Iron Ore – Delivering value from flexibility and optionality

Chris Salisbury
Iron Ore chief executive
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Supporting statements

Mineral Resources and Ore Reserves

The Mineral Resource and Ore Reserve estimates which appear on slide 36 are reported on a 100% basis. Mineral Resources are reported as additional to Ore Reserves. These Mineral Resource and Ore Reserve estimates, together with the ownership percentages for each joint venture were set out in the Mineral Resource and Ore Reserve statements in the 2013 to 2017 Rio Tinto annual reports to shareholders released to the market on 14 March 2014, 6 March 2015, 3 March 2016, 2 March 2017 and 2 March 2018 respectively. The Competent Persons responsible for reporting of those Mineral Resources and Ore Reserves were B Sommerville (Resources 2013-2017), P Savory (Resources 2013 - 2017) and A Bertram (2017), L Fouche (Reserves 2013-2014), A Do (Reserves 2015), C Tabb (Reserve 2013 - 2017) and R Verma (Reserves 2017).

Rio Tinto is not aware of any new information or data that materially affects the above estimates for 2017 as reported in the 2017 Annual Report and confirms that all material assumptions and technical parameters underpinning these estimates continue to apply and have not materially changed. The form and context in which each Competent Person’s findings are presented have not been materially modified.
Our value over volume strategy maximises free cash flow through the cycle.
Health and safety come first

Focusing on fatality elimination – 265,000 CRM verifications completed in Iron Ore in 2017

Reducing injuries – targeted hazard elimination

Catastrophic event prevention through control of major hazards

Mental health, well being and fatigue management

Underpinned by engagement, leadership and productivity initiatives

Source: International Council on Mining and Metals
World class assets, fully integrated and agile network

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Mines</td>
</tr>
<tr>
<td>1,700</td>
<td>Rail (km)</td>
</tr>
<tr>
<td>4</td>
<td>Port terminals</td>
</tr>
<tr>
<td>4</td>
<td>Power stations</td>
</tr>
<tr>
<td>&gt;370</td>
<td>Haul trucks</td>
</tr>
<tr>
<td>95</td>
<td>Autonomous haul trucks</td>
</tr>
<tr>
<td>55</td>
<td>Production drills</td>
</tr>
<tr>
<td>11</td>
<td>Autonomous drills</td>
</tr>
<tr>
<td>&gt;200</td>
<td>Locomotives</td>
</tr>
<tr>
<td>&gt;100</td>
<td>Global customers</td>
</tr>
</tbody>
</table>
Future system capacity

Priority remains to optimise infrastructure capacity and build flexibility

Current system capacity

Future system capacity

Building rail capacity to provide dynamic flexibility

Rail and mine capacity expected to match nameplate port capacity by the end of 2019

Mine capacity of ~360Mtpa, with Silvergrass fully ramped up and productivity gains

Market driven to meet customer demand

2018 shipments guidance is in a range of 330 – 340Mt

Optimise and test port capacity

Note (*) once Silvergrass fully ramped up
Global macro indicators remain supportive

Global PMIs have eased but remain in expansion

Controlled deceleration in Chinese growth from high rates in 2017

Chinese environmental policies and productivity measures supporting demand for higher grade iron ore

Strong external demand for Chinese exports despite increase in trade tensions

Trade tensions unlikely to materially affect steel demand

Recovery in global demand positive for China’s exports

Source: CEIC, Rio Tinto

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Seaborne supply response remains muted…

2018 seaborne supply additions offset by disruptions and exits

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>42</td>
<td>39*</td>
<td>-20</td>
<td>-17</td>
<td>2</td>
</tr>
</tbody>
</table>

* Rio Tinto 2018 additions assumes midpoint of full year guidance at 335 Mt

Rise in inventories driven by lower quality iron ore

Source: Company guidance, Mysteel, Rio Tinto

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...and Chinese domestic production remains steady

Most Chinese domestic capacity is geographically removed from the steel mills...

Source: Mysteel, SMM, Rio Tinto, Platts

...Chinese domestic production has remained steady...

Regional Capacity
Million Tonnes

- <5
- 6-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-100
- 101-150

...and its elasticity to price is reducing

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Our Iron Ore business consistently generates superior margins

Rio Tinto Iron Ore EBITDA performance

EBITDA Margin $ per tonne

Price $ per tonne

2018 Seaborne iron ore cash costs by operator
CFR China, 62% Fe fines equivalent

Source: Wood Mackenzie

1 EBITDA defined as sales margin excluding freight revenues
2 Nominal FOB WA iron ore price.
Sustaining capex of ~$1 billion per year for the next three years

Pilbara replacement mines capital 2018 – 2020 of ~$2.2 billion includes West Angelas, Robe Valley and Koodaideri development from 2019

Koodaideri underpins Pilbara Blend, low cost operations and capacity optionality

Post-Koodaideri replacement options are expected to be lower capital intensity and will leverage off existing infrastructure
Sustainable long term, low cost position underpinned by our world class assets

Breakdown of 2017 Pilbara costs

- Employee Costs: 35%
- Materials: 21%
- Contractors: 21%
- Energy: 14%
- Other: 9%

Headwinds in 2018:
- Haul distance
- Bulk materials
- Labour costs
- Contractor costs
- Cyclical maintenance costs

Cyclical maintenance costs, partly offset by new tactics

>4,500 productivity improvement initiatives

Pilbara cash unit cost

<table>
<thead>
<tr>
<th>Year</th>
<th>$ per tonne</th>
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</thead>
<tbody>
<tr>
<td>2013</td>
<td>20.2</td>
</tr>
<tr>
<td>2014</td>
<td>19.5</td>
</tr>
<tr>
<td>2015</td>
<td>14.9</td>
</tr>
<tr>
<td>2016</td>
<td>13.7</td>
</tr>
<tr>
<td>2017</td>
<td>13.4</td>
</tr>
</tbody>
</table>

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## Productivity options to continue to deliver cash benefits

### Best Practice
- Effective equipment utilisation and maintenance optimisation
- Yard improvements and scheduling
- Dumping improvements
- Track maintenance
- Consist reliability

### Partnering with Suppliers
- Mine planning optimisation
- Autonomous trucks (including retro-fit)
- Next generation train control
- Track maintenance strategy
- Brake car elimination

### Data & Technology
- Payload optimisation
- Explosives charging improvements
- Operations Centre optimisation
- Inter-machine control loops
- AutoHaul®
- Roll by rail detection

### Automation
- Asset health monitoring
- Ore sensitive dumper settings
- Debottlenecking opportunities
- Automated inspections
- Productivity monitoring apps

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Iron Ore to deliver additional free cash flow of ~$0.5 billion per year from 2021

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Supported by our people and partners

Valued customer relationships built on technical knowledge and product quality

Local procurement
Over 1,000 WA suppliers provided with business

Rio Tinto paid $1.3 billion of royalties in Western Australia in 2017

11,500 employees driving sustainable productivity and cost improvements

Strong community, joint venture partners and technology partners

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Iron Ore is consistently generating superior shareholder returns

- **Market led strategy**: Clear strategy of value over volume - focused on delivering value for decades to come
- **Productivity and value focused**: Disciplined embedded process for delivery of improvement in volume and productivity
- **Low capital developments**: Attractive low capital intensity for sustaining mine developments
- **Sector leading returns**: A world class asset base generating sector leading returns

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Controlled deceleration in Chinese growth

**Infrastructure investment slowing but remains robust**

**Housing inventories are very low...**

...leading to strong growth in housing starts

**Heavy machinery sales remain strong**

Source: CEIC

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Supply-side reform and tightening environmental policy have driven structural changes

**Supply-side reforms**
- Policies focused on restoring industry profitability and reducing debt
- Steel capacity reduction on this scale/timeframe unprecedented in the international steel market
- Policies limiting future growth in steel capacity

**Environmental policy**
- Environmental restrictions are the new normal
- Environmental protection marked as a top three domestic policy priority
- Additional ultra-low emissions standards to apply to China’s steel industry by 2025

**Higher steel capacity utilisation rates**

**Higher steel mill margins**

**Productivity focus and preference for higher grade iron ore**
China’s supply-side reform and environmental policies have created a more efficient industry…

Steel mill rationalisation programme has removed significant capacity…

...driving record steel mill utilisation rates…

...and higher steel prices

Source: China Metallurgical Industry Planning and Research Institute (MPI), OECD, WSA, Rio Tinto, Mysteel, CISA, China National Bureau of Statistics

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...causing a structural shift towards productivity

Improvement in Chinese steel industry profitability...

... and the focus on productivity has caused structural widening in iron ore premiums

Source: Platts, Metal Bulletin, Rio Tinto, Mysteel

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Northern China is driving structural change to iron ore pricing

Typical North China

Typical South China

Northern Chinese mills are most sensitive to changes in Fe grade

Blast furnace productivity increase for a 1% increase in iron burden

~2/3 of Chinese capacity is in the north and is key for price formation

Access to higher quality domestic concentrates and pellets allows North China mills to consume more lower grade seaborne iron ore

Recent environmental restrictions have reduced North China sinter capacity and enhanced the value of higher grade iron ore
China’s supply-side reforms are here to stay and will continue to be driven by tightening environmental policy.

Southern and Coastal regions destination for replacement steel capacity – well located for seaborne iron ore ...

... and replacement capacity will be larger and cleaner blast furnaces

Source: China Metallurgical Industry Planning and Research Institute (MPI), Rio Tinto

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Scrap usage in China gradually increasing from a low base, but will face headwinds

### China's scrap supply growing slowly from a low base

![Bar chart showing scrap supply and pig iron production in China from 2013 to 2022.](chart)

- **Million tonnes**
- **Sources:** Rio Tinto, SMM, Platts
- **Note:** Obsolete scrap is post-consumer scrap collected on end of key life-cycles of cars, buildings, white goods, etc.

### Increased scrap usage in BOF has increased scrap to iron ore price ratio

![Line chart showing scrap to iron ore price ratio from Jan-13 to Apr-18.](chart)

- **Price ratio**
- **Sources:** Rio Tinto, SMM, Platts

### Headwinds limiting scrap consumption:

- Scrap to iron ore price ratio has risen to historic highs
- Scrap quality is low
- Scrap handling and transport bottlenecks
- Higher electricity costs
Rio Tinto Commercial bridges our customers and our assets

Rio Tinto's commercial hub now established in Singapore, combining sales and marketing, procurement, and marine and logistics

Iron Ore Sales & Marketing team strategically located to provide deep customer and market insights:

- Headquarters in Singapore
- Customer-facing teams in our regional offices in China, Japan, Korea and Europe
- Technical marketing teams located close to our customers (regional offices) and close to our assets (Perth)
We have a Tier 1 customer base

2017 shipments by country/region

76% 16% 4% 3%
China Japan Korea Taiwan South East Asia Europe

30 largest steel mills in Asia

87% 13%
Rio Tinto supplied Non-Rio Tinto supplied

Well positioned to supply emerging iron ore demand in South East Asia

Upcoming Blast Furnace capacity in ASEAN (Million tonnes)

- Existing production: 2.3
- Commissioned 2018-2020: 16.4
- Commissioned beyond 2020: 15.2
- Total: 33.9

Source: Rio Tinto, World Steel

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We understand every customer is different

**Technical**
- Operations and technical constraints and process efficiency
- Stockyard and screening capacity
- Sinter and pellet capacity
- Coke production and quality
- PCI and operating practices

**Geographical**
- Logistics and supply chain
- Proximity to deep water ports
- Costs and quality of fluxes
- Seasonal factors

**Regulatory**
- Environmental exposure and restrictions
- Energy caps / limitations
- By-products value, recycle or disposal costs

**Strategic**
- Steel market sector
- Production flexibility
- Commercial approach
- Supply integration
- Pricing and contract periods
And we sell our product on different contracts …

2017 sales by pricing type

- Fixed price (spot): 11%
- Month actual: 17%
- Quarter lag: 5%
- Quarter actual: 67%

2017 sales by contract type

- Long term contract: 77%
- Short term contract: 7%
- Spot: 16%

2017 sales by delivery type

- Delivered: 33%
- FOB: 67%

Source: Rio Tinto
… we produce five products in the Pilbara to meet their needs.
Pilbara Blend is the world’s most recognised brand of iron ore

We remove variability for our customers through our blending process

Pilbara Blend Fines

Pricing
Reference product for the 62% indices

Most traded physical iron ore product

Strengths
Valued for its liquidity, reliability

Market position
Base load sinter blend in China

Pilbara Blend Lump

Pricing
Aligned to 62% fines index plus lump premium

Strengths
Avoids the costs of sintering which will increase with emissions legislation

Market position
Most widely available lump product
In demand across most markets and emerging South East Asia

Pilbara Blend Fines is main reference product for the 62% indices

Share of PBF volume in reported 62% Fe transactions

- 2015: 70%
- 2016: 77%
- 2017: 81%

Product quality variance from mean

Source: Rio Tinto, Platts

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Yandicoogina, Robe Valley products are placed with customers who value them most

### Yandicoogina Fines
**Pricing**
Priced very closely to the 62% index

**Strengths**
58% Fe but calcines to high Fe Sinter
Low in phosphorus and alumina

**Market position**
Base load in blends in East Asia and Southern China

### Robe Valley Fines
**Pricing**
Priced against 62% index based on negotiated relativities

**Strengths**
Coarse sizing aids sinter granulation
Low phosphorus

**Market position**
Coastal China mills and producers of niche steel in North China
Suitable for steel mills whose basic oxygen furnace (BOF) is the bottleneck

### Robe Valley Lump
**Pricing**
Priced against 62% index based on negotiated relativities

**Strengths**
Low phosphorus

**Market position**
Producers of niche steel in Japan and Coastal China
Suitable for steel mills whose BOF is the bottleneck

---

**Total tonnes of Yandicoogina Fines, Robe Valley Fines and Robe Valley lump**

<table>
<thead>
<tr>
<th>Market</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>39%</td>
</tr>
<tr>
<td>Japan</td>
<td>41%</td>
</tr>
<tr>
<td>Other markets</td>
<td>20%</td>
</tr>
<tr>
<td>Contract (Long Term Contracts)</td>
<td>98%</td>
</tr>
</tbody>
</table>

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Source: Rio Tinto

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Creating a flexible supply chain allows agility to respond to customer needs and market conditions

Future system capacity

Flexing Pilbara Blend Lump shipments in line with market demand and premium cycle

Aligning Yandicoogina fines shipments in line with customer demand

Flexing volume and product mix in line with seasonal demand
Technology will improve the customer experience and generate market insights

- Robotic technologies to eliminate manual tasks and enhance customer experience
- Live visual interface between Sales & Marketing in Singapore and the Operations Centre enabling a customer-led supply chain
- Artificial intelligence and predictive analytics to generate market insights and drive better decisions

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Our commercial approach maximises the value of our products

Customer centric organisation
Focused on growing value for all through deep understanding of our customers and the industry

Product portfolio
A suite of highly valued, consistent products

Supply chain optimisation
Right customer, right product, right time

Commercial acumen
Value over volume underpinned by strategic product placement
Highly valued product suite, sustained by significant resources

Pilbara resources, reserves$^1$ and production

Large mineral resources support system optionality

Ore reserves maintained in line with depletion

Maintaining evaluation drilling and resource development programmes

1 Refer to the statements supporting these resource and reserve estimates set out on Slide 3

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Continuing to grow the pipeline of future resources and exploration options

2018 drilling plan by hub regions

- Extensive existing resource base
- Drilling focused on evaluating mineralised inventory or conversion to resource
- Extensive tenures beyond existing mines
- Active exploration to provide future optionality
Extensive pipeline of options

Exploration & Evaluation
- >700km of drilling across Pilbara projects planned in 2018 to support operations, studies and strategic production planning (SPP) options.
- Additional study options:
  - Koodaideri stage 2
  - Marandoo extension
  - Yandicoogina extension
  - Hope Downs 1 sustaining
  - Nammuldi extension
  - Brockman South 4 Extension

Concept & Order of Magnitude
- Koodaideri stage 2
- Marandoo extension
- Yandicoogina extension
- Hope Downs 1 sustaining
- Nammuldi extension
- Brockman South 4 Extension

Pre-feasibility & Feasibility
- Western Turner Syncline stage 2
- Western Range
- Mesa B/C/H
- West Angelas C&D
- Koodaideri stage 1

Development / Ramp Up
- Silvergrass
- Billiard South
- West Angelas F
- Yandicoogina Oxbow

Completed

Strategic Production Planning underpins the pipeline:
- Full resource optimisation
- Assess product strategy
- Inform study options
- Sequence optimisation

Note - Study names are subject to change and are a representative at a current point in time

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Best in class quality delivered through system blending

Future system capacity

Port Terminals
- Cape Lambert A
- Cape Lambert B
- Parker Point
- EI

Products
- RVL
- RVF
- HIY
- HIY
- PBL
- PBF
- PBL
- PBF

Fe
Alumina
Silica
Phosphorus

Pisolite
Marra Mamba
Brockman
Dynamic market driven integrated planning system...

The system optimises reserves and fixed mobile assets for right quality and value.

Right quality, at the right time, delivered through system.

Whole of system optimisation through integrated planning:
- Short, medium and long term planning
- Integrated rail and port schedule

Operating management system | Reliability of systems | System optimisation | Technology and automation
...supported by three improvement streams

**People**
- Connected teams
- Skills requirement for job of the future

**Process**
- Ore body to customer – an integrated decision system
- Augmented asset health

**Technology**
- Integrated automation
- Big data infrastructure
Industry leading technology driving productivity…

Machine / Asset Automation

- Improved safety and productivity
- Autonomous drills (ADS)
- Explosives charging improvements
- Autonomous haulage system (AHS)
  - AutoHaul®

Networked machines

- Control systems connected at all interfaces
- Mine Automation System (MAS)
- Visualisation tools (RTVIS™)
  - Control Loops

Customer to ore body knowledge

- End-to-end value optimisation
- Artificial Intelligence across the entire system
  - Dynamic system optimisation

A fully automated system, mine to customer, integrated system delivering maximum value

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… with Koodaideri being our first intelligent mine

Sustaining Pilbara Blend - 40Mtpa throughput coarse ore capacity plant

>170 kilometres of new AutoHaul® rail

World class project delivery - utilising data centric and advanced digital engineering to produce a digital twin of the asset

Over 100 innovation opportunities within the feasibility study

Enabling technologies - combining best practice technologies with new process and production loops
Optimised system maximising value

- **Resource optionality**: Highly valued product suite, significant resources, development optionality
- **Scheduling agility**: Dynamic scheduling system putting customers at the core
- **Automation**: Increasing use of technology to drive value across the system
- **Integrated system optimisation**: An exclusive fully integrated system, managed to optimise value

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Pilbara Mine Operations

Matthew Holcz
Acting Managing Director, Pilbara Mines
World class assets, fully integrated and agile network

- MESA A
- MESA J
- WEST ANGELAS
- CAPE LAMBERT A & B
- BROCKMAN 2
- BROCKMAN 4
- CHANNAR
- PARABURDOO
- EASTERN RANGE
- EAST INTERCOURSE ISLAND
- PARKER POINT
- MARANDOO
- KOODAIDERI
- YANDICOOGINA
- HOPE DOWNS 1
- HOPE DOWNS 4
- HOPE DOWNS JV (50%)
- ROBE RIVER MINING JV (53%)
- CHANNAR MINING JV (60%)
- BAO-HI RANGES JV (54%)
- UNDEVELOPED PROJECT (100%)
- HAMERSLEY IRON (100%)

| 16 | Mines |
| 15 | Train load outs |
| 17 | Plants (including ports CLA, B and Dampier) |
| 11 | Dry processing plants |
| 6 | Wet processing plants |
| >370 | Haul trucks |
| 95 | Autonomous haul trucks |
| 55 | Production drills |
| 11 | Autonomous drills |

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Further opportunity exists to optimise mines.
More productive and engaged workforce

Increasing gains in workforce productivity

SOP\textsuperscript{1} per employee\textsuperscript{2}

(kt / person, Index: 2014 = 1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.00</td>
</tr>
<tr>
<td>2015</td>
<td>1.19</td>
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<tr>
<td>2016</td>
<td>1.36</td>
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<tr>
<td>2017</td>
<td>1.37</td>
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</table>

Productivity improvements in fixed and mobile equipment

Mutually beneficial partnerships with key local suppliers

Sustained focus on continuous improvement

Continued deployment of autonomous technology

\textsuperscript{1} Saleable ore produced

\textsuperscript{2} Pilbara Mines employees and fixed contractor roles
Significant improvement achieved across our mines…

Productivity increases are supporting our volume growth…

Haul truck effective utilisation

(%, Index: 2015 = 1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.02</td>
<td>1.08</td>
<td></td>
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</table>

8%

Haul truck payload

(kt, Index: 2015 = 1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.03</td>
<td>1.08</td>
<td></td>
</tr>
</tbody>
</table>

8%

…while improving reliability will drive efficiency on maintenance costs

Haul truck mean time between failure

(hrs, Index: 2015 = 1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td>1.00</td>
<td>1.07</td>
<td>1.31</td>
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</tr>
</tbody>
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31%

793F truck engine replacements

($ / truck, Index: 2015 = 1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>Previous Strategy</th>
<th>Updated Strategy</th>
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<td>1.00</td>
<td>0.72</td>
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</table>

28%
…with automation delivering significant advantages

Haul truck automation is delivering clear benefits with further upside to be realised as the technology matures

2017 haul truck effective utilisation
(%, Index: Manned = 1.00)

Yandicoogina AHS effective utilisation¹
(%, Index: 2016 = 1.00)

Our automated drills are running for longer and achieving more metres per hour

2017 drill fleet effective utilisation
(%, Index: Manned = 1.00)

2017 drill fleet penetration rate
(m / hr, Index: Manned = 1.00)

¹ Fully autonomous from mid-2015

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Focus on maintenance efficiency and asset reliability is driving up availability

Scheduled loss
(%, Index: 2016 = 1.00)

Unscheduled loss
(%, Index: 2016 = 1.00)

Plant performance supporting growth at Greater Brockman: our largest operation

2017 Improvement in Asset Utilisation Ratio
(%, Index YoY by plant)

Targeting both operating time and rates

Improvements across all four plants

Supported increased production from Greater Brockman of 5.1 million tonnes in 2017
Creating a flexible value driven mine production system

Plant performance improvements at Yandicoogina

<table>
<thead>
<tr>
<th></th>
<th>PRIMARY CRUSHER</th>
<th>PROCESSING PLANT</th>
<th>STOCKYARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC1, PC4</td>
<td>2 x dry</td>
<td>Plant 1</td>
<td>Stockyard</td>
</tr>
<tr>
<td>PC2, PC3</td>
<td>2 x wet</td>
<td>Plant 2, Plant 3</td>
<td></td>
</tr>
</tbody>
</table>

2017 Outcome
Total production maintained at ~ 58 Mt
6% reduction in site unit costs
4 Mt additional flexible capacity created

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Indexed Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>5 Mt</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>24 Mt</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>10 Mt</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>19 Mt</td>
<td>0.71</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2017</th>
<th>Strategy</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>reduce</td>
<td>1 Mt</td>
</tr>
<tr>
<td></td>
<td>maximise</td>
<td>28 Mt</td>
</tr>
<tr>
<td></td>
<td>flex</td>
<td>6 Mt</td>
</tr>
<tr>
<td></td>
<td>maximise</td>
<td>23 Mt</td>
</tr>
</tbody>
</table>

Improved baseload
Productivity
Reliability

Leverage flexibility
Rail capacity
Market demand

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Mines supporting rail to unlock capacity

Incremental improvements at significant scale can deliver substantial benefits

<table>
<thead>
<tr>
<th>Tonnes per car (kt, Index: 2016 = 1.00)</th>
<th>Train load time (min, Index: 2016 = 1.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2017</td>
</tr>
<tr>
<td>1.00</td>
<td>1.02</td>
</tr>
</tbody>
</table>

580 tonnes per train × 2 minutes load time = 6Mtpa rail capacity

The progressive rollout of automation in train loading delivers improvements in payload

Expert control systems enable dynamic tuning for mass or volume constrained sites

Improvements to rolling stock capacity at mines allow full system utilisation

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Silvergrass delivered on time and on budget

Silvergrass ramp up commenced in Q2 2017

Silvergrass and Nammuldi incremental production tonnes
(Annualised million tonnes)

- Increased production capacity up to 21Mtpa
- High grade Marra Mamba ore supporting Pilbara Blend
- All construction contracts awarded to Western Australian companies
Pilbara mines continuing to deliver productivity improvements

Flexing the integrated system
- Agile network of mines gives superior product options

Project delivery and commissioning capability
- Demonstrated project delivery and commissioning providing growth and replacement tonnes

Skilled and capable employees
- Adapting and leveraging new ways to improve productivity

Productivity of the integrated system
- Continuing to improve our assets with technology, innovation and replication
Ivan Vella
Managing Director Rail, Port & Core Services
World class assets, fully integrated and agile network
Our integrated system allows us to achieve unparalleled levels of utilisation.
Increased flexibility in our supply chain creates additional competitive advantage

Delivering rail capacity provides dynamic flexibility to respond to customer demands.

System designed to ensure rail does not limit the full potential of the port and mine assets.

Continue to optimise and challenge overall port capacity.

Q4 2017 shipments of 90Mt and December shipping rates of ~390Mtpa shows port potential.
## Optimising rail capacity and improving flexibility

### Train Load Out
- **Tonnes per car**: (Dynamic tuning for mass and volume)
- **Train load time**: (Reclaimer efficiency, stockpile management, control system improvements)
- **Technology and automation**: (Automated train loading, expert control systems)

### Mainline
- **Mainline network operating strategy**: (Network operation, common tactics, reduced delays and stoppages)
- **Rail track maintenance**: (Optimum speed, productivity and reliability)
- **Autohaul®**: (Optimised speed, advanced signalling, reducing variability)

### Yard and Port (Dumper)
- **Yard operations**: (Optimised scheduling, mobility solution, RFID for rolling stock management)
- **Train maintenance**: (Automated condition monitoring, further automation in workshops)
- **Reduced dump cycle times**: (Control system machine learning and analytics, interface management)

### Range of investment options being studied
- (Eliminating brake cars, electronic braking to dumper, closer train spacing, LTE/4G network – real time monitoring and control across the network)
Building future system flexibility with AutoHaul®

- Improved productivity, efficiency and safety
- Greater flexibility in scheduling
- Removal of driver changeover times
  ~3x stoppages for each round trip
- Improved cycle time performance
- Removing the need to transport drivers 1.5 million kilometres each year to and from trains
AutoHaul® to complete in 2018

World’s first fully autonomous heavy haul mainline run completed in September 2017

~65% production kilometres currently completed in autonomous mode¹

>1 million kilometres completed in autonomous mode¹ this year

~6% Speed improvement in autonomous mode¹

AutoHaul® usage continues to be expanded

Regulator approval received in May

Full implementation of autonomous programme by end of 2018

¹ Autonomous mode(s) currently in operation with drivers on-board
Advancements in technology are crucial to the network operating strategy.

Technology-enabled best practice tactics covering the yard interface, mainline and mine interface.

Analytics, decision support and automation tools for train control team.

Real time visibility and optimisation of our network with predictive capabilities and scenario testing to illustrate implications of different tactics.

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Yard improvements and digital transformation

**Automated roll-by (ARB)**
- Optical solution providing insight into the health of our fleet
- Improved paperless information on the wagon and its history
- Closing the feedback loop when faults are rectified

**RFID tracking of assets**
- All locos and wagons tracked using RFID technology
- Location available to yard optimisation engine and mobility solution
- Improved utilisation of assets

**Yard optimisation engine**
- Dynamically optimised yard movement plan
- Closed loop feedback to yard operators and drivers
- Comprehensive mobility solution to support operations and maintenance teams
Rail maintenance productivity can unlock new potential

RTIO cumulative tonnes railed
Million tonnes

- 3 Years to rail 1,000Mt
- 25 Years to rail 1,000Mt

Maintenance strategy and productivity critical

Rail capacity increase

Increased maintenance demand

Less track time available

More trains, heavier trains, more often

Increased wear and track impact, less time between trains
Our plan for rail productivity is strong and balanced

Network capacity (Mtpa)

- Number of trains
- Payload per train
- Yard improvement
- Network operating strategy
- Rail maintenance productivity (network speed and reduced delays)

Chart size indicates relative capacity contribution

- In progress and future potential
- Completed by end 2017

AutoHaul® platform enables further improvement
Productivity is key to unlocking further value

Yard and Dumping productivity benefits continue...

Yard-in improvements
Minutes (%, Index: 2015 = 1.00)

Dumping – placing train improvements
Minutes (%, Index: 2015 = 1.00)

...with demonstrated volume upside for cycle time and payload

Yard-out improvements
Minutes (%, Index: 2015 = 1.00)

Payload – Tonnes per train
kt / Train (% , Index: 2015 = 1.00)
Unencumbered port facilities with built in optionality

Continued improvement in productivity and safety, with considerable potential for capacity uplift

Unparalleled flexibility for blending and customer centric operation

Four independent terminals that provide optionality and full utilisation of our ship loaders
### Improving the capability of our port assets

#### Port reliability continues....

<table>
<thead>
<tr>
<th>Unscheduled downtime hours per million tonnes</th>
<th>Pooled fleet dumping circuits (% Index: 2015 = 1.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.00</td>
</tr>
<tr>
<td>2016</td>
<td>0.56</td>
</tr>
<tr>
<td>2017</td>
<td>0.46</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dumper capacity - time between queuing trains</th>
<th>Cape Lambert yard / dumper interface (% Index: 2015 = 1.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.00</td>
</tr>
<tr>
<td>2016</td>
<td>0.98</td>
</tr>
<tr>
<td>2017</td>
<td>0.89</td>
</tr>
</tbody>
</table>

#### With demonstrated volume improvements in loading capacity

<table>
<thead>
<tr>
<th>Time lost from shutdown over-runs</th>
<th>All ports circuits (% Index: 2015 = 1.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.00</td>
</tr>
<tr>
<td>2016</td>
<td>1.04</td>
</tr>
<tr>
<td>2017</td>
<td>0.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ship loading capacity Cape Lambert</th>
<th>CLB performance (% Index: 2015 = 1.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.00</td>
</tr>
<tr>
<td>2016</td>
<td>1.06</td>
</tr>
<tr>
<td>2017</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Exclusive, fully integrated infrastructure delivers value for shareholders

Reshaping the supply chain
Leveraging the fully integrated and flexible system - extracting capacity to realise more value from market

AutoHaul® benefits flowing
AutoHaul® platform enables additional productivity

Future benefits from technology
Opportunities to leverage technology across the supply chain

Delivering full asset potential
Productivity programme established and delivering strong results across the system
Summary

Chris Salisbury
Iron Ore chief executive
Iron Ore continues to deliver optimal value

Strong foundations

Exclusive fully integrated system

Highly valued product suite and significant resources

Quality people and partners driving innovation

Further opportunities for value creation

Value over volume strategy

Mine to market productivity improvements

Maximising cash flow through the cycle
Appendix
Iron and steelmaking process flow

Step 1: Sinter and Coke Making
- Ore Fines and Concentrate
  - Pilbara Blend Fines
  - Robe Valley Fines
  - Yandicoogina Fines
  - Fluxes + Fine Coke
  - Recycled Slag/Dust/Scale
- Coking Coal

Sinter Plant
- Inputs
- Outputs
  - Fine Sinter

Step 2: Iron Making
- Coke, Sinter
  - Lump, Pellets
  - Pilbara Blend Lump
  - Robe Valley Lump
  - Coal for injection
  - Fluxes

Coke Plant
- Inputs
- Outputs
  - Fine Coke
  - By Products
  - Coke Oven Gas

Blast Furnace (BF)
- Inputs
- Outputs
  - Slag
  - BF Gas

Step 3: Steel Making, Refining and Casting
- Alloys
  - Scrap metal
  - Fluxes

Blast Oxygen Furnace (BOF)
- Inputs
- Outputs
  - Slag
  - BOF Gas

Steel refining and Steel Casting
- Inputs
- Outputs
  - Mill Scale

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Greater Brockman Operations (GBO)

Scott Wilkinson; General Manager GBO
Benefits:

- Reduces number of people exposed to hazards
- Reduces number of critical risk scenarios
- Improves level of control effectiveness (engineering controls)

Autonomous haulage system (AHS) setup

- GPS antenna
- Mode lights
- Communications and controllers
- Laser
- Radar
Mines and Infrastructure of GBO

Greater Brockman Summary

- Traditional owners of the land are the Puutu Kunti Kurrama and Pinikura and the Eastern Guruma people.
- Open Pit ore commencement;
  - Brockman 2/Nammuldi – 1992
  - Brockman 4 – 2010
  - Silvergrass - 2017
- Approximately 1400 employees.
- FIFO workforce; regional WA and Perth.
- Marra Mamba and Brockman Ore types.
- 6 villages in operations.
Four world class mines connected to an integrated system
An extensive mining fleet of autonomous and manned equipment

18

Shovel configuration: 3 x Hitachi EX8000, 1 x Hitachi EX5600, 3 x Hitachi EX5500. Backhoe configuration: 4 x Hitachi EX5600, 5 x Hitachi EX3600 and 2 x Hitachi EX2500.

11

Loaders - 2 x Letourneau L-2350, 2 x Letourneau L-1850, 2 x Komatsu WA1200 and 5 x CAT993.

20

10 x Pit Viper production rigs (ADS retrofit in progress)
6 x Atlas D65 contour rigs
4 x SKSS production rigs

80

37x 930E Autonomous Haul Trucks

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GBO is instrumental in delivering our Pilbara Blend through our integrated production system

Ore Types: Brockman, Marra Mamba
Silvergrass our newest mine

- First low-phosphorus ore 5 Nov 2017.
- Primary crusher with 9km conveyor connecting existing infrastructure at NBWT Plant.
- Extension of Nammuldi workshop (4 bays, tyre change and storage facility and light vehicle workshop, fuel facility and wash bay).
- Other infrastructure - office and crib facilities, emergency services.
- Upgrade of Jerriwah Village.
GBO are demonstrating cost and productivity wins….

Focused on:

- Delivering the tonnes and grade of ore to meet system requirements.
- Increasing plant performance and asset reliability.
- Continuous improvement of manned and autonomous fleet optimisation.
- Retrofitting drills to support autonomous drill technology.
- Improving train loading times to support debottlenecking rail.

![Brockman 2 Plant Operating Time Indexed, Hrs](chart)

![2017 Improvement in Asset Utilisation Rate (% Index YoY by plant)](chart)

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And today you will see our progress
The Operations Centre (OC)
The nerve centre of the integrated network

Kellie Parker
Managing Director, Planning, Integration and Assets
Seamless integrated operations.....
...optimising schedule and performance of the system

Operations Centre

Whole of System Visibility
- Improved access to information
- Collaboration
- Operations Support

System wide integrated planning and scheduling
- Operational Excellence
- Better, smarter, faster decision making
- Rapid Replication

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Managing an integrated system of …..

## Operations Centre
Control, Monitor and Optimise the integrated system

<table>
<thead>
<tr>
<th>Mine</th>
<th>Plant</th>
<th>Rail</th>
<th>Ports</th>
<th>Asset health</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Mines</td>
<td>10 sites with 12 Fixed Plants (Wet &amp; Dry)</td>
<td>1700 Km of rail network</td>
<td>Operation 4 Ports: CLA, CLB, PPT, EII</td>
<td>Real-time monitoring of fixed and mobile assets</td>
</tr>
<tr>
<td>&gt;370 Trucks Manned &amp; AHS</td>
<td>Remote TLO - B4, NBWT, Mesa A</td>
<td>&gt;200 locomotives</td>
<td>Dumping &amp; Stacking / Stockyard Management</td>
<td>AutoHaul® Locomotive Monitoring &amp; Signals &amp; Networks</td>
</tr>
<tr>
<td>Autonomous Haulage</td>
<td>3 sites - HD4, NAM, YAN</td>
<td>&gt;12,000 wagons</td>
<td>Reclaiming &amp; Ship Loading</td>
<td>Condition Monitoring &amp; Oil Analysis</td>
</tr>
<tr>
<td>95 Trucks</td>
<td>Autonomous Drills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 sites - HD4, NAM, YAN</td>
<td>11 drills currently</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAN (7) &amp; YAN (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The OC of today is very different to the OC of 2007

- Rail
- Asset Health, Ports & Dynamic Scheduling
- Mining & Plants
- Increased AHS presence
- Newest– Autonomous Drills
We have been busy building our integrated system; underpinned by pioneering advancements in technology…
... and we are the pioneers of autonomous technology

**Autonomous haul trucks - AHS**
- Improved safety, productivity & operating costs
- 95 autonomous haul trucks
- Av. 1,000 more hours
- 15% lower load and haul cost in 2016 than conventional haul trucks

**Autonomous drills - ADS**
- 11 autonomous drills across two sites – West Angelas & Yandicoogina
- 1,000 drill hours > conventional drills in 2017
- Being deployed at Silvergrass

**AutoHaul®**
- Full implementation – end 2018, regulator approval completed
- 6% speed improvement in autonomous mode
- Step change in safety and productivity

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Supporting the journey......

Pioneering technology
- Advanced Decision Support
- Integrated Automation
- Big Data Infrastructure
- Enhanced Data Capability

Innovative projects
- AutoHaul®
- Machine to machine control loops
- Productivity monitoring apps

Skills of the future
- Connected Teams
- Skills for jobs of the future
Industry leading technology driving productivity…

**Machine / Asset Automation**
- Improved safety and productivity
  - Autonomous drills (ADS)
- Explosive charging improvements
- Autonomous haulage system (AHS)
  - AutoHaul®

**Networked machines**
- Control systems connected at all interfaces
  - Mine Automation System (MAS)
- Visualisation tools (RTVIS™)
- Control Loops

**Customer to ore body knowledge**
- End-to-end value optimisation
- Artificial Intelligence across the entire system
- Dynamic System Optimisation

A fully automated system, mine to customer, integrated system delivering maximum value.

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The operations centre will continue to extend our competitive advantage by.....

<table>
<thead>
<tr>
<th>Integrating and managing the fully integrated system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximising value from our operations, with value underpinning decision making.</td>
</tr>
<tr>
<td>Right quality at the right time delivered through the dynamic system.</td>
</tr>
<tr>
<td>Leading in technology and automation.</td>
</tr>
</tbody>
</table>

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