THE STATE OF PLAY
Understanding the nature of strategy and innovation in the primary industries

2019 Survey Data Pack
Overview

1. ABOUT STATE OF PLAY

2. DATA PACK
State of Play – largest mining survey in the world

800+ Respondents to the 2018/19 survey
399 Companies in 2018/19 survey
68% Of respondents were executives in 2018/19
60 Countries represented in 2018/19
13 Commodities represented in 2018/19
70+ CEOs & Board members interviewed since 2013
$800bn Combined market capitalisation of interviewed companies

‘What this survey really does is drive an arrow through the major mining innovation issues. I hope people pay a great deal of attention to it’

– Mining CEO
Our aspirations for State of Play

We are striving to create an independent, standalone platform to support discussion of innovation at a strategic level, uncover fundamental insights into the industry dynamics and identify trends in how businesses are establishing competitive advantage.

What differentiates strategy and innovation in the primary industries…

- High capital, long lifecycle investments and significant market risk
- Community integration across countries and regions, often as an alternative to government
- Gap in available literature, most of which focuses on consumer or technical innovation
How State of Play consistently produces quality insight

Our roots are in the development of strategy for businesses in the primary industries, giving us a great foundation of knowledge and an extensive network.

We find and ask global experts and senior business leaders their perspectives to challenge our own thinking as well as others.

We hire the best students from leading universities, train them in our strategy advisory business and give them autonomy.
State of Play’s innovation return metrics

In a world first, our researchers have uncovered the direct relationship between innovation strategies and total shareholder return in the mining industry.

The rest of the industry relies on flawed approaches:

**Mythologies**
- Relies on anecdotal evidence and industry “best-practice”
- Skewed by personal experiences of key decision-makers
- Shaped by stakeholders with specific agendas
- Not based on quantitative data over the long-term
- Hard to disprove due to complexity of factors

**Academic papers**
- Uses R&D spend or patents as measure of innovation
- Doesn’t address the methods to execute innovation
- R&D spend often distorted by tax incentives and structures
- Patents is not applicable in natural resources context
- Studies not conducted in mining, limiting applicability

We hand picked 15 global companies who manage over 17 commodities and measured their individual innovation perspective

**Relationship Analysis**

\[
\text{Company Performance Relative to share market returns} = \frac{1}{\text{Total shareholder returns (Share price + dividends)}}
\]

1. Total shareholder returns
2. Over a four year period Dec 31 2014 – Jan 13 2019
3. Risk adjusted To account for volatility
State of Play has engaged leaders across the globe

- Alan Bye: Vice-President, Technology, BHP
- Alex Atkins: Non-executive Director, Ausdrill
- Alister MacPherson: General Manager, Caterpillar (Westrac)
- Andrew Harding: CEO, Rio Tinto Iron Ore
- Andrew Melouney: CSIO, Woodside Energy
- Andrew Michelmore CEO of MMG
- Andy Munro: General Manager, Rio Tinto Iron Ore
- Barry Fitzgerald CEO of Roy Hill
- Bill Rupp, CEO (former) JBS Beef
- Brad Parsons: CEO and Founder, MOVUS
- Brent Beregon, Vice-President, GoldCorp
- Carl Weatherell: CEO, Canada Mining Innovation Council
- Carla Boehi: Digital Operations Manager, Caterpillar (Westrac)
- Charlie Burgett, Director, MM-ISAC
- Chris Erikson: General Manager, Roy Hill
- Chris Griffiths: CEO, Anglo Platinum
- Chris Salisbury: CEO, Rio Tinto Iron Ore
- Chris Steppard: CEO, AngloGold Ashanti
- Daein Chai: Managing Director, Transborders Energy
- Danielle Bull: General Manager, Caterpillar (Westrac)
- Darren Matthews, General Manager, Rio Tinto
- David Martin: Co-founder & Managing Director, Power Ledger
- Davis Cook: CEO, Research Institute for Innovation and Sustainability (RIIS)
- Debby Blakey: CEO, HESTA
- Denise Goldsworthy, Chair, MMWA
- Diane Smith-Gander: Non-executive Director, Western Farmers
- Diego Hernández CEO, Antofagasta PLC
- Edward (Eddie) Fry, Chairperson, Indigenous Land Corporation
- Erica Smyth: Chair (former), Toro Energy
- Frank Tudor: CEO, Horizon Power
- Gary Goldberg CEO, Newmont Mining
- Glenn Kelow CEO, Peabody Energy
- Graeme Hunt: Chairman, AGL
- Graeme Speak, Founder & CEO, Bank Vault
- Graham Kerr: CEO, South32
- Ivan Arriagada: CEO, Antofagasta PLC
- Jack Sato: Chairman, Transborders Energy
- James McClements: Managing Partner, Resource Capital Funds
- Jason Waters: CEO, Synergy
- Jimmy Wilson: CEO, CBHI Group
- Johan Coetzee: Director, South32
- John de Vries: CEO, Blackrock Mining
- John Voelter: CTO (former), Black & Veatch
- Jon Bell, CEO, Greenfields Exploration
- Kirby Johnson: Global Partner, Cognizant
- Luiz Mello, Executive Manager, Vale
- Mark Woffenden: CEO, MMWA
- Mark Stickleys, Executive Director, Pawsey Supercomputer
- Matt Taylor: CEO, Western Rock Lobster Council
- Michelle Ash: Chief Innovation Officer (former), Barrick Gold
- Mike Lomman: General Manager, Roy Hill
- Mike Neal: Co-founder and CEO, DecisionNext
- Neal Froneman: CEO, Sibanye Gold Limited
- Partha S. Bhattacharyya, Chairman and MD (former), Coal India Limited
- Philip Davies: CEO, Infrastructure Australia
- Prakash Thangamuthu: Managing Director, Thriveni Earth Movers
- Rebbecca Kerr: General Manager, Roy Hill
- Rick Howes: President and CEO, Dundee Precious Metals
- Robert Gray: Chief Commodities Strategist, Resource Capital Funds
- Robert Hough, Deputy Director, CSIRO
- Robert Rodriguez: CEO, Snet
- Sandeep Biswas: CEO and MD, Newcrest Mining Limited
- Sean Boyd: CEO, Agrico Eagle
- Sietse van der Woude: Chairman, South African Institute of Mining and Metallurgy
- Sharon Warburton: Non-executive Director, Fortescue Metals Group
- Srinivasan Venkatakrishnan: CEO, AngloGold Ashanti
- Stephen McIntosh: Group Executive, Rio Tinto
- Strini Mudaly, CIO, Gold Fields
- Stuart Torkin: CEO, Northern Star
- Sudip Chaudhuri, Global Practice Head for Mining, WiPro Limited
- Sue Murphy: CEO, Water Corporation
- Tamryn Barker: CEO, CORE
- Terence Goodlace: CEO (former), Impala Platinum
- Thomas Lean: Vice-President, BHP
- Tom Albanese: CEO, Vedanta Resources
- Tom Butler: CEO, International Council on Mining and Metals (ICMM)
- Tom Goeke, Director, CISCO
- Tracey Stalder: Managing Director, Barwon Water
- Vanessa Guthrie: CEO, Minerals Council of Australia
- Vinay Prakash: CEO, Adani Enterprises
- Zane Prickett: Director, Unearthed

NOTE: Titles correct as of interview date; Not exclusive
State of Play has been supported by a network of global relationships
Overview

1. ABOUT STATE OF PLAY

2. DATA PACK
### Global Trends

We asked: Which of the following global trends will have the biggest impact on innovation in mining over the next 15 years?

*By % of respondents given three options*

<table>
<thead>
<tr>
<th>Trend</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological change and disruption</td>
<td>65</td>
</tr>
<tr>
<td>Environmental pressures</td>
<td>57</td>
</tr>
<tr>
<td>Transparency and social expectations</td>
<td>39</td>
</tr>
<tr>
<td>Technically aware generation entering the workforce</td>
<td>31</td>
</tr>
<tr>
<td>Renewable energy transition</td>
<td>29</td>
</tr>
<tr>
<td>Role of government and regulation</td>
<td>23</td>
</tr>
<tr>
<td>Asian (inc. India) economic development</td>
<td>20</td>
</tr>
<tr>
<td>Geopolitical tensions</td>
<td>14</td>
</tr>
<tr>
<td>Ageing population</td>
<td>13</td>
</tr>
<tr>
<td>Globalisation</td>
<td>10</td>
</tr>
</tbody>
</table>

Sources: State of Play

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The author's right to be identified has been asserted
Technology Areas

We asked: Which underlying technology areas will have the biggest impact on innovation in mining over the next 15 years?

By % of respondents given three options

<table>
<thead>
<tr>
<th>Technology Area</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robotics and automation</td>
<td>73</td>
</tr>
<tr>
<td>Artificial intelligence and analytics</td>
<td>67</td>
</tr>
<tr>
<td>Sensing and data</td>
<td>51</td>
</tr>
<tr>
<td>Energy technologies</td>
<td>33</td>
</tr>
<tr>
<td>Virtualisation and augmented reality</td>
<td>20</td>
</tr>
<tr>
<td>Communications technology</td>
<td>20</td>
</tr>
<tr>
<td>Manufacturing technologies</td>
<td>12</td>
</tr>
<tr>
<td>Advanced materials</td>
<td>11</td>
</tr>
<tr>
<td>Computing power</td>
<td>10</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>5</td>
</tr>
</tbody>
</table>

Sources: State of Play

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We asked: Which of the following industry trends will have the biggest impact on innovation in mining over the next 15 years?

By % of respondents given three options:

- Environmental concerns: 45%
- Commodity prices: 40%
- Ore body grades: 40%
- Community expectations: 32%
- Energy costs: 30%
- Mining specific technologies: 30%
- Attracting people into the industry: 29%
- Deeper ore bodies: 26%
- Country risk: 19%
- Health and safety: 11%
Government and industry bodies

We asked: Where can government best intervene to support innovation in mining?

By % of respondents given two options

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation</td>
<td>39</td>
</tr>
<tr>
<td>Tax policy</td>
<td>37</td>
</tr>
<tr>
<td>Collaboration</td>
<td>37</td>
</tr>
<tr>
<td>Research</td>
<td>32</td>
</tr>
<tr>
<td>Skills</td>
<td>25</td>
</tr>
<tr>
<td>Venture capital and start-ups</td>
<td>14</td>
</tr>
<tr>
<td>Technology roadmap</td>
<td>13</td>
</tr>
<tr>
<td>Mining piloting site</td>
<td>3</td>
</tr>
</tbody>
</table>

Sources: State of Play
Potential Disruption

We asked: Where is disruption in the mining industry most likely to come from?

By % of respondents given three options

- People: 47%
- Data: 42%
- Business models: 39%
- Community: 36%
- Energy: 33%
- Supply chain: 22%
- Extraction: 22%
- Customers: 21%
- Exploration: 20%
- Processing: 19%

Sources: State of Play

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The author’s right to be identified has been asserted
## Mining perception

We asked: Why is mining perceived negatively in society?

*By % of respondents given three options*

<table>
<thead>
<tr>
<th>Perception</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental impact</td>
<td>79</td>
</tr>
<tr>
<td>Poor understanding/communication of mining benefits</td>
<td>54</td>
</tr>
<tr>
<td>Community impact</td>
<td>34</td>
</tr>
<tr>
<td>Extractive and unsustainable</td>
<td>32</td>
</tr>
<tr>
<td>Association with fossil fuels industry</td>
<td>26</td>
</tr>
<tr>
<td>Not seen as technologically advanced</td>
<td>17</td>
</tr>
<tr>
<td>High profile accidents</td>
<td>17</td>
</tr>
<tr>
<td>Economic distortions</td>
<td>16</td>
</tr>
<tr>
<td>Poor industry representatives</td>
<td>13</td>
</tr>
<tr>
<td>Influence with government</td>
<td>10</td>
</tr>
</tbody>
</table>

Sources: State of Play

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The author’s right to be identified has been asserted
Who is impacting innovation

We asked: Who is driving innovation in the mining industry the most?

By % of respondents given three options

- Large mining companies: 70%
- Small services companies (incl. start-ups): 50%
- Research institutions: 43%
- Other industries: 30%
- Large services companies: 29%
- Small mining companies: 23%
- Engineering and construction: 21%
- Contract mining companies: 18%
- Explorers: 11%
- Governments: 4%

Sources: State of Play

The author’s right to be identified has been asserted

© VCI Australasia Pty Ltd as trustee for VCI Unit Trust 2019
We asked: Where in the value chain are your innovation efforts primarily focused today?

By % of respondents given three options:

- Data: 55%
- Extraction: 44%
- Processing: 40%
- Business models: 35%
- People: 34%
- Exploration: 24%
- Supply chain: 22%
- Energy: 19%
- Customers: 14%
- Community: 14%

Sources: State of Play
Value source

We asked: What are your company’s main sources of value from innovation?

By % of respondents given three options

<table>
<thead>
<tr>
<th>Source</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating costs</td>
<td>58</td>
</tr>
<tr>
<td>New opportunities</td>
<td>48</td>
</tr>
<tr>
<td>Risk reduction</td>
<td>44</td>
</tr>
<tr>
<td>People</td>
<td>25</td>
</tr>
<tr>
<td>Market revenue</td>
<td>25</td>
</tr>
<tr>
<td>Throughput</td>
<td>25</td>
</tr>
<tr>
<td>Project viability</td>
<td>24</td>
</tr>
<tr>
<td>Brand</td>
<td>22</td>
</tr>
<tr>
<td>Capital costs</td>
<td>20</td>
</tr>
<tr>
<td>Community support</td>
<td>9</td>
</tr>
</tbody>
</table>

Sources: State of Play

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The author’s right to be identified has been asserted
We asked: As a mining business, where would you accept risk in order to increase financial returns?

By % of respondents given three options

<table>
<thead>
<tr>
<th>Category</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>66</td>
</tr>
<tr>
<td>Partnering</td>
<td>44</td>
</tr>
<tr>
<td>Exploration</td>
<td>31</td>
</tr>
<tr>
<td>Country (geography)</td>
<td>29</td>
</tr>
<tr>
<td>Acquisitions</td>
<td>28</td>
</tr>
<tr>
<td>Asset development</td>
<td>27</td>
</tr>
<tr>
<td>Operations</td>
<td>24</td>
</tr>
<tr>
<td>Market (pricing)</td>
<td>22</td>
</tr>
<tr>
<td>Asset design</td>
<td>17</td>
</tr>
<tr>
<td>Ore body</td>
<td>12</td>
</tr>
</tbody>
</table>

Sources: State of Play

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The author's right to be identified has been asserted
Transparency as a driver of value

We asked: Will transparency of the source of raw materials become a significant driver of value for mining companies?

By % of respondents

Yes: 58%
Unsure: 27%
No: 15%

Sources: State of Play
Cyber security

We asked: Does your company place sufficient emphasis on cyber security?

By % of respondents

Yes: 63%
No: 25%
Unsure: 12%

Sources: State of Play

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The author’s right to be identified has been asserted
We asked: What is the biggest risk from cyber security for your business?

By % of respondents given two options

- Theft of data: 56%
- Loss of view (data going dark or corrupted): 43%
- Brand sabotage - Damage to brand reputation: 30%
- Financial loss: 25%
- Loss of equipment control: 20%
- Human safety: 14%
- Product delivery: 10%
- Environmental damage: 3%

Sources: State of Play
Importance of innovation

We asked: How important is innovation to the success of your long-term business strategy?

<table>
<thead>
<tr>
<th>Importance Level</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>62</td>
</tr>
<tr>
<td>Important</td>
<td>35</td>
</tr>
<tr>
<td>Not important</td>
<td>3</td>
</tr>
</tbody>
</table>

Sources: State of Play
Innovation timeframe

We asked: What is the key time frame for innovation focus in your company?

By % of respondents

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>This year</td>
<td>15</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>43</td>
</tr>
<tr>
<td>3 to 5 years</td>
<td>29</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>9</td>
</tr>
<tr>
<td>10+ years</td>
<td>4</td>
</tr>
</tbody>
</table>

Sources: State of Play
Innovation spend

We asked: Do you think your company spends enough on innovation?

By % of respondents

- **51**% not enough
- **47**% enough
- **3**% too much

Sources: State of Play
Change in innovation spend

We asked: How do you expect spending on innovation to change next year?

By % of respondents

<table>
<thead>
<tr>
<th>Change</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease</td>
<td>6</td>
</tr>
<tr>
<td>Stay the same</td>
<td>47</td>
</tr>
<tr>
<td>Increase</td>
<td>46</td>
</tr>
</tbody>
</table>

Sources: State of Play
We asked: Which phrase best represents your company’s approach to technology based innovation?

By % of respondents

- Lead across industries: 16%
- Lead in industry: 30%
- Fast follower: 30%
- Conservative follower: 24%

Sources: State of Play
Technology focus areas

We asked: Which underlying technology areas receive the most innovation focus in your company?

By % of respondents given three options

- Sensing and data: 62%
- Artificial intelligence and analytics: 49%
- Robotics and automation: 48%
- Communications technology: 35%
- Energy technologies: 25%
- Virtualisation and augmented reality: 22%
- Computing power: 21%
- Manufacturing technologies: 21%
- Advanced materials: 12%
- Biotechnology: 5%

Sources: State of Play

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Digital technology

We asked: Which of the following digital technologies will have the biggest impact on your company over the next 5 years?

By % of respondents given three options

- Big data analytics: 66%
- Artificial intelligence: 45%
- Internet of things: 44%
- Autonomous vehicles: 37%
- Robotics: 31%
- Cloud: 28%
- Mobile: 26%
- Blockchain: 12%
- Augmented reality: 11%

Sources: State of Play

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Business value of digital technologies

We asked: How could digital technologies create business value for your company over the next 5 years?

By % of respondents given three options

- Reduce cost: 67%
- Reduce safety risks and related cost: 46%
- Increase revenue from existing products & services: 45%
- New growth from new products & services: 38%
- Improve product quality: 33%
- Increase responsiveness to the market: 29%
- Improve customer satisfaction: 24%
- Enhancing product attributes: 18%

Sources: State of Play
Barriers to digital innovations

We asked: Which barriers are most important for implementing digital innovations in your company?

By % of respondents given three options

- Lack of experience with digital innovation: 43%
- Lack of financial resources: 40%
- Organisational culture: 38%
- Lack of digital skills: 37%
- Unclear business model and strategic vision: 35%
- Lack of technical resources: 33%
- Lack of technological infrastructure: 31%
- Lack of top management commitment: 18%
- Cyber security & privacy concerns: 14%
- Government regulations: 10%

Sources: State of Play

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We asked: What energy sources will become the most widely used in your country’s mining companies over the next 15 years?

By % of respondents given three options

- Solar: 72%
- Gas: 62%
- Oil & diesel: 44%
- Coal: 37%
- Wind: 25%
- Hydro power: 23%
- Other (e.g. biofuels): 15%
- Hydrogen: 11%
- Nuclear: 6%
- Geothermal: 4%
Renewable energy technologies

We asked: Will renewable energy technologies significantly change mining operations in your country over the next 15 years?

By % of respondents

- Yes: 61%
- No: 24%
- Unsure: 15%

Sources: State of Play
We asked: What structures does your business use to innovate?

By % of respondents given two options

- Continuous improvement: 56%
- Partnering & collaboration: 44%
- Internal special projects - ‘skunk works’: 28%
- Culture: 28%
- R&D group: 26%
- Acquisition: 11%
- Spin-offs (separate business): 4%
- Venture fund: 3%

Sources: State of Play
We asked: How would you characterise your company’s approach to innovation?

By % of respondents

<table>
<thead>
<tr>
<th>Approach</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both: Top down and bottom up</td>
<td>39</td>
</tr>
<tr>
<td>Top down: Targeted strategy and systems</td>
<td>27</td>
</tr>
<tr>
<td>Random: No clear approach</td>
<td>26</td>
</tr>
<tr>
<td>Bottom up: Culture and incentives</td>
<td>9</td>
</tr>
</tbody>
</table>

Sources: State of Play
Driver of innovation

We asked: Who is the biggest driving force for innovation in your company?

By % of respondents

<table>
<thead>
<tr>
<th>Category</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>All – it is core to our culture</td>
<td>26</td>
</tr>
<tr>
<td>Chief executive officer</td>
<td>22</td>
</tr>
<tr>
<td>Head of technology</td>
<td>14</td>
</tr>
<tr>
<td>Business unit heads</td>
<td>11</td>
</tr>
<tr>
<td>Head of operations</td>
<td>7</td>
</tr>
<tr>
<td>Frontline leaders (e.g. Supervisor)</td>
<td>6</td>
</tr>
<tr>
<td>Board</td>
<td>5</td>
</tr>
<tr>
<td>Other (please state)</td>
<td>4</td>
</tr>
<tr>
<td>Junior staff</td>
<td>4</td>
</tr>
<tr>
<td>Head of strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

Sources: State of Play

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Improving innovation

We asked: How could you best improve innovation in your company?

By % of respondents given three options

<table>
<thead>
<tr>
<th>Category</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision and roadmap</td>
<td>48</td>
</tr>
<tr>
<td>Culture</td>
<td>43</td>
</tr>
<tr>
<td>Innovation processes</td>
<td>41</td>
</tr>
<tr>
<td>Link to strategy</td>
<td>39</td>
</tr>
<tr>
<td>Incentives and metrics</td>
<td>28</td>
</tr>
<tr>
<td>Partnerships</td>
<td>27</td>
</tr>
<tr>
<td>CEO leadership</td>
<td>20</td>
</tr>
<tr>
<td>Diversity</td>
<td>20</td>
</tr>
<tr>
<td>Decentralise accountability</td>
<td>19</td>
</tr>
<tr>
<td>Board leadership</td>
<td>14</td>
</tr>
</tbody>
</table>

Sources: State of Play

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Incentive to innovate

We asked: How do you incentivise your workforce to innovate?

By % of respondents given two options

<table>
<thead>
<tr>
<th>Incentive</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture (incl. success stories)</td>
<td>58</td>
</tr>
<tr>
<td>Leadership</td>
<td>38</td>
</tr>
<tr>
<td>Autonomy</td>
<td>24</td>
</tr>
<tr>
<td>We don't</td>
<td>23</td>
</tr>
<tr>
<td>Goals</td>
<td>20</td>
</tr>
<tr>
<td>Career promotions</td>
<td>14</td>
</tr>
<tr>
<td>Money</td>
<td>12</td>
</tr>
<tr>
<td>Competition</td>
<td>12</td>
</tr>
</tbody>
</table>

Sources: State of Play

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The author’s right to be identified has been asserted
Partnering

We asked: When aiming for a breakthrough innovation, what partnering approaches would you use?

By % of respondents given two options

- Selected partners: 62%
- In-house: 38%
- Research centre: 36%
- Customer: 23%
- Open innovation: 19%
- Single partner: 10%
- Venture capital: 7%
- Acquisition: 6%

Sources: State of Play

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Perception of risk

We asked: Perceptions of risk can be an impediment to innovation in mining – What do you believe is the primary reason for this?

By % of respondents given three options

<table>
<thead>
<tr>
<th>Reason</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry culture</td>
<td>63</td>
</tr>
<tr>
<td>High capital</td>
<td>45</td>
</tr>
<tr>
<td>Payback periods</td>
<td>41</td>
</tr>
<tr>
<td>Market uncertainty</td>
<td>37</td>
</tr>
<tr>
<td>Revenue interruption</td>
<td>27</td>
</tr>
<tr>
<td>Compliance</td>
<td>25</td>
</tr>
<tr>
<td>Piloting difficulty</td>
<td>25</td>
</tr>
<tr>
<td>Investors</td>
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<tr>
<td>Ore body variability</td>
<td>16</td>
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<td>They're not</td>
<td>2</td>
</tr>
</tbody>
</table>

Sources: State of Play

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Corruption

We asked: How often do you encounter corruption in your job?

*By % of respondents*

```
<table>
<thead>
<tr>
<th>Frequency</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>1</td>
</tr>
<tr>
<td>Often</td>
<td>5</td>
</tr>
<tr>
<td>Sometimes</td>
<td>20</td>
</tr>
<tr>
<td>Rarely</td>
<td>43</td>
</tr>
<tr>
<td>Never</td>
<td>31</td>
</tr>
</tbody>
</table>
```

Sources: State of Play

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Innovation performance

We asked: How are your innovation programs performing?

By % of respondents

- Below expectations: 30%
- Meeting expectations: 62%
- Exceeding expectations: 7%

Sources: State of Play
We asked: How successful have introductions of new innovations been into your business?

By % of respondents

- Generally a failure: 1%
- Not very successful: 27%
- Successful: 61%
- Highly successful: 10%

Sources: State of Play
We asked: When implementation programmes of new innovations fail, what is generally the reason?

By % of respondents given three options

- Competing priorities: 56%
- Resistance: 39%
- Technology readiness: 34%
- Complexity: 34%
- Leadership: 32%
- Budget: 26%
- Impatience: 23%
- Unforeseen impacts: 21%
- Skills: 20%
- Team composition: 16%
We asked: What team structure do you use for implementing new innovations?

By % of respondents

- **Customise approach for circumstances**: 33%
- **Form dedicated cross functional team**: 31%
- **Feed through existing hierarchy**: 29%
- **Allocate to existing implementation group (e.g., PMO, BI)**: 7%

Sources: State of Play