Australian prime minister Malcolm Turnbull chose to spend part of his 15-hour visit to Tokyo today at Japan's National Museum of Emerging Science and Innovation where he met robot Asimo, Japan's innovation ambassador. Another slice of his schedule was devoted to biotech, and a memorandum of understanding on regenerative medicine. Though Japan has also been by far the biggest consumer of Australian coal for decades, resources were noticeably absent from the headlines.

With mineral and energy commodity prices continuing the plunge that began in 2011, Turnbull has made it his immediate priority to ween the economy off raw materials supply and nourish technological advance. His AUS$1.1 billion (£525 million) four-year National Innovation and Science Agenda, launched earlier this month, is his first major policy document since coming to office.

Set against nearly AUS$10bn of annual government spending on innovation, the funding is relatively small beer, but signals intent in the face of sluggish innovation indicators, including low R&D spending by global standards and particularly poor innovation efficiency (turning research into commercial outcomes), for which Australia is ranked 72$^{nd}$ in the world. The OECD says that innovative companies are more likely to participate in international and public procurement markets; less than a fifth of Australian firms do so.

Australia has made some impact in an online world where no country can hold a candle to the US: Sydney software company Atlassian was valued at $8 billion – unprecedented for an Australian technology company – in its IPO on the Nasdaq last week. Online custom footwear manufacturer Shoes of Prey and email marketer Campaign Monitor have both secured serious venture capital funds within the past year, albeit from the US (the Australian venture capital market has yet to recover to pre-GFC health).

Deloitte has tipped a 'fantastic five'of industry sectors to take over from mining, currently the second biggest contributor to the economy in real gross value at 8.8 per cent. The poster children are gas, agribusiness, tourism, international education, and wealth management.

Agribusiness was identified as the industry with the strongest opportunity to both exploit Australia's competitive advantage and respond to increasing global demand. Turnbull launched the National Farmers' Federation's (NFF) agricultural innovation hub, Sprout, last week, which aims to grow technology and big data in farming.

"Digital agriculture is the next wave of productivity," said NFF CEO Simon Talbot, who believes it could boost farm income by up to $6bn in four years. "Half of the world's middle class, the customers for all the things Australian farmers produce… are now living in our longitude." Talbot also echoed the woes of the Australian tech industry, which suffers from a huge brain drain to Silicon Valley: "One thing I am determined to solve is the frustration of young agribusiness professionals having to leave Australia to go to the US, Israel or Europe to test or trial new ideas."

As the seven liquefied natural gas (LNG) projects financed in the most recent tranche of investment begin production in the next five years, Australia will become the world's leading LNG exporter. However, the unexpected dip in the price of oil – to which the LNG price is pegged – means that for now, LNG won't be plugging the revenue hole in treasurer Scott Morrison's budget.

Mining is not necessarily dead in the ground either: Dr Ross Lambie, general manager of Resources and Energy Economics at the Department of Industry and Science, asserts that the industry is now moving from the investment to the production phase. Despite a 43% plunge in the spot price for iron ore, Australia's largest mining export, in 2014-15, export volume increased 15 per cent. Coal exports are projected to increase moderately up to 2019-20, with new Asian markets taking up the slack.

"While reducing costs will continue to be necessary to improve [mining] project competitiveness, it is not sufficient," writes Lambie in the Australian Financial Review. "Improving productivity is also necessary. Innovation and the adoption of new technologies play important roles in achieving this."

The slide in resources investment had been cushioned by a housing construction boom, which is now ending. So far, the 'fantastic five' are not in a position to take over the economic strain. Deloitte Access partner Chris Richardson believes Morrison was right not to attempt to offset revenue losses in his mid-year economic and fiscal outlook earlier this week.

"But the problem is that is the same message we got under [previous treasurers]," he says. "At some stage we will need to either lift taxes, cut tax breaks or cut government spending. We think more should be done on spending than tax just because over the past decade spending increases have outpaced tax cuts four to one."

Tax reform debate has centred on ensuring multi-nationals pay their due, cutting tax breaks for the retired rich, and the especially thorny notion of raising or broadening GST (VAT). The discussion takes place against a backdrop of high uncertainty over growth, with the Australian Business Economists executive delivering an unusually wide range of forecasts last month, reaching a consensus of 2.3 per cent this year, 2.7 per cent in 2016 and 3 per cent in 2017. They rate the chance of recession in the next decade at 20 per cent, though recent positive employment figures suggest a rosier picture.

Global bond fund manager PIMCO is cautious: "With the extent of the macro headwinds Australia faces and the scope of the structural change in the economy as a consequence, we should be alert to the risk of a recession," says executive vice president Adam Bowe. "When you are riding a bike very slowly, it is much easier to topple off."