



# Working Towards Digital Transformation

## Driving Change in Mining, Metals & Materials

Martin Provencher, Industry Principal, Mining, Metals & Materials

Perry Zalevsky, Industry Principal, Mining, Metals & Materials

# Agenda

- Welcome
- Safety Share
- Overview of the Day
- Industry Situation
- Operational Intelligence to Digital Transformation

## Conference Theme and Keywords



# Overview of the Day

8:45AM – 9AM

## Day 2: Mining / Metals / Materials

**OSIsoft**

Welcome/Intro by Industry  
Principal/Champion

– Martin Provencher, Perry Zalevsky

9:00AM – 9:30AM

**Goldcorp**

Real Time Data Critical to Mining

– Derek Shuen

9:30AM – 9:45AM

BREAK

# Overview of the Day (cont.)

9:45AM – 10:30AM

## **PXiSE Energy Solutions**

---

Enabling sustainable and reliable energy options for mining operations with advanced controls using a PI Data Platform

– Patrick Lee

10:30AM – 10:45AM

BREAK

## **Hatch, ArcelorMittal Long Products Canada GP**

---

10:45AM – 11:30AM

Implementation of Energy  
Management Information  
System

– Mina Salama, Jean-Yves  
St-Onge

11:30AM – 11:45AM

BREAK

# Overview of the Day (cont.)

11:45AM – 12:30PM

## Outotec

---

PI System as a core of  
Outotec's global Remote  
Service offering

– Mikko Paakkolanvaara

12:30PM – 2:30PM

LUNCH

## Flank Engineering Inc, Barrick Gold Corporation

---

2:30PM – 3:00PM

Metallurgy Analytics: Transforming Plant  
Data to Actionable Insights

– Jaco Steyn, Tara Rana

3:00PM – 3:15PM

BREAK

# Overview of the Day (cont.)

3:15PM – 4:00PM

**Ciner Wyoming LLC, Ciner LLC**

**A Trip through Wonderland**

— Jolene Baker, James  
Bronstein

4:00PM – 4:45PM

**Mining, Metals, Materials  
Best Practices Panel**

4:45PM – 6:30PM

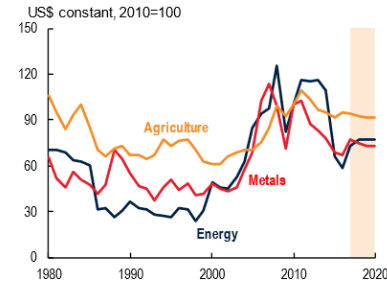
**Industry User Group Meeting:  
Mining / Metals / Materials**  
— Silverio Cavazos, Martin  
Provencher, Perry Zalevsky

# Commodity Market

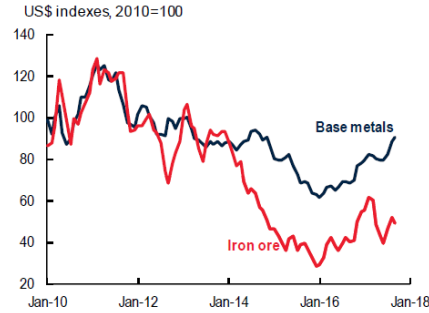
## 200 year commodity market cycles



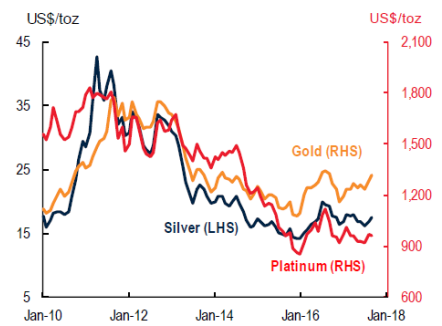
### 2 Commodity price indexes, annual



### 23 Metal and mineral prices



### 27 Precious metal prices



2017.

## EMERGING MARKETS ECONOMIES IN 2018

Higher commodity prices, resilient global growth and still accommodative monetary policies will boost economic activity





# MMM Market improvements in 2017

## Financial performance

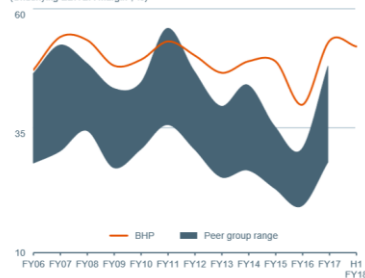
Results reflect higher commodity prices and a solid operating performance

Summary H1 FY18 Income Statement  
(US\$ billion)

Underlying EBITDA	11.2	↑ 14%
EBITDA margin	53%	
Underlying EBIT	6.9	↑ 15%
Adjusted effective tax rate <sup>3</sup>	28.1%	
Adjusted effective tax rate incl. royalties	37.8%	
Underlying attributable profit	4.1	↑ 25%
Net exceptional items	(2.0)	
United States tax reform	(1.8)	
Samarco dam failure	(0.2)	
Attributable profit	2.0	↑ 37%
Underlying earnings per share	76.1 US cps	↑ 25%
Dividends per share	55 US cps	↑ 38%

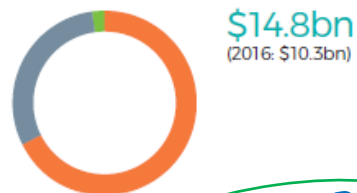
Financial results  
20 February 2018

Strong margins through the cycle  
(Underlying EBITDA margin<sup>4</sup>, %)



BHP

## Adjusted EBITDA 2017 (%)<sup>5</sup>



↑44% EBITDA

## Revenue<sup>6,1</sup> by region and segment 2017 (%)



Metal and minerals  
**\$80.5bn**  
(2016: \$66.3bn)

Energy products  
**\$128.3bn**  
(2016: \$89.0bn)

Agriculture  
**\$12.6bn**  
(2016: \$22.0bn)

GLENCORE

## Strong results delivered in 2017

↑38% EBITDA

### Robust financial performance

EBITDA of **\$18.6 billion**

Operating cash flow of **\$13.9 billion**

Free cash flow of **\$9.5 billion**

**\$2 billion** cost savings programme completed early



Rio Tinto

### Disciplined capital allocation

Full year 2017 dividend of **\$5.2 billion**

Share buy-backs declared of **\$4.5 billion**

Net debt reduced to **\$3.8 billion** at 31 December

Capital expenditure of **\$4.5 billion**



©2018, Rio Tinto, All Rights Reserved

### Positioning for the long-term

Silvergrass iron ore mine commissioned in Q4 2017

Oyu Tolgoi underground development on track

Amrun development progressing to plan

Divestment proceeds of **\$2.7 billion** in 2017



## Performance highlights in 2017

US\$ 15.3 bi  
**Total EBITDA** ↑ 28%

US\$ 3.8 bi  
**Capital Expenditures** ↓ 26%

US\$ 330 mi  
**Coal EBITDA** ↑ 711%

US\$ 37.9/t  
**Ferrous Minerals<sup>1</sup> EBITDA Margin** ↑ 24%

US\$ 8.6 bi  
**Free Cash Flow** ↑ 446%

US\$ 18.1 bi  
**Net Debt** ↓ 28%

↑28% EBITDA



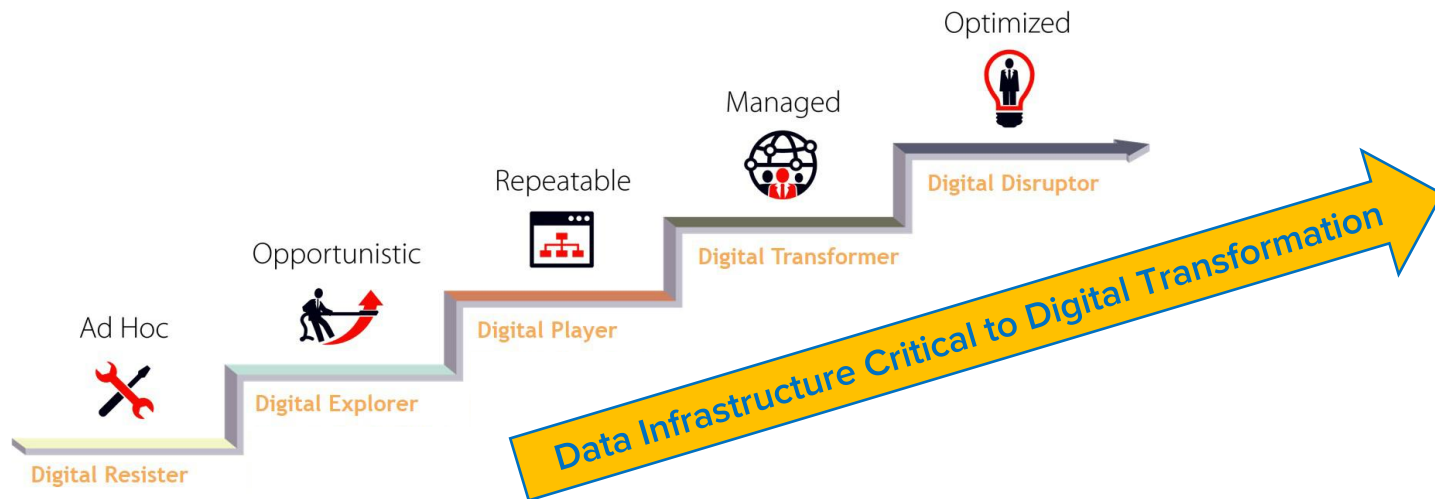




Reliability  
Security  
Extensibility  
Agility



Scalability  
Availability  
Connectivity  
Simplicity



“Infrastructure can be generally defined as the set of **interconnected structural** elements that provide **framework supporting** an entire structure of development<sup>1</sup>”

# Where Do MMM Companies Find Value?



## Process Productivity

**Making the process better**  
**Small changes are worth a lot**  
**In areas such as material flow, pacing and supply chain**



## Energy and Water Management

**Monitoring and managing energy and water**  
**Fuel the mobile equipment**



## Asset Performance and Reliability

**Keep the machines running**  
**Improve uptime**  
**Reduce unplanned downtime**  
**Condition-based maintenance**



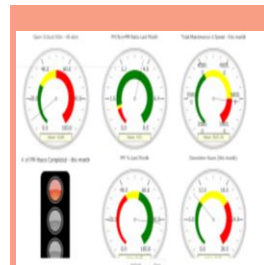
## Environmental, Health and Safety Compliance

**Governmental regulations**  
**Accidents and incidents**  
**Environmental monitoring**  
**Compliance and audit**



## Quality Assurance

**Real-time monitoring**  
**Genealogy (history)**  
**Certifications**  
**Yield**



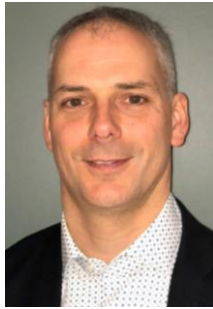
## KPI's and Reporting

**Plant and Mine-wide to enterprise**  
**Common definitions & calculations**  
**Benchmarking & comparison**

# Key Considerations for Today's Session

- Where is your company on the journey to Digital Transformation?
- What is the vision for building data infrastructure at your business ?
- What role does operational data play as a key part in your vision?
- What is required to get to the desired stage?
- What are your key takeaways from today's presentations?

# Your track hosts...



- **Martin Provencher**
- [mprovencher@osisoft.com](mailto:mprovencher@osisoft.com)
- Industry Principal, Mining, Metals & Materials
- OSIsoft LLC



- **Perry Zalevsky**
- [pzalevsky@osisoft.com](mailto:pzalevsky@osisoft.com)
- Industry Principal, Mining, Metals & Materials
- OSIsoft LLC

# Questions

Please wait for the **microphone** before asking your questions

State your **name & company**



# Please remember to...

Complete the Online Survey for this session



**Download the Conference App for OSISOFT Users Conference 2017**

- View the latest agenda and create your own
- Meet and connect with other attendees



search **OSISOFT** in the app store

Merci

谢谢

Спасибо

Danke

Gracias

감사합니다

Thank You

ありがとう

Grazie

Obrigado

**It's All About the Data...**