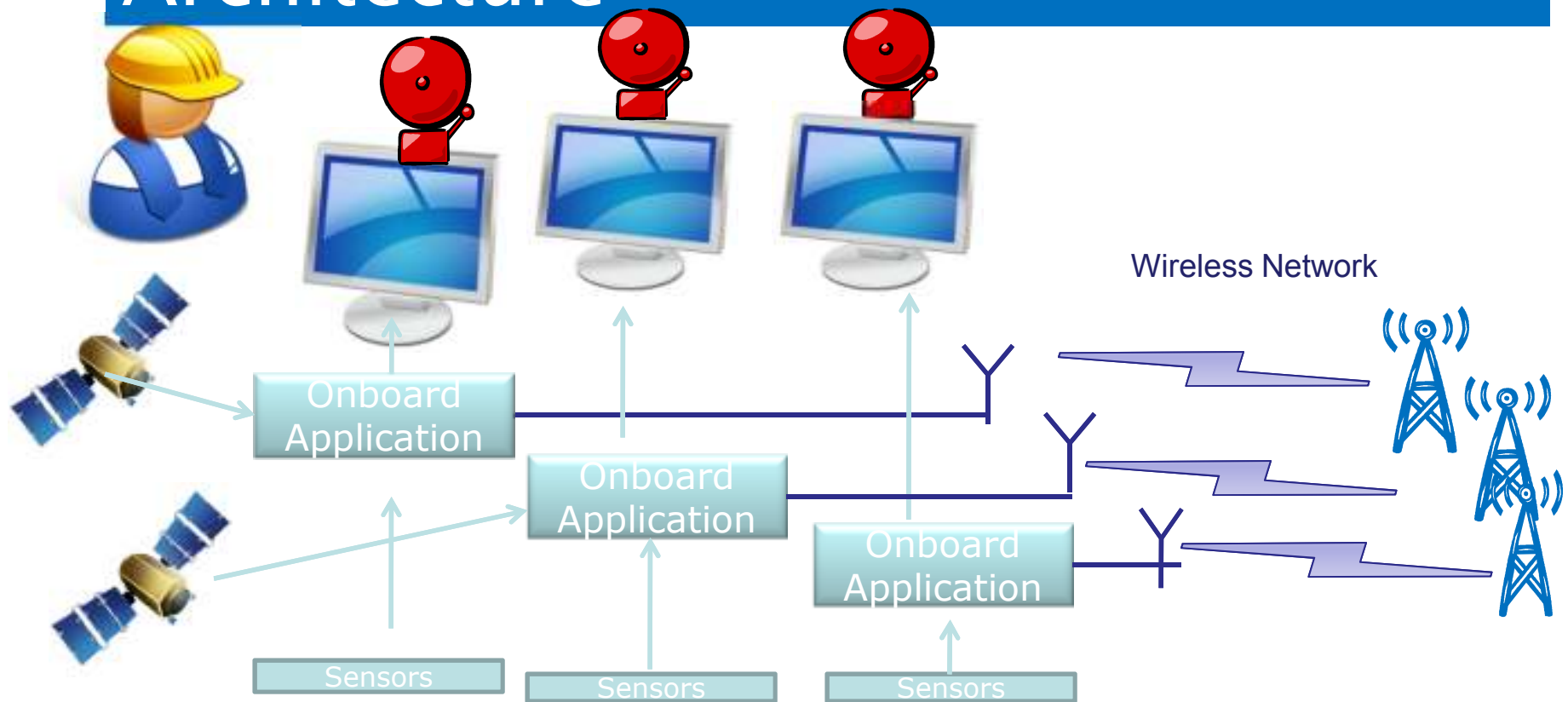


**Unsustainable - Mine Operators future at greater risk**



# The Problem

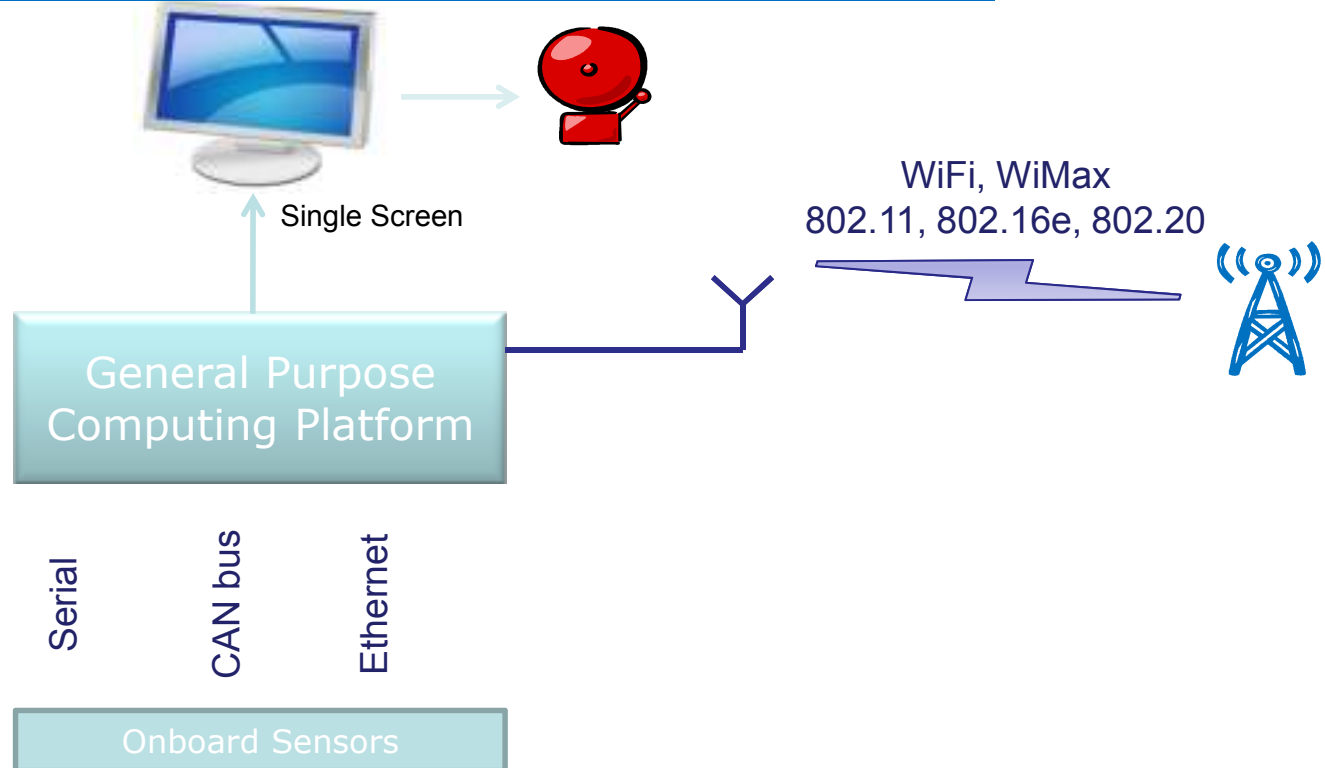
## Proprietary Multi-box System Architecture





# Target Technology

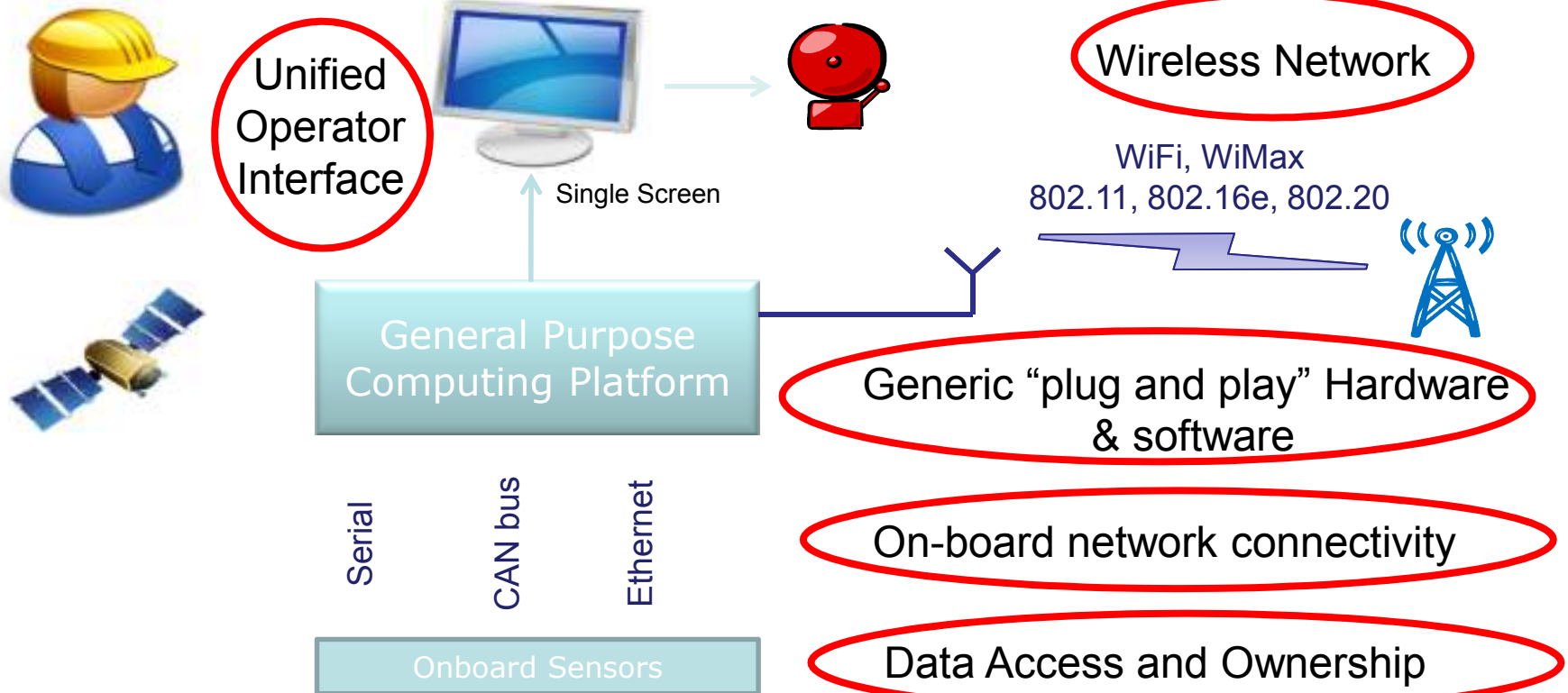
## Open Systems Architecture





# SMART Target Technology Standards

## Open Systems Architecture



**Other Industries have already gone thru this !!**



# Standards “One Voice” History

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- 2000: Started amongst a few mining operators sharing the same pain
- 2005: Formally Organized: charter and plan for OEMs and OTMs:  
Aligned with SMART
- 2005-09: Engaged OEM, OTM; Developed baseline standards and document, Industry communication; continue OEM and OTM engagement
- Results: OTMs onboard, OEMs marginal
- 2010: Industry summit at CIM national – SMART, OEMs, OTMs
  - Achieved agreement in principle
  - Questionable sincerity with several key players
  - Continued issues – data ownership and access
  - Need organizational development, substance, and impact



# Why Change From Smart?

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Very successful mine operators forum for knowledge sharing

- Informal
- No Structure
- No barrier to entry – no cost, no commitment
- No time - meets twice a year
- Any structured activity is separately organized and operated
- All volunteers – day job and life priorities inhibit commitment and progress
- Dependent on key individuals – not necessarily self sustaining
- OEMs skeptical on mine operators sincerity and staying power; Smart does not have matter
- Does not include all stakeholders – OEMs, OTMs, Consultants,
- Too important
- Requires a continuous campaign, drive, and evolution
- Requires an operating structure



# CIM Re-Organization?

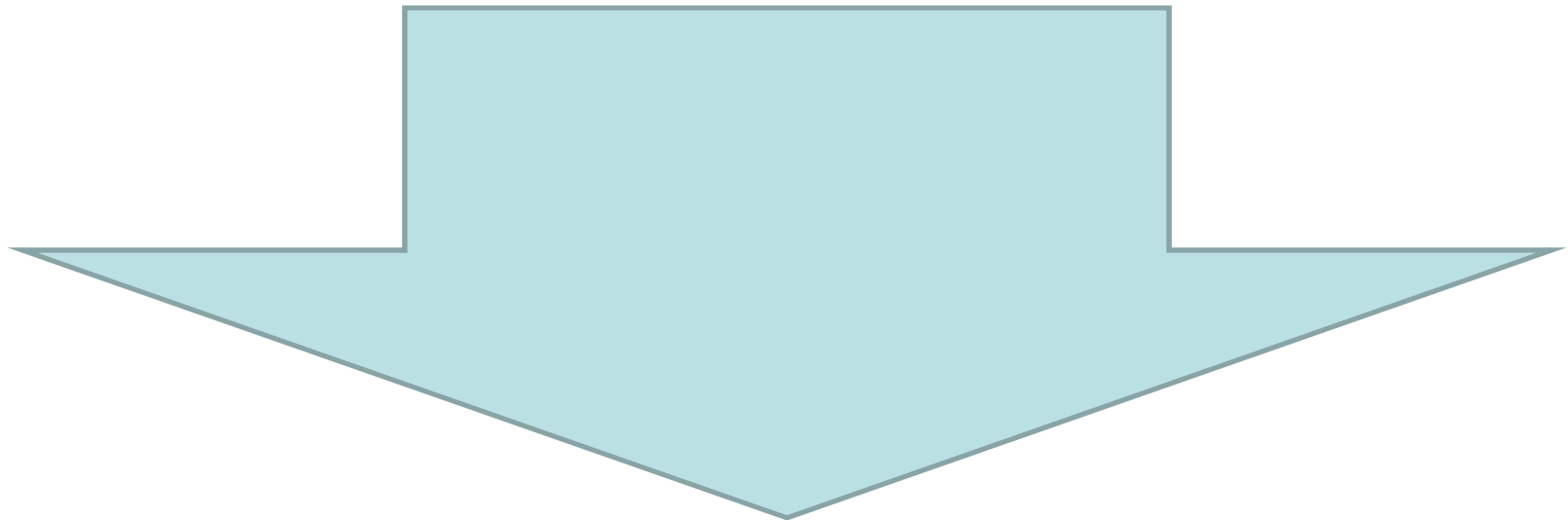
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Coal  
Society

Metals  
Society

Oilsands  
Society

SIMT



Surface  
Mining  
Society

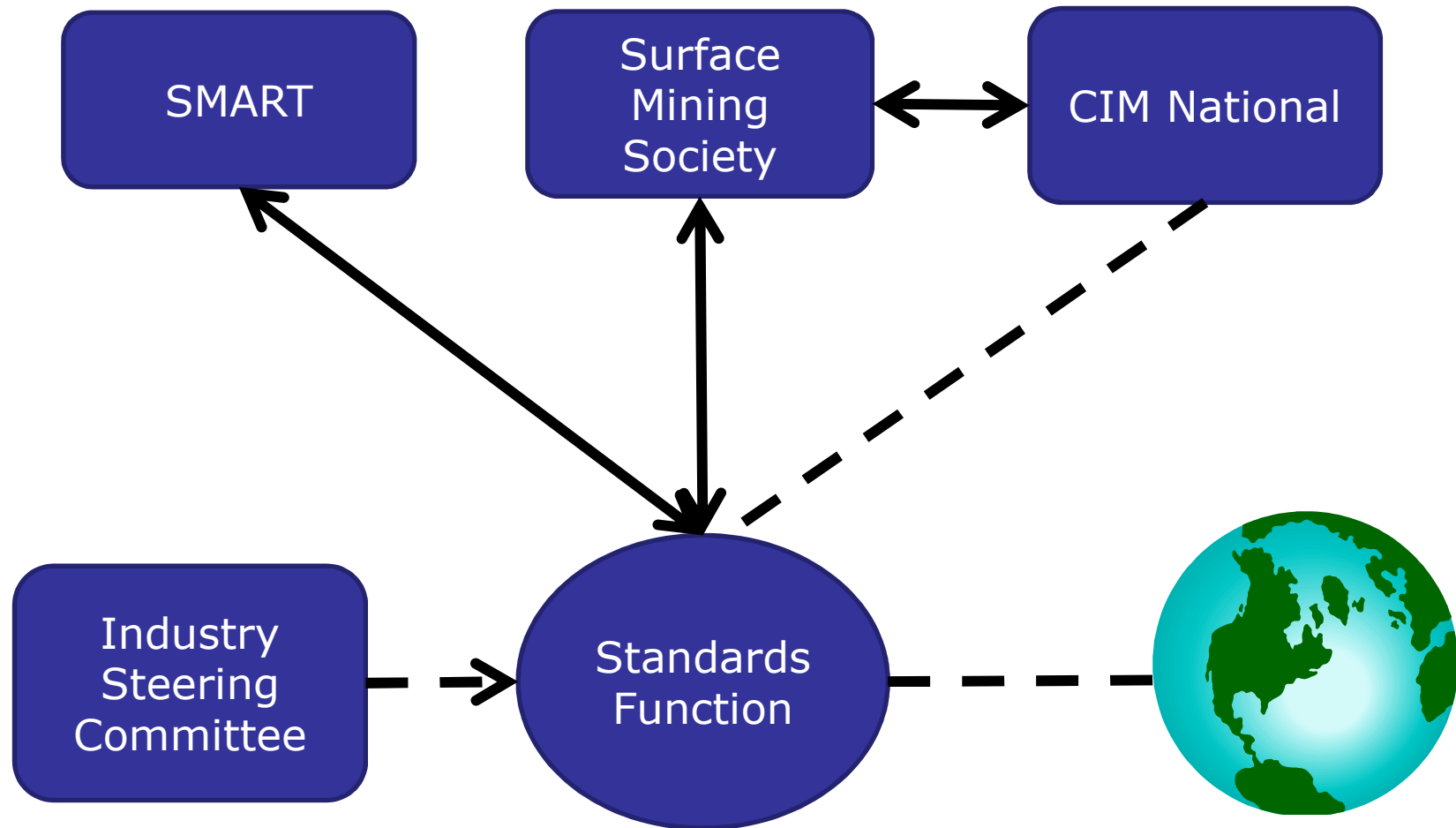
Underground  
Society

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# What will be the Organization

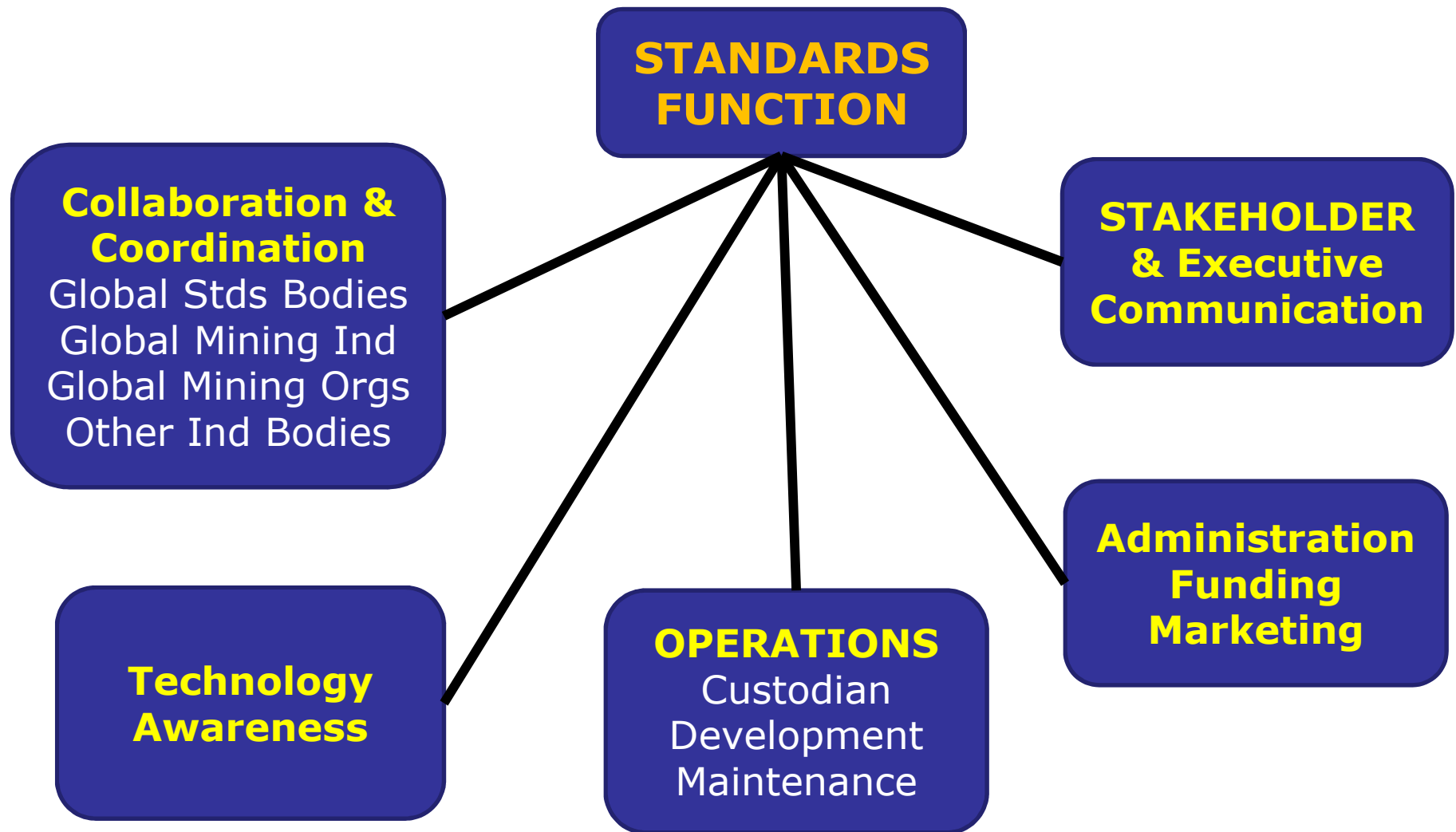
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# Roles & Responsibilities

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## 3 Year Program

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Dedicated Resource – Budget \$150K

Funding – How do we pay for this?

CMIC/Grants - \$25K

Society Fees - \$25K

Industry Corporate Sponsorship -\$100K

+

CIM Administrative Support - \$25K

+

Society Seed Money - \$25K

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# Is There Another Organization?

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CMIC ?

Global Standards Body?

SMART?

Existing Mining Body?

Other?

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# Mine Operator On-board Data Requirements

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## Gathered Equipment Data Detail

Shovels  
BE495

Excavator  
Hitachi

Trucks  
Cat793

Drills  
BE49R

Dozers

### Analog Measures

Voltages  
Speeds - Tach, RPMs  
Torques  
Amps  
Pressures  
Flows  
Levels  
Positions-Throttle  
Current

### Calc Measures

Weights  
Hours  
Direction  
Speeds  
Derate %  
Loads  
Rates  
Payloads  
Angles  
TKPH  
GPS position  
Time  
Date

### Contact Values

Switches  
Buttons  
Positions  
On/Off  
Start/Stop  
Limits  
Encoders  
Relays  
Gear  
Lockouts  
Brakes  
Status  
Signals

### Health/Conditions

Events  
Faults

### Info

Op Name  
Part  
location

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## Next Steps

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- ✓ SMART & CIM organization approval
  - ✓ Establish Surface Mining Society structure
  - ✓ SMART approval of data requirements
  - ✓ Communicate to summit participants
  - ✓ Plan next summit
  - ✓ What about research?
  - ✓ What about time and mining definitions?
  - ✓ Other?
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