

**Stephen McIntosh, Group executive, Growth & Innovation
Macquarie Australia Conference
1 May 2019, Sydney, Australia**

Slide 1 - title slide

Many thanks for that kind introduction and good afternoon ladies and gentlemen.

Before we begin I would like to acknowledge the Traditional Owners of the land we're meeting on today, the Gadigal people of the Eora nation. I pay my respects to their elders, past, present and emerging.

It is my pleasure to be with you today to share some colour and context around Rio Tinto's performance in 2018, as well as undertake a deeper dive into the part of the business that I lead – Growth & Innovation - a part of the company that touches the full lifecycle of each and every asset in Rio Tinto – from exploration, through study and construction execution, to optimisation of the asset and then ultimately to closure.

Slide 2 – cautionary statement

Before I go on, I would just draw your attention to the general Cautionary Statements. Please note that any financial figures presented are in US dollars – our reporting currency.

Slide 3 – Managing our major hazards

I cannot start without mentioning the tragic Brumadinho dam failure in Brazil. It was a human and environmental tragedy and a stark reminder that mining operators must have a well-structured approach to managing the major hazard risks in their businesses.

In Rio Tinto we have a well-established and comprehensive set of procedures in place for managing our major hazards.

For tailings facilities specifically, Rio Tinto established a Group-wide safety standard in August 2015. This standard is regularly reviewed and updated to ensure we are maintaining leading practice in managing risks associated with tailings facilities. It is consistent with the six key elements in the International Council on Mining & Metals' Tailings Governance Framework, and is focussed on three levels of governance and assurance that we apply to all managed facilities globally.

Of course, we cannot stand still and we are constantly reviewing our approach to make our three levels of protection even stronger.

We believe that it is the responsibility of everyone in the mining industry to do better. Rio Tinto has been an active participant in this space working with the International Council of Mining and Metals. We released our Standards and Procedures on our website earlier this year and are supportive of more action to address this issue.

Slide 4 – A strong 2018, delivering \$13.5 billion of cash returns

So, as a bit of a recap, where did we end up in 2018? Well Rio Tinto had a very strong year.

We generated \$18.1 billion in EBITDA, which after paying tax and either sustaining or growing our business through capital expenditure translated into \$11.8 billion in operating cash flows.

We also continued to refine our asset portfolio. Divestment proceeds totalled some \$8.6 billion, primarily from the divestment of our coal assets in Australia and our shareholding in the Grasberg mine in Indonesia. We are now the only large mining company with no coal mining or oil and gas assets in our portfolio.

In addition, we continue to have THE strongest balance sheet of all the major mining houses, with a net cash position at the end of 2018. This is something that we are very proud of, and which has been the result of a consistent and methodical approach to capital allocation through the cycle.

This is allowing Rio Tinto to be poised for our next phase of growth – a part of the business that I am in part responsible for driving and I'll talk more on this a little later.

What has this all meant for our shareholders? Well this strong performance has enabled Rio Tinto to deliver record cash returns to shareholders totalling some \$13.5 billion in 2018.

Slide 5 – Disciplined ramp up of investments

We cannot generate those levels of returns without investing in both sustaining and growing our business and in this space, it is all about being disciplined.

In the chart displayed, you'll see the grey line depicting total depreciation between 2016 and 2018. It shows that in 2016 we invested below depreciation, particularly in iron ore where significant expansions were finished in 2015.

We are now seeing investment rising above depreciation and we are developing our asset base for future shareholder returns.

Existing guidance is retained for 2019 and 2020, whilst we have provided new guidance for 2021 of \$6.5 billion.

Each year includes sustaining capex of between \$2 and 2.5 billion, consistent with previous guidance.

Slide 6 - Investing through the cycle

To get to the point of actually committing funds to a project or asset is not a simple task. As a company, we are obsessed about having optionality through the cycle and continue to invest right through our pipeline.

Since we released our 2018 full year results, we have progressed a number of these options along the pipeline.

In South Africa, we will begin construction of the next phase in the development of our Richards Bay Minerals asset – the Zulti South project – a \$463 million investment, which will sustain production and is expected to deliver a 24% internal rate of return.

In the USA, at our joint venture Resolution copper project, we have recently approved \$302 million to fund additional drilling, ore body studies, infrastructure improvements and permitting activities. These works will help progress the project to the final stage of permitting.

It is an exciting time to be part of the action right across our entire pipeline of potential development options. As you can see we have a busy time ahead of us further defining the options in our portfolio and bringing them to market.

Slide 7 – Growth & innovation

As I said before, Rio Tinto is obsessed about having optionality in our portfolio and ensuring that we are relentlessly pursuing new discoveries, rigorously studying these options by applying our deep technical expertise and global reach and ultimately making the calls to execute the right projects. The key players in Rio Tinto to help make this happen are:

Our explorers. A team tasked with exploring and finding our next mines right across the globe in more than 16 countries. They are out there relentlessly pursuing the most desired commodities using the best in class people and technical know-how we have. We'll talk a bit later about one of their recent discoveries that we are excited about.

Our Studies and Projects team. This team is focussed on making sure we do the *right* projects. They evaluate opportunities, lead studies and once a decision is made to invest, ensure world class major capital project delivery across a global portfolio of resource options. In the past 10 years we have delivered more than \$25 billion worth of capital projects.

In addition, we help to optimise the business by providing centralised support in the areas of Technical Excellence, Automation & Technology, our Mining & Processing centres of excellence and our In-house Consulting and Data Science capabilities. These teams ensure that we are constantly moving towards being the 'best operators' of our assets measured by both the operational performance of our assets as well as how well we are managing our major hazard risks.

And last, but definitely not least, we also have our **global IT function**. This team is spearheading the digital transformation of Rio Tinto to enable our 146 year old company to thrive well into our third century.

We recognise that as we move up the automation curve, we can't solely rely on traditional mindsets and our legacy asset base. We need to significantly evolve our approach to IT moving forward. In a Tech 4.0 world our IT infrastructure and systems and Digital capability must be positioned at the centre of our business. It is no longer enough to be just a supporting function.

Slide 8 – Our exploration discovery track record is industry leading

So just to give you a bit more background around our explorers.

They are a team of about 430 people that explore globally in more than 16 countries for what we think are the next wave of commodities that are essential for human progress.

In 2018, we spent \$231 million on greenfield exploration, split about 75% in OECD countries and Peru and 25% in non-OECD countries. Our activities are weighted to copper with 53% of 2018 spend focused on this commodity.

We have maintained our commitment to exploration throughout the cycle and treat it like a business. We actively divest discoveries that are not Tier 1, are not on strategy or do not otherwise fit with the Group's priorities and we recycle this cash back to fund our ongoing exploration programmes.

In the past decade, we spent around \$1.8 billion on centrally controlled exploration and generated about the same amount in divestment proceeds from discoveries not aligned to our strategy. In other words, Rio Tinto's exploration team has paid its way through the past decade.

We have a proud legacy of discovery performance dating back to 1947. This is when the first modern discovery was made at our world class hard rock ilmenite deposit located in Quebec, Canada. This discovery drove the development of the company's world class titanium dioxide business.

Interestingly the majority of the company's core mining operations were discovered and developed by the company. This includes our world-class iron ore business located in the Pilbara which was based upon the critically important Mount Tom Price discovery made in the early 1960's.

In the figure shown here one can see an increase in the rate of discoveries from the late 1990's. This was essentially a result of the merging of the RTZ and CRA exploration teams aligned through a new exploration strategy.

In a short space of time this strategy saw a significant lift in the overall discovery rate globally. That same strategy with a few minor tweaks continues to deliver significant value to this very day.

We leverage technology, data and innovation to increase the speed and likelihood of discoveries and we invest around 5 per cent of our annual exploration spend into R&D.

Rio Tinto's discovery performance is industry leading and we believe that this capability is a core competency of the Group and it forms a key part of our corporate DNA. It allows us to uncover opportunities, where others don't.

Slide 9 – Winu

The latest example of this strategy and focus paying off is at our Winu Project, located in Western Australia.

We are very encouraged by the initial results, however, the project is at an early stage and we need to complete the work to determine if there will be a project, which is of 'Rio Tinto scale'.

It has some very good attributes including:

- It is a copper and gold system
- It is shallow and suitable for open pit mining
- It is located in a great jurisdiction
- It is located in flat topography
- It is 100% owned; and
- We hold a very large land package in an emerging highly prospective copper-gold belt

We are keen to understand this opportunity as quickly as we can and so are stepping up our field and technical work accordingly.

As I have already said, we have demonstrated our long-term commitment to greenfield exploration and have arguably the best-funded, multi-commodity programme in the industry. This has historically and continues to pay dividends for Rio Tinto.

Winu is just one opportunity of many in our high quality pipeline of exploration projects globally

Slide 10 – World class project delivery

Discovering great growth options is good, but it doesn't mean much if you can't study and execute them well.

To ensure we do this well, we took the steps in 2014 to centralise our major projects execution teams across Rio Tinto. This team is responsible for the execution of all capital projects typically above US\$250m. This team has a significant global remit and has safely delivered more than \$15 billion in high quality projects since its inception.

Our study teams were likewise centralised two years later in 2016. This has ensured we are leveraging our scale and utilising best study practices right across our global portfolio. It also means we are able to bring a consistent focus on innovation, automation and digitisation as we look ahead.

In terms of what these team are working on, as I showed you earlier, they have a busy time ahead of them, and have delivered some recent successes.

The Amrun project came in ahead of schedule and under budget and incorporated some leading edge innovation in design and fabrication.

Our Autohaul® project in the Pilbara is now complete and we can now say that we have the world's largest robot and the first automated heavy-haul long distance rail network globally. A real feat of engineering and a testament to the levels of technological capability within our business.

We have talked a lot about the Oyu Tolgoi underground project of late. Upon completion the OT underground mine will be the world's third-largest copper mine, and it is one of the most exciting copper and gold projects in the world. It is a long life resource which has considerable future optionality.

We have recently announced some updates on the project, and this essentially comes down to two issues. The first is the fit-out of Shaft 2, which will be the eventual main production shaft of the mine, and the second is the underground mine design and development schedule.

As we have already announced, we expect to complete the very complex fit-out of Shaft 2 by October 2019. I was down Shaft 2 only three weeks ago, and it is great to see the team moving forward with the job at hand - they have a plan and are executing it well.

Now turning to the mine design and development schedule. As the underground lateral development has continued, there is now more detailed geotechnical data than what was available at the time of the feasibility study and, as a consequence, our understanding of the rock mass around and under the ore body has improved.

This data reveals there are areas of the mine footprint where the strength of the rock mass is more variable than anticipated. This will require some changes to the mine design and to the location of some critical infrastructure. We are working through this and will update the market as soon as the work is completed.

And onto Koodaideri – this is a project that we are very excited about. This is an iron ore mine that will implement systems connecting all components of the mining value chain for the first time. The development will consolidate everything Rio Tinto has learned from its studies into finding advanced ways to extract minerals while reducing environmental impacts and improving safety. We have a significant number of innovations included in scope, including:

- A digital replica of the processing plant, accessible in real time by workers in the field;
- Fully integrated mine automation and simulation systems;
- Advanced automation including an automated workshop, and;
- Numerous data analytics capabilities and control loops to optimise production and reduce downtime.

We have a number of other exciting options that are progressing through our studies phases including Jadar and Resolution. The Jadar lithium-borates project is progressing through a pre-feasibility study and we will likely update the market some time later in the year on progress. And at the Resolution copper project, as I said before, we have just committed a further \$302 million to progress the studies and permitting.

Slide 11 – Transforming productivity performance

We are currently undertaking a 5 year, company-wide productivity program that will transform Rio Tinto's productivity performance.

It is focussed on creating a culture of working smarter to enable the generation of an additional \$1.5 billion in free cash flow each year from 2021.

To get there, we've established Centres of Excellence to bring together and better leverage our deep expertise in the areas of surface mining, underground mining and processing.

These centres are complemented by three areas of technical expertise that are relevant to all of our operations – these include asset management & infrastructure, ore body knowledge/resources & reserves and automation & technology.

Underpinning all of this technical capability is our productivity strategy and a commitment to nurturing and developing our technical talent through our Technical Excellence programme. We are reliant on

having technically brilliant people in the company to generate the next breakthrough idea that will enhance our operations.

To give you a bit of an idea on where we are directing our efforts, our short-term focus is on replicating leading practices and maximising utilisation across our Mine sites, Processing facilities and Infrastructure, whilst our medium-term focus is on integrating our operations, automation and further innovation across the value chain.

Slide 11 – Productivity example – truck shovel mining

At any one time, we've always got a number of key initiatives in development phase to drive improved productivity across Rio Tinto.

One interesting example that is in development is where we decouple dig units and haul trucks from each other.

The Fully Mobile Surge Loader is a proof of concept project that would allow diggers and trucks to operate almost continuously, without needing to wait for each other.

This system aims to maximise the productivity of both the digger operators and the haul truck drivers at the face while making their jobs safer.

The Fully Mobile Surge Loader is a mobile machine concept, which combines a surge bin and apron plate feeder on tracks.

It is designed to act as a temporary store for material from the digger, which is then delivered to haul trucks autonomously.

The main production benefit is the digger no longer needs to wait for the truck to reverse into position, it can continue digging at the face and loading the surge loader.

By breaking the chain of activity that normally exists between the digger and the haul trucks, the fully mobile surge loader is expected to provide a range of benefits including:

- maximising the use of the digger by allowing it to operate when no trucks are available
- maximising the use of each truck by allowing it to load when the digger is digging
- reducing truck queue and load time
- maximising the truck payload
- reducing maintenance of trucks resulting from the soft loading of rock and more balanced loading; and
- reduced spillage from trucks resulting from better loading the trucks—material loads in the centre of the truck bed.

Slide 13 – Productivity example - process optimisation

One of the other focus areas is integrating the smarts of our team of data scientists with the expertise of our front-line operators to drive a step change performance across our assets.

Currently we are trialling some work that harvests the vast amounts of data generated across our processing plants in our Australian Bauxite operations to help us truly identify and fix constraints in our processing plants.

This is helping us really target down to the lowest level of detail those small tweaks which will help us realise the full potential of our assets.

We are excited by the results so far and have seen step change performance at both our Gove and Andoom bauxite operations.

At Gove, we've seen a 40% improvement in tonnes moved on the overland conveyor through the optimisation of our motors to match the latent capacity in the conveyor system.

At Andoom, the results have been even more impressive. We've seen a near doubling of material movement through this same strategy of solving the system constraints.

We're not done yet, and we expect to further replicate this work across many of our other processing assets soon.

Slide 14 – Conclusion

So to close out I'd like to leave you with a few thoughts:

On performance: - We have once again announced record cash returns to shareholders of \$13.5 billion on the back of \$18.1 billion of underlying EBITDA and we have achieved a Return on Capital Employed of 19%.

On future options: Our ability to find early stage investment options is being demonstrated through the likes of the Winu copper project. On the study and execution front our highly skilled team of professionals have some terrific options that are progressing well including Zulti South, Resolution, Jadar when combined with our Iron ore Projects and of course OT we see a compelling picture for future options.

On execution: We have had significant success right across our portfolio over a number of years, including on Autohaul at Amrun, and at Silvergrass. At OT, which is a very large and complex project, we made good progress in 2018 across many areas and we are very focussed on overcoming our current challenges. We are getting Shaft 2 completed and we are working through the re-design of the mine and we will update the market once completed.

On operating our assets well: We are extremely focussed on managing our major hazard risks and are actively driving the agenda on Tailings Storage Facility management through our active engagement and position on the International Council on Mining & Metals. We released our Standards and Procedures on our website and are supportive of more action to address any gaps. On productivity, we have a clear plan of work and the commitment of the entire organisation to deliver on our promise to the market. On innovation, we have an industry leading track record in delivering technical advancements across our business and our expertise positions us well for a successful digital future. We are progressing along the automation curve and are actively embracing a Tech 4.0 future.

Thank you.