RioTinto

Work of the future:

How do we build tomorrow's inclusive workplace?

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Foreword

"Change will always be challenging, doing it in the right way creates a wealth of opportunity."

Considerable thought and much discussion has gone into what the future of work looks like for our industry and society in general.

At Rio Tinto, we have been very active in our transition to autonomous and remote operations, all of which impacts our current and future workforce. Today, we have state-of-the-art integrated Operations Centres, autonomous drill rigs and haulage systems, and a world-first automated heavy-haul, long distance rail network known as AutoHaul™.

We understand that many view progress with automation as jobs being replaced with machines. However a forward look tells us something different.

We are heading towards a more human-centred world. One where people will have choices in their career that are hard to imagine today, and where the relationship between people and organisations will fundamentally change.

At Rio Tinto, our people are undeniably curious to learn more about such advances. There's a distinct call for involvement in the rapid change unfolding in the workplace. And when employees get hands-on with the technology, new career opportunities arise, skills develop and lifestyle opportunities emerge.

I invite you to have a close read of the following articles. Behind every piece of automation is a story of people-led growth – not so much for the organisation, but for the individual. Change will always be challenging, doing it in the right way creates a wealth of opportunity.

To grasp the opportunity, governments, industry, the community and academia need to act together to ensure people are well-equipped for a digital future. If we don't, we risk fear of the unknown and myths around machines replacing people hindering the transformation of a workforce that can succeed in the digital world.

One of the practical things we're doing is partnering with the Western Australian Government, TAFE WA and industry to develop Australia's first nationally recognised Vocational Education and Training qualifications in automation. Three courses are already accredited and will soon be contributing to the skills of people across industries, not just mining. It is that important.

We hope you enjoy this series of articles on work of the future.

Chris Salisbury
Chief executive Iron Ore, Rio Tinto

November 2019

TECHNOLOGY

How will automation and digitisation affect how we work?

"We have an obligation to create hope, not fear. And we have an obligation to make sure people feel part of this extraordinary transformation."

– Jennifer Westacott, chief executive, Business Council of Australia

Upskilling is going to be needed for a wider range of employees.

Much has been written about the looming impact of technology on jobs, but a closer look suggests we're focusing on the wrong part of the equation.

At face value, the scale of anticipated change looks alarming. One McKinsey study estimates about 25 per cent of tasks in Australia could be automated by 2030 across a range of industries. On the other hand, the Business Council of Australia argues such change is normal. Australian workers now spend about half a day per week doing different tasks to someone with the same job just five years ago.

However the public needs more convincing. A recent Rio Tinto *Work of the Future* survey points to the community's doubt. More than one-third of the population is pessimistic and sceptical about the future workplace – a statistic that increases significantly with age. Our same survey found that more than six in ten Australians see workers being less valued by employers in ten years' time.

So how much change can we expect and where will the change be felt? Jennifer Westacott, chief executive Business Council of Australia, keeps reinforcing that the greatest impact of technology will be the task change within existing jobs.

"Every single job can expect some change in its tasks over the next decade. Over the past five years, the average level of change in tasks within an occupation has been almost ten per cent," she said.

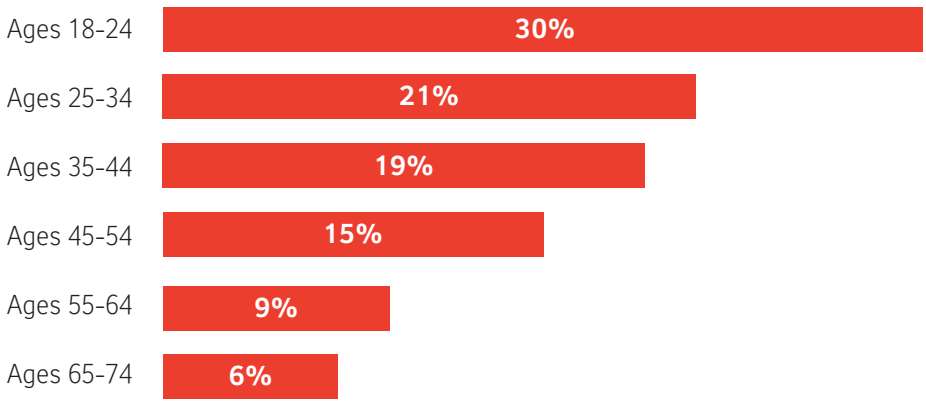
"We are going to see the most impact on low-skilled men aged over 55 years, especially those working in construction and manufacturing. Also affected will be low-skilled people in regional areas, parts of the financial services sector, and low-paid, low-skilled women who often work in the most undervalued jobs."

Professor Salah Sukkarieh from the University of Sydney has been at the practical end of putting automation and intelligent systems into the work environment and is witnessing first-hand the change in tasks.

"You don't need as many operators as before, that's definite in all industries, but you are seeing the upskilling of operators. At the same time, you're opening jobs up to a wider range of employees as they need a wider skill base," he said.

Very optimistic about the future of work by age

Source: Rio Tinto *Work of the Future* survey of the Australian public 2019



What is required to focus beyond the technology?

According to Professor Sukkarieh, it is a decade-long strategy where the culture within an organisation adopts a different type of thinking around technology, as opposed to a focus on the technology itself.

"It's not just the technology development process, but how technology has an impact on the entire operation, so there is a need for a clear vision. That impacts how a workforce may change over time, not just in terms of new types of roles, but things such as thinking and planning processes," he said.

"In mining, for example, your primary concern is where the ore body is; so the initial approach is to focus on extracting it with increased automation. But in reality, we need to couple that with the automation strategy for the next part of the operation, and so on for the entire place.

"Of course you get higher productivity at the end of the day, and you get a reduction in costs. There is a reduction in wear and tear, maintenance, and improvement in operability of equipment. However, we still need people to imagine what's possible, to fix machines and diagnose what is going on."

The need to think deeper on this topic is a common conversation had by Stephen McIntosh, group executive for Growth & Innovation at Rio Tinto.

"The practicality of it all is that it is human ingenuity that is actually enabling our innovation, and in turn is creating new experiences for our people," says Stephen McIntosh.

"For our people, it is acknowledging that while technology will continue to change the way we work, new career pathways are being created, calling on new skills. Just as much of our everyday lives are supported by technology, we're seeing the same partnering with digital content and technology in our everyday work."

As part of this push, Rio Tinto launched its Pioneer Lab, a new internal start-up team and incubator to pilot new projects and help shape future growth. Based in Brisbane, it is being run by Rio Tinto's best and brightest from all over the world.

A different type of thinking around technology is required.

Some, though, worry about our capacity to take up the opportunity in front of us. The Business Council of Australia says only about 9 per cent of listed Australian companies are making a sustained investment in automation. This lags behind the UK and Germany, and is less than half the number in the United States. Faster productivity growth requires a pickup in investment.

According to Jennifer Westacott, it is about seizing the opportunity before us.

"We have an obligation to create hope, not fear. And we have an obligation to make sure people feel part of this extraordinary transformation. We have an obligation to make it real for people's lives and for the things they want out of life," she said.

Kellie Parker, managing director aluminium at Rio Tinto Alcan will soon be witnessing the productivity lift that technology can bring as mines, ports, refineries and smelters for aluminium are integrated in Australia and New Zealand.

Having overseen the asset integration in Rio Tinto's Iron Ore business, Kellie's challenge is to take what the business has learned from Western Australia and improve upon it for the needs of the aluminium business in the Pacific region.

"From 2019 we will be centrally managing mine planning, pit and logistics. We will be able to respond quickly to match customer demand. This is increasingly important for international markets, particularly China," she said.

"We expect technology and data will underpin our productivity improvements. We have seen the model work in our Atlantic operations and Western Australia with Iron Ore. We are taking the best of what works from these operations and applying them to ours in the Pacific," Kellie Parker said.

People need to feel part of the transformation that is already underway.

LEADERSHIP

How do we engage a tech-enabled and diverse workforce?

“At the broadest level, what we could see is a kind of transition from thinking about the economy as centred around organisations to thinking about an economy as being centred around people.”

– Dr Chris Kutarna, fellow, Oxford Martin School

Young Australians are getting ready for the work of the future, but can organisations and their leaders keep up?

Dr Chris Kutarna has been musing about the future of work a lot lately. The best-selling author of *Age of Discovery* and fellow at the Oxford Martin School is a sought-after thinker on how to navigate the new world we are already in.

“It almost sounds glib to say it, but so much of the conversation around the future of work focuses on the technology, when in fact so much of the challenge and the competitive advantage is really about people and culture,” he said.

“People are going to become much more at the heart of things, and organisations are going to be competing, not so much to hire people full time, but to get a piece of their time to get what they need done. People will have these economic lives that revolve more around them and less around the organisations they work for.

“At the broadest level, what we could see is a kind of transition from thinking about the economy as centred around organisations to thinking about an economy as being centred around people.”

Our recent Rio Tinto *Work of the Future* survey found young people expect new and rewarding career paths and greater employment certainty, as well as more opportunity to change jobs.

Dr Chris Kutarna, fellow, Oxford Martin School. (supplied)

Top four community views about what the future of work looks like.

Source: Rio Tinto *Work of the Future* survey of the Australian public 2019

1. More time in front of screens

2. More need for formal qualifications

3. Training will be lifelong

4. Basic skills significantly different

How will the future worker be engaged in an age of technological change?

This is a challenge occupying the mind of Anne Driscoll, the director general at the Department of Training & Workforce Development in Western Australia.

"Because things are changing so much, people often forget the role of educators in this space. People are going to want training anywhere, anytime, bespoke for their needs and absolutely in touch with the latest technology. To be competitive, you're going to have to have up-to-date people," she said.

"Often, it'll be on-the-job training, intermixed with work and there will be a real commitment from the better employers to make sure they retain and upskill their people. They know they've got tried, true and capable people, why not keep developing them?"

According to Chris Kutarna, leaders have a unique role in how the future workforce will be managed but are going to need some help.

"Within the heads of senior executives and how they are thinking about the future there's a macro piece - understanding the changing perspectives - the megatrends. The second thing you need is to take that zoomed-out new perspective and figure out the micro implications of it. What are the implications for my strategy? Do I have a culture that is change-embracing?" he said.

"The third dimension for senior executives is the personal. What do I need to do to lead this change and how does my leadership change? Leading change is the hardest thing that senior executives have to do, and somewhere there needs to be recognition of that."

As Chris Salisbury, chief executive for Rio Tinto Iron Ore, notes, "We are seeing our people come together as problem-solvers. This is requiring not only different ways of working, but also different ways of leading."

A control desk at Rio Tinto operations. Source Rio Tinto.

"There is a shift from a manager in a hierarchical sense, controlling and disseminating information, to a network of collaboration in ways that don't rely on traditional hierarchy or indeed colocation.

"Any organisation facing this change will need to be far more connected, working from an end-to-end perspective as opposed to performance by a product group or site. It will be far more agile and fluid for all employees."

Clare Payne, EY fellow for Trust and Ethics and a leading voice on ethics in society believes we are increasingly searching for values alignment between employees, senior executives, the board and the broader business or brand during this period of technological change.

"The drive for alignment of purpose and values affects everything from recruitment to performance management and even client acceptance," she said.

"Consumers also want companies to stand up for the issues they are passionate about, while employee expectations now include societal change. This is triggering boards and senior executives to reflect on their values and consider their position on big issues such as climate change, diversity and inequality."

"It is about making sure we design a work environment that gives us access to the full talent pool out there, and one that provides a variety of ways to participate."

— Chris Salisbury Chief executive Iron Ore, Rio Tinto

Strong alignment of values between a company and its employees will become more important.

Are we future ready for everyone?

Women's representation in the resources sector is an industry-wide issue. Chris Salisbury from Rio Tinto is determined to see the company address the imbalance.

"It is about making sure we design a work environment that gives us access to the full talent pool out there, and one that provides a variety of ways to participate. The technology and new career paths that are opening up will definitely help us attract more women. We are very focused on developing role models that inspire women to pursue a career with our industry," he said.

Change in work practices will need to bring everyone along. There is a critical role for Aboriginal and Torres Strait Islander peoples. This is an area of intense focus, and critical for companies like Rio Tinto that often operate on Aboriginal land.

For things to be really different in ten years, people need to be starting now," says senior Noongar woman and recently retired Edith Cowan University professor Colleen Hayward.

"It's not just good enough to get Aboriginal people in the door, it has to be the right door. What do the promotional opportunities within an organisation, or a corporate structure look like? And what is the layered approach to Aboriginal cultural learning to support that?

"So that idea of developing a path and having strategies that are deliberate and concerted is critical. Otherwise, in ten years' time, you're going to look around and people's sensitivity to the need might have increased, but there still won't be the pool of people to meet that need.

"It's things like a non-Aboriginal team leader not being able to apply for a promotion to the next level without further cultural learning. That'd be a good thing."

HEALTH AND WELLBEING

How can technology promote wellbeing?

"There is now more choice and not everyone needs to be in a remote location. Because of this, we have people actively involved in the mining industry, contributing at the cutting edge of technology, and doing it in ways that integrate really well with family and community."

– Stephen McIntosh, group executive for Growth & Innovation, Rio Tinto

The definition of employee safety is widening to include wellbeing and mental health. How will technology help this or are new risks on the horizon?

In their 2017 study on how Australia can seize the digital opportunities before it, McKinsey estimates digital advances in mining can reduce safety incidents by up to 50 per cent through increased equipment reliability and the use of automated equipment in potentially hazardous areas.

However automation and robotics alone don't necessarily lead to reduced safety risks or an improvement in employee wellbeing.

According to Professor Salah Sukkarieh from the University of Sydney, you start getting mixed manned and unmanned operations that can add complexity to the safety equation.

"It's not as though you can just say I'll throw a robot in here and that's it, it's done, because you are putting automation into what was classically a staffed operation. There are scenarios you have to go through in order to be able to improve safety," he said.

"You have to get your mechanisms, your processes in place operationally to ensure that you don't get people into harm's way. That gets quite complex. It also slows down the implementation and there are aspects around productivity that kick in."

Mixed robot and people environments will happen and create their own complexity.

Rio Tinto sees the upside from automation and reducing the exposure to hazards for people at the forefront of operations as just the start.

"There is now more choice and not everyone needs to be in a remote location. Because of this, we have people actively involved in the mining industry, contributing at the cutting edge of technology, and doing it in ways that integrate really well with family and community. We are seeing some great examples of wellbeing and balance, if you look from a lifestyle perspective," Stephen McIntosh from Rio Tinto said.

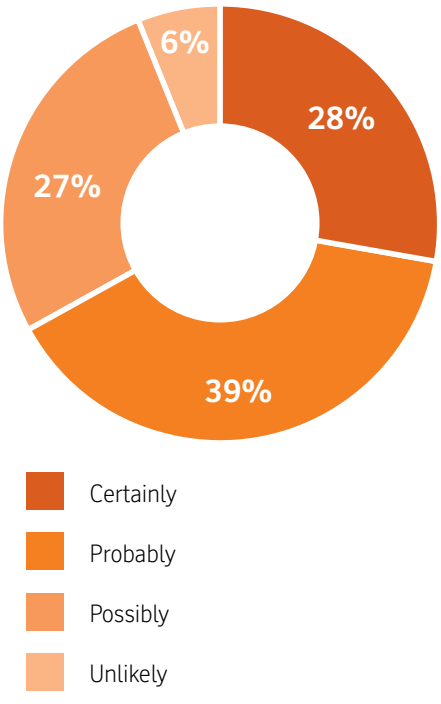
"Even in a practical sense, with the automation we have introduced, once workers understand how it works and the fail-safes, teams are preferring to work in autonomous pits due to the trust they place on the machines. There is a big payoff with people safety and overall wellbeing."

The upshot of all this work is being recognised. In 2019 and for the first time, Rio Tinto entered Boston Consulting Group's list of the world's 50 most innovative companies.

Change represents real risks for employees bringing into greater focus individual wellbeing.

Will work be safer in the future?

Source: Rio Tinto *Work of the Future* survey of the Australia public 2019



Is change the new workplace wellbeing risk?

A consistent theme across our interviews is that work of the future is all about change. It will be organisations that anticipate the impact of such change on the wellbeing of employees that will usher in sustainable and productive change.

Clare Payne, EY fellow for Trust and Ethics, says the challenges of change on employees are well known.

"Change can present real risks to individuals, such as insecure income, which can affect every aspect of an individual's life, particularly their ability to plan for their future," she said.

"There is also the insecurity from not knowing if there will be enough work, which could have mental health impacts. Then there's the potential isolation if people don't have workplaces or places to gather, which could be difficult for some people, leading them to lose a sense of connection and purpose.

"We're already seeing a decline in full-time employment and the rise of the gig economy or what we might call 'portfolio careers' at the senior level. There is great opportunity with these changes but also risks in terms of protecting rights."

According to Dominic Price, work futurist at Atlassian, there needs to be a shift in how we value work if we want to ensure a focus on wellbeing.

"Just because I can work 24/7 doesn't mean that I should work 24/7, so how do we open ourselves up to new ways of working?" he said.

"As technology and automation become more and more prevalent in the workplace, what does that mean for how we manage our energy and our creativity? My hope is that we move into a time where we reward and recognise people for the value that they bring to an organisation and not necessarily the hours that they do."

The importance of organisations thinking more broadly about wellbeing during change is on the mind of Anne Driscoll, director general at the Department of Training & Workforce Development in Western Australia.

"Clearly, this constant change, constant evolution of technology is stressful. Good organisations are supporting people through that and helping them see the future," Anne Driscoll said.

"At the highest level there is a risk down the track from all this change on the haves and the have nots in the community. This is an issue for the community all up, not only governments. It's also an opportunity for businesses to look at the way they operate and ask, 'How are we going to maintain the Australia we enjoy?'"

Further down the track, Rio Tinto is seeing benefits that start with safety but lead to improved financial and environmental outcomes. Autonomous mines of the future for example will have different slope requirements as people will not be in that environment and at risk. This will require less overburden to be removed and a reduced footprint.

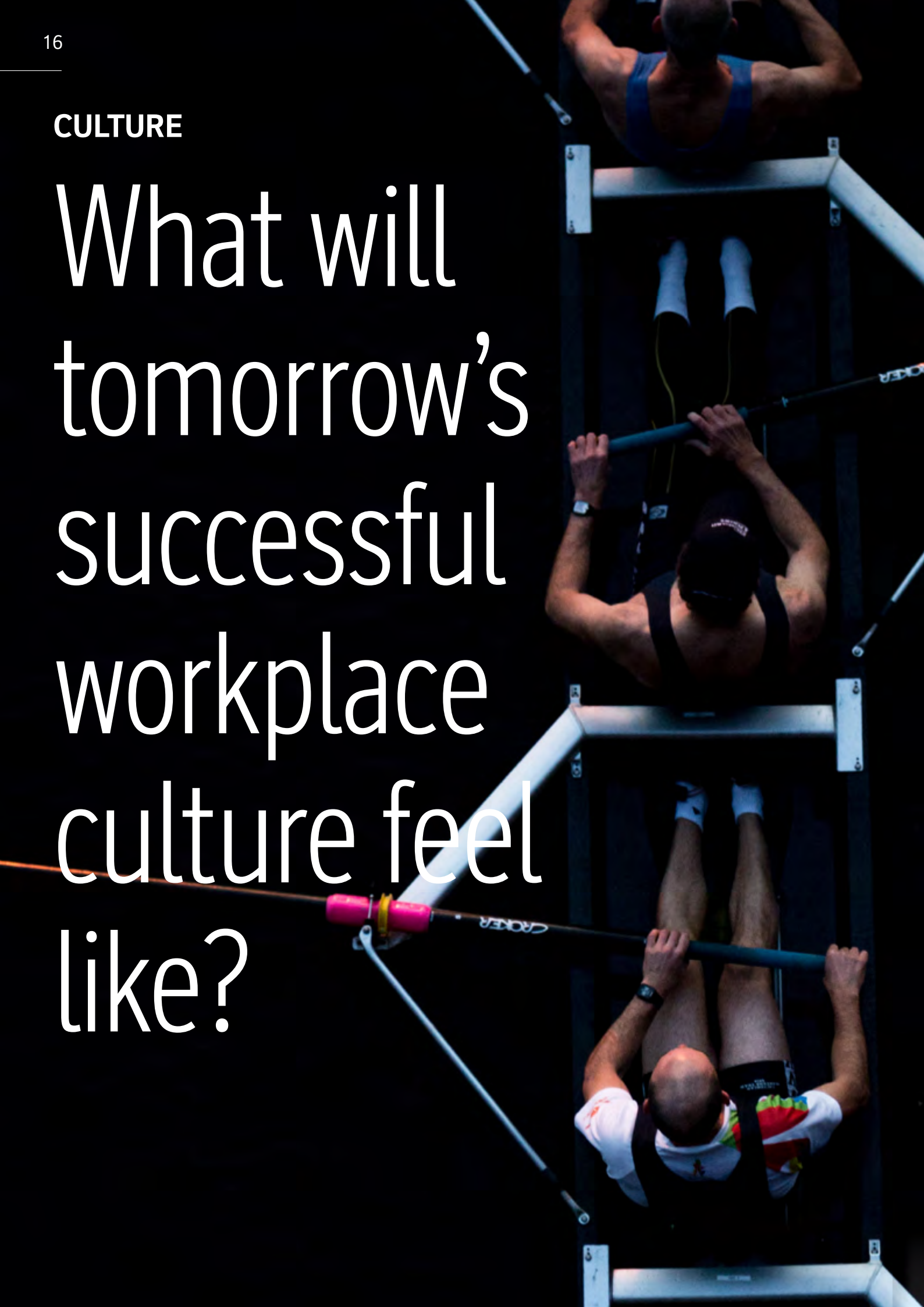
"In the past, we've always gone 'bigger is better' in terms of our equipment because we've had people on them and a need to get as much pay load as possible. With autonomous vehicles – they can be smaller with more of them. This changes everything from the scale of maintenance to going electric. Risks get further reduced and the environment can benefit," says Stephen McIntosh from Rio Tinto.

Professor Salah Sukkarieh: "It's not as though you can just say I'll throw a robot in here and that's it, it's done." (University of Sydney supplied)

Change can result in haves and have nots – an opportunity for business to look at how we maintain an Australia we enjoy.

CULTURE

What will tomorrow's successful workplace culture feel like?



"We don't own a crystal ball to try to guess what's going to happen. Instead of guessing, we look at trends. We then experiment, explore and critique as we try things. The things that work, we do more of and the things that don't, we do less."

— Dominic Price, work futurist, Atlassian

A sustainable culture is often an elusive but necessary ingredient for a successful organisation. When it comes to the work of the future should culture play such a front and centre role?

Dominic Price has one of those roles in one of those organisations that opens the mind to all things possible. He holds the role of work futurist at business software company, Atlassian.

"Part of our mission is to unleash the potential in every team, and in doing that, we realise that we need to have one eye on the future. We're trying to build products and experiences that people want to use tomorrow, and build things that help people navigate into that future," he said.

But if you think Dominic's role is about uncovering the future, you would be mistaken.

"We don't own a crystal ball to try to guess what's going to happen. Instead of guessing, we look at trends. We then experiment, explore and critique as we try things. The things that work, we do more of, and the things that don't, we do less."

Chris Kutarna, best-selling author of *Age of Discovery* and fellow at the Oxford Martin School, holds a similar view about how to uncover the future of work.

"A lot of the times, thinking differently about the future is not necessarily about the time horizon as much as it is looking at the same stuff from a different angle and seeing a different set of relationships," he said.

"The role of culture will be less about traditional definitions of culture and more about how people work together and for what purpose."

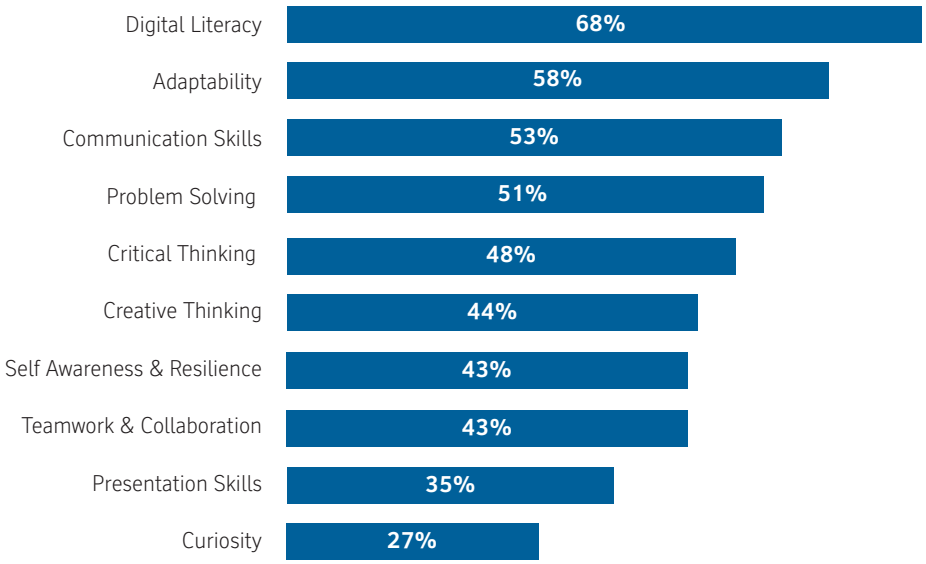
At Atlassian, Dominic Price is focused on how to open minds, ways of collaboration, ways to show respectful dissent, and ultimately, the way to innovate and delight customers.

"Probably one of the most powerful things that we've done at Atlassian is around our values and how we've brought them to life. We have values like play as a team, build with heart and balance, be the change you seek, don't #@!% the customer," he said.

"They're values that we hire for, so anyone who we're trying to recruit into Atlassian actually has a values interview. We care significantly more about the values fit as opposed to cultural fit."

Skills highly likely to be required 10 years from now

Source: Rio Tinto *Work of the Future* survey of the Australian public 2019



"I think the better way to frame it is really a war to be the best adapters, and to be the best adopters of new ways of working that better leverage the technology that's available"

— Chris Kutarna

"If you hire for culture fit, you hire the same people you've already got and that doesn't give you that diversity of thought and that respectful dissent. It just gives you a lot of people that look, smell and feel the same and agree a huge amount. When you have a whole lot of likeminded people in the room very rarely do you innovate."

Values in turn need to be complemented with the right skills. In our *Work of the Future* survey, 68 per cent of people considered digital literacy as being highly likely to be required in ten years' time, falling to 27 per cent for curiosity as a highly likely skill. Yet all the skills surveyed are going to be required in equal measure in the future.

"The better way to frame it is really a war to be the best adapters, and to be the best adopters of new ways of working that better leverage the technology that's available," says Chris Kutarna.

"Giving people more runway in their roles is another practical step. If you're hired into a role, do you have one year to demonstrate your results, or do you have three or five? If you've got more of a runway, then you can start to bring more future horizon into the decisions that you're making in year one."

For employees to be more engaged with the future they will require stability in their roles.

What will be the cultural change challenge?

The notion of what it will mean to put people at the centre of the future organisation is a common theme in our interviews.

"We have some amazing automation technology skills now and on the horizon, but it's humans that bring creativity and connectedness and the ability to rally capability across our organisation," says Stephen McIntosh from Rio Tinto.

"From a business perspective, it is about the type of environment and the type of culture we need to generate to offer current and future employees a differentiating, fulfilling career, and what gaps we need to close to make that happen.

"We have found that bringing the end users of new technology, such as remote operators, into the conversation early makes a massive difference. Understanding what our people need and what would make a difference before we start automation projects really helps teams to absorb the change and quickens the pace of change."

Professor Sharon Parker, director at the Centre for Transformative Work Design at Curtin University, puts the cultural challenge more bluntly.

"Despite a great deal of rhetoric about flexibility and agility, many organisations still operate as highly bureaucratic institutions with a focus on standardisation and centralisation. Ultimately these organisations are unlikely to be sufficiently dynamic to capture advances in technology," she said.

"So rather than expecting technology to magically transform everything, organisations need to start now by fostering more dynamic and collaborative work practices.

"We need to give more attention to how technology interacts with human work, such as how workers and machines operate together as a team, and how algorithmic decision making can complement human knowledge rather than simply usurp it. Most crucially, we need to move away from thinking 'it's all about how humans adapt to technology' and instead recognise that 'it's also about how we adapt technology to humans' so as to best harness and develop human talent."

Dynamic and collaborative work practices will be critical in the cultural shift.

VISION

What does the workplace look like in 2050?

"A good acid test for any organisation is who is being paid to think about the future? Who has it in their job description and is actually being given time to do the looking ahead, not just for the next day or quarter?"

– Dr Chris Kutarna, fellow, Oxford Martin School

The key to understanding the work of the future is to first start thinking about the future of society.

In preparing this work of the future series we asked all our interviewees about what the workplace will look like in 2050. Five key themes emerge, all around how differences in notions of the organisation, employees and society start to fade in the future.

1. People centred, not organisation centred

This is a key theme of Chris Kutarna, the best-selling author of *Age of Discovery* and fellow at the Oxford Martin School. It is about the transition from viewing the economy as centred on organisations to viewing the economy as being centred around people.

"We are likely to have much more mature two-sided markets for a wider range of human skills – a market where people are both a supplier and consumer. Imagine work and jobs becoming seen less as things that we do for an organisation, as they are now, and more like 'earnings services' that we consume from multiple organisations," he said.

"So, I'm an individual and I have all sorts of goods and services that I consume, things that I want to buy. But another thing that I also need is a way to make money. I look out in the economy, and I find all sorts of organisations that are willing to effectively sell me a job and pay me money in exchange.

According to the World Economic Forum, a human-centred approach for economic growth is going to be critical as the world moves into a 'fourth industrial revolution'. Social inclusion will need to be consciously designed into this new economy to better manage the risks new technologies may bring. The implication is that new informal processes will evolve between business, government and the social sector.

2. Employee and customer boundaries gone

Dominic Price, work futurist at Atlassian, is a firm believer in Conway's Law, which basically says an organisation's structure and methods will slip their way into your products and services. The reasoning is that for a piece of software to evolve, many people need to communicate frequently with each other. The problem is the boundaries of the organisation hinder this, which ultimately sees fault lines in the final product.

"For us, we know our customers are trying to innovate, they're trying to evolve. They're worried about the future of work. So every time we build a new version of our software, we use it ourselves before we release it to the public. It's a great way of demonstrating empathy with our customers," he said.

"Every time we find a new technique of how we work well at Atlassian, we share that with the world. We've published all of our own internal ways of working and we've shared it for free, because we genuinely want teams to unleash their potential and we know that those human-to-human practices find their way into products."

3. Leaders who don't manage

Anne Driscoll, director general at the Department of Training and Workforce Development, Western Australia, is hearing from young people that they are looking for a place that operates ethically, first in terms of its culture, but also in the way it does its business.

"It's demanding, it's challenging but it's also fun and nurturing. They're also looking for organisations that will support them throughout the evolution of a business and for the outcomes to be environmental and ethical," she said.

Clare Payne, EY fellow for Trust and Ethics, agrees. "Business leaders should get to know and understand their people. Listening to what people want from their work and personal life will be critical to engaging and maintaining their loyalty and trust, and thus performance."

"Qualities such as empathy and care will be as important as technical skills. Having both will put people in good stead to excel at work and in leadership. Employers will have to become better listeners, listening to both their staff, their customers and others who are impacted by their business."

According to Chris Kutarna, "At a very senior level, you're probably going to be expected to be collaborating with a pretty wide range of people who are actually adding value, as opposed to just managing other people. So working closely with the value creators is going to be a fundamental difference. There will be a need for an extremely diverse sort of leadership capability.

"A good acid test for any organisation is who is being paid to think about the future? Who has it in their job description and is actually being given time to do the looking ahead, not just the next day or quarter? If no one is, then the future is just wishful thinking by the organisation, and it's not going to happen."

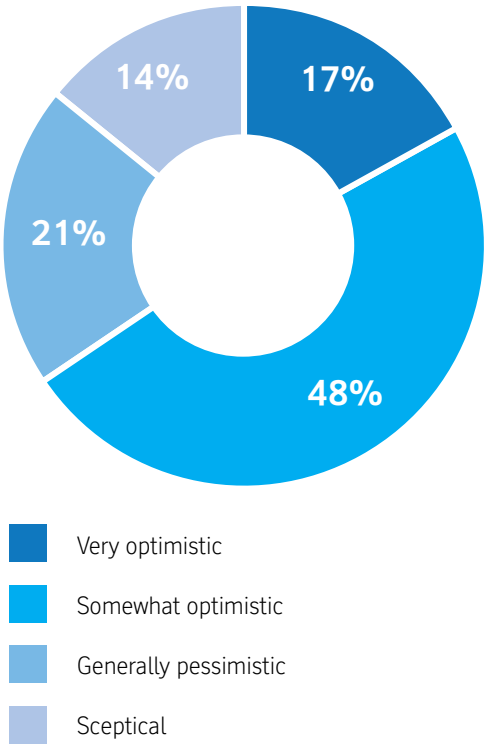
"Listening to what people want from their work and personal life will be critical to engaging and maintaining their loyalty and trust, and thus performance."

– Clare Payne, EY fellow for Trust and Ethics

Employees will look for organisations that support them through the evolution of business. Rio Tinto operations centre (source Rio Tinto).

Optimism about work in the future and the opportunities for me, my family and society

Source: Rio Tinto *Work of the Future* survey of the Australian public 2019



People will be employed for their skills in any number of organisations.

4. Many jobs at once, not one organisation at once

People will be 'employed' for their skills at any number of places. They will gravitate to organisations that adapt to this way of employing people and are better at engaging employees and selling the purpose of the organisation.

"Individuals are going to have more power and freedom to choose what they want to do and, in some respects, organisations might have less. People are going to become much more at the heart of things. Organisations are going to be competing not so much to hire people full time, but to get a piece of their time to get what they need done," says Chris Kutarna.

This change is causing all sorts of delays in social systems. According to Chris a lot of the supporting aspects of society - unemployment services, welfare and pensions, even personal tax - are built around an economic model that assumes organisations are at the centre, and people that are largely connected to organisations.

"That model is changing, everything from how education takes place to how portable our pensions are and how we pay our share are in question."

5. Skills that are values

Dominic Price's comment about recruiting for values not culture is thought provoking. It is a sure way to ensure you are not employing people who think and act the same.

A closer look at Atlassian's values, however, show them to be skills in themselves. 'Build with heart and balance', or 'be the change you seek' are in the same skill set as critical and creative thinking, collaboration, and self-awareness. These are three well identified skills for the future of work.

But the future is not all about different personal or organisational values. As Kellie Parker from Rio Tinto points out, there are some values or parts of a culture that absolutely need to stay the same long into the future.

"A strong safety culture, the pride that people have working in this industry, the focus on results and operational performance – these will always remain absolutely critical no matter how much things change."

The final word comes from Professor Sharon Parker, director at the Centre for Transformative Work Design at Curtin University.

"Unless we pay more attention to proactively creative smart work, the gap between good work and poor work will widen, with negative social consequences," she said.

"Organisations that embrace these challenges in a spirit of open-minded learning will, ultimately, contribute to both social and economic success".

The Rio Tinto *Work of the Future* survey was conducted during January 2019 across Australia in a nationally representative survey of 1534 people.

Interviewees for this publication

Anne Driscoll, director general, Department of Training and Workforce Development, Western Australia

Colleen Hayward AM, senior Noongar woman, recently retired professor Edith Cowan University

Chris Kutarna, best-selling author of *Age of Discovery*, fellow, Oxford Martin School

Stephen McIntosh, group executive, Growth & Innovation, Rio Tinto

Kellie Parker, managing director, Pacific Operations, Rio Tinto Alcan

Professor Sharon Parker, director at the Centre for Transformative Work Design, Future of Work Institute, Curtin University

Clare Payne, EY fellow for Trust and Ethics, fellow at The University of Melbourne

Dominic Price, work futurist, Atlassian

Chris Salisbury, chief executive, Rio Tinto Iron Ore

Salah Sukkarieh, professor of Robotics and Intelligent Systems, University of Sydney

Rio Tinto

Endnotes

Pages 5 & 7 statements by the Business Council of Australia: speech by Jennifer Westacott at the National Press Club 31 October 2018, and Business Council of Australia Fact sheet: Will Technology Destroy Jobs?

P13 McKinsey study, Digital Australia: Seizing the opportunity from the Fourth Industrial Revolution.

P13 Boston Consulting Group: https://www.bcg.com/publications/collections/most-innovative-companies-2019-artificial-intelligence-platforms-ecosystems.aspx.

P21 World Economic Forum, Towards a human centred model of economic growth https://www.weforum.org/agenda/2017/06/toward-a-human-centered-model-of-economic-growth/ and report Advancing Human-Centred Economic Progress in the Fourth Industrial Revolution G20/T20 Policy Brief – May 2017.

P21 Conways Law (Wikipedia): "The law is based on the reasoning that in order for a software module to function, multiple authors must communicate frequently with each other. Therefore, the software interface structure of a system will reflect the social boundaries of the organization(s) that produced it, across which communication is more difficult."

Disclaimer: This publication contains general information only in relation to the future of work and the role of the mining and resources industry, it does not provide an exhaustive account of new and upcoming trends and/or technologies in relation to this subject matter. Its contents are based on a series of interviews conducted from January to April 2019 and the comments and opinions provided herein are those of the relevant interviewee only and not those of Rio Tinto. This publication is not a substitute for professional advice or services and it should not be used as a basis for any decision or action that may affect your finances or your business. None of Rio Tinto, its Related Bodies Corporate or its and their respective affiliates shall be in any way responsible for any loss (however arising) by any person who relies on this publication.