The 2020 financial crisis in higher education: What were the drivers and how should universities respond?

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CONTENTS

Introduction

In 2020 the higher education sector experienced a significant drop in international student income. This was portrayed by the university lobby and many other commentators as a major financial crisis. However, while the drop in international income has been substantial and may continue into 2021, it has unfortunately diverted attention from addressing other, more fundamental problems and issues confronting the way higher education engages with the economy and broader society.

It is time to view the financial crisis from a strategic perspective and an opportunity to realign the sector in the light of the changing operating environment and the challenges that will need to be addressed over the next ten years and beyond.

This Paper contains a detailed description and assessment of universities' financial position over the period from 2002 to 2020. It points to the current financial strength of the higher education sector and sophistication in financial management, which forms a solid basis for change and readjustment over the medium to longer term. Short term reactions and tactical responses currently in play will not establish the basis for setting a long term strategic direction.

The Paper outlines an agenda for addressing strategic issues, including a requirement to diversify revenue streams, work towards greater diversification and specialisation in the structure of the sector, adopt a position of "partners in growth", and work towards building the “institutions for engagement” between science and society. Many of these issues have been canvassed in a recent book *Rethinking Australian higher education: Towards a diversified system for the 21st century* (Howard, 2021) and a PhD thesis *Business, Higher Education and Innovation* (Howard, 2004).

1 The current financial situation

Under their enabling statutes higher education providers, principally universities, are essentially free to do as they choose in teaching, research, and community engagement. History and tradition place a high degree of trust in their independence and objectivity in pursuing the highest standards of scholarship. However, universities require money to operate and a lot of it.

Universities receive money from the Australian government in the form of financial assistance grants, domestic student fees paid by income-contingent loans from the government, research and consulting income from government and industry, fees paid by international students, research commercialisation, and a range of commercially oriented business ventures.

In 2020 the amount of money flowing to universities was estimated to be $34.6 billion (down from $36.5 billion in 2019). Their net asset holdings stood at $61 billion, about the same as 2019. Many are huge businesses with annual revenues of over $2 billion and substantial net asset holdings. In 2020 The University of Melbourne reported net assets at $6.9 billion, and The University of Sydney reported $4.9 billion.

State government statutory reporting requirements and Australian Accounting Standards Board financial reporting standards require universities to report as publicly owned corporations. The Australian Government supports this through the *Financial Statement Guidelines* (DESE, 2020). In 2020 ten universities have revenues above $1 billion. Several show signs of operating as financial corporations with the management of financial assets outsourced to investment bankers but with a substantial gap in reporting.

Notwithstanding the growing financial significance of universities, financial accountability and transparency are largely absent in their operations. They fall through the cracks in Commonwealth and State/Territory financial regulatory regimes:

- As state-owned public corporations, universities provide financial reports to State Parliaments, with audits provided by state auditors-general. State Governments have little interest as they

have very little financial skin in the game. Nevertheless, they bear a risk if a university were to become insolvent.

- Accountability to the Commonwealth is embedded in meeting the terms and conditions of payments (rules) of financial assistance and regular reporting. Terms and conditions are becoming increasingly stringent and control-oriented.
- Submitting reports to the Australian National Charites and Non Profits Commission in their role as public charities.
- Limited financial monitoring by TEQSA
- As potentially constitutional (trading) corporations, together with controlled entities established as companies, falling under the remit of ASIC.

Each year the financial reports issued by universities create confusion in reaching an objective understanding of their true financial position – notwithstanding the requirement to comply with Australian Accounting Standards (AAS). Reports are provided well after the end of the previous financial year (up to nine months in one case in 2020), sometimes with Vice-Chancellors providing commentary months before financial statements being released.

Financial reports present a picture at a specific point in time (the end of a financial year) and reflect the application of a historical cost convention, except for "fair value" accounting in relation to certain asset holdings. Statements can be "window dressed", and much can change in the weeks and even days after a reporting date.

Vice-Chancellors may place their own interpretations on what the financial results mean in an endeavour to paint a picture that points to a situation of financial health that would make a good case for financial investors - or crisis, that would make a strong case for increased government funding. However, realistic assessments of the financial health of an organisation requires examination of underlying trends, threats and opportunities over an extended period.

The misinterpretation and confusion created by "point in time" financial reporting makes a strong case for a prudential body, similar to APRA, that would oversee university financial performance from a *management* and *public policy* perspective and assure accountability and transparency in the use of public funds and assets.

Prudential supervision might cover, for example, an appropriate level of funds held in financial assets which might otherwise be used to purchase much-needed university infrastructure (laboratories, instruments, equipment, and software). The body might also advise on the prudential management of overseas student enrolments.

Prudential oversight might also include benchmarks relating to Vice-Chancellor and senior executive remuneration, the use of casual and part-time employment, and reporting of investment income.

2 The 2020 crisis

To fully understand the "crisis", it is essential to look at the *trends* in revenue, asset holdings and cash flows. Annual "point in time" reports do not provide a basis for assessing the impact of financial decision making and the performance of financial management strategies. Financial decisions may have implications that carry forward for two, five or ten years.

Trend data set out in the following pages has been drawn from DESE consolidation of financial reports available from 2002. Data has been adjusted to constant (2019) prices by applying the ABS published implicit price deflator for gross domestic product (GDP). The historical reports relate to the *parent* university entity. This is carried forward to the documentation of the 2020 results from each annual report. Some university reports also include corrections to the 2019 data, which is reflected in the charts in his Paper.

2.1 The drop in revenue

In 2020 university income is estimated to be $34.7 billion, down by $1.8 billion (five per cent) from $36.5 billion reported in 2019.

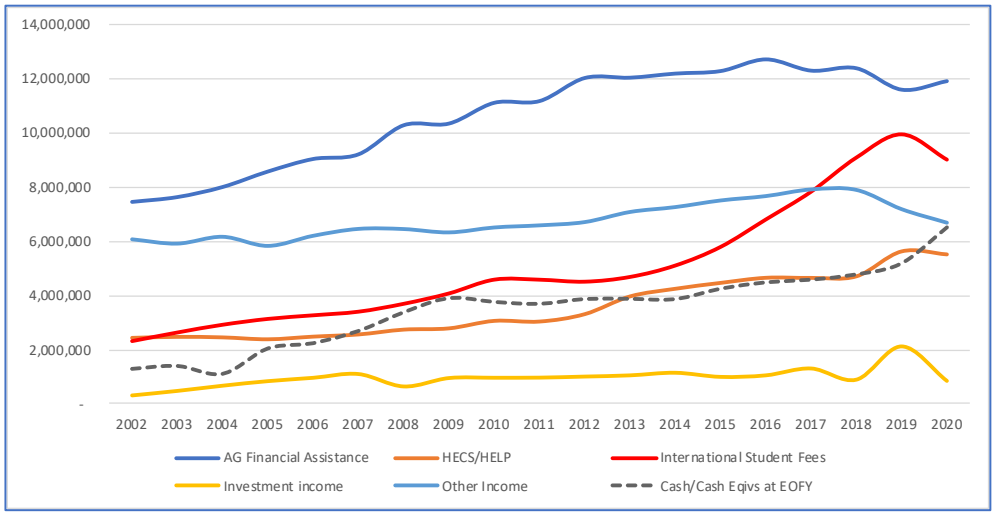
There are dire expectations that the reduction in 2021 will be greater. This flattening in revenue growth is against a background of an increase in inflation-adjusted revenues of $5.4 billion (17 per cent) between 2015 and 2019. In other words, in 2020, universities had lost a third of the increase in revenues they had secured over the 2015-19 period.

Blame for this fall in 2020 is most often sheeted home to a drop in income from international student fees of $0.9 billion (9.4 per cent) from $10.0 billion in 2019. In 2015 international student income amounted to $5.8 billion (inflation-adjusted). This reduction has been felt unevenly across the higher education sector.

In addition, Australian Government financial assistance had fallen from $12.3 billion in 2015 (inflation-adjusted) to $11.6 billion in 2019 but lifted to $11.9 billion in 2010. However, there are other factors.

Investment income, reported at "fair value", fell by $1.2 billion (59.1 per cent in 2020 as the market value of financial assets deteriorated. Also, in 2019 there was a significant drop in "other income" as international student income increased dramatically. This source of income recovered somewhat in 2020. The overall income picture is illustrated in Figure 1.

Figure 1: University income and revenue – main components 2002-2020 (inflation-adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

The collapse in other income reflects deterioration in revenue from a range of sources, including but not limited to:

- Donations and bequests – sourced through fundraising and "advancement" strategies
- Royalties, trademarks, and licenses – generated through commercialisation strategies
- Contracting and consulting – generated through collaboration, engagement, and outreach strategies
- Non-Commonwealth supported course fees and customized teaching programs, fee for service activities, and cost recovery categories – including event management, venue hire, building and facilities rental, and car parking.

Twenty years ago, the Commonwealth began exhorting universities to generate more income from these sources to diversify and extend their revenue bases (Minister for Education Science and

Training, 2004; Department of Education, Science and Training , 2003; Department of Industry, Science and Resources, 2001; Batterham, 2001).

However, the commitment to diversifying revenue sources does not appear to have been very strong; it may have been more comfortable to rely on the rapid growth in Commonwealth budget support (2008-2017) and the "soft money" from the international student boom, which picked up in 2013. The boom was a means for the universities to continue building their research commitment in the light of a declining level of Commonwealth financial assistance.

The international student boom gave rise to a new business model concentrating on growing international student income to support their research activity. To be attractive to international students, universities gave priority to lifting their position in international rankings tables. Most of these are determined by peer-reviewed research output. Universities incentivised academic staff to raise scholarly publication output (appointment, tenure and promotion became impossible without a strong publication record).

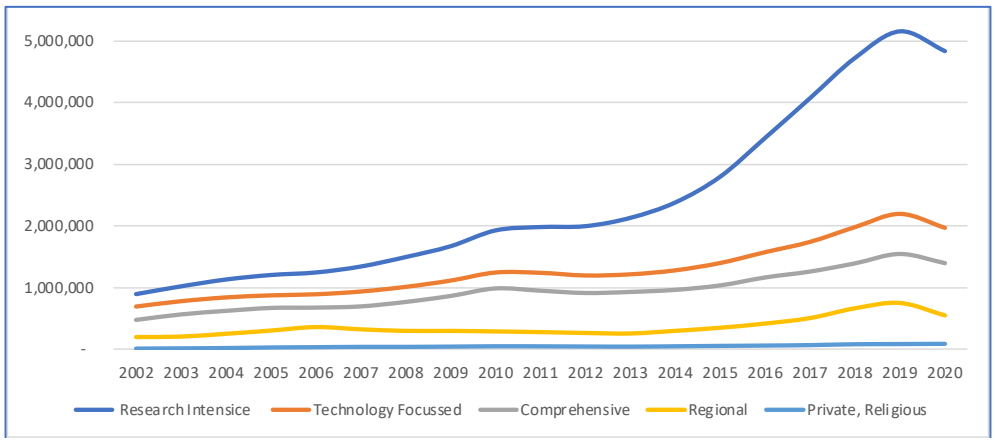
Higher rankings also mean that universities are more attractive to eminent and highly published academic staff, which would, in turn, lift rankings. Eminent academic staff are also crucial in participation in international research collaborations.

The model was supported, implicitly, by the ARC and the Government in rewarding research excellence in designing competitive grants frameworks.

Nearly all Australian universities have played the rankings game. Australia has the highest proportion of ranked universities in the world. Universities' strategic priorities shifted to research at the expense of their other missions in teaching and engagement. Resources were transferred from teaching revenues to underpin staff research activity. Tenured staff teaching was undertaken by an increasing proportion of non-tenured, casual, and sessional appointments.

The research-intensive universities have dominated the successful pursuit of rankings, particularly ANU, Melbourne, Monash, Queensland, Sydney, and UNSW. This is seen in the rapid growth in international student income since 2015, particularly in the research-intensive universities, as indicated in Figure 2.

Figure 2: International student income 2002-2020 (inflation-adjusted) university groupings



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

As a result of the shift in priority to scholarly research output, universities may not have invested sufficiently in building capability to capture growth opportunities through diversified revenue streams.

The international student income bonanza has come to an end. Universities have little to fall back on in terms of income flows from other revenue categories to underpin their budgets and maintain

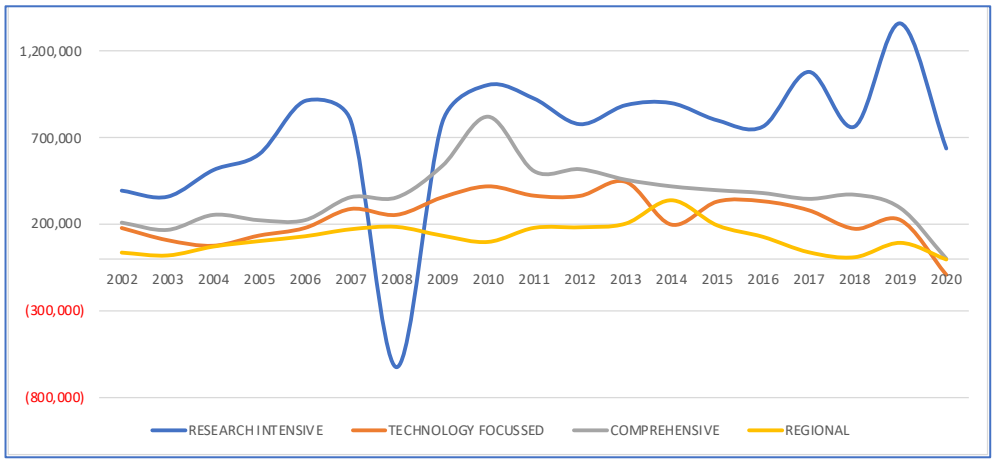
their growth trajectories. This reflects a tendency towards short term (three to five year) strategic planning horizons, with few universities preparing longer-term plans. Only a handful have ten-year planning horizons.

At the same time, however, and as will be demonstrated below, universities have, over the last six years, substantially lifted their wealth, particularly in holdings of financial and property assets.

2.2 Deterioration in reported financial results

The reliance on Australian Government financial assistance and international student revenues and the collapse in 2020 have impacted reported university financial results. Figure 3 shows the trend in operating results for the major university groupings between 2002 and 2020.

Figure 3: Universities operating results – major groupings 2002-2020 (Inflation adjusted)



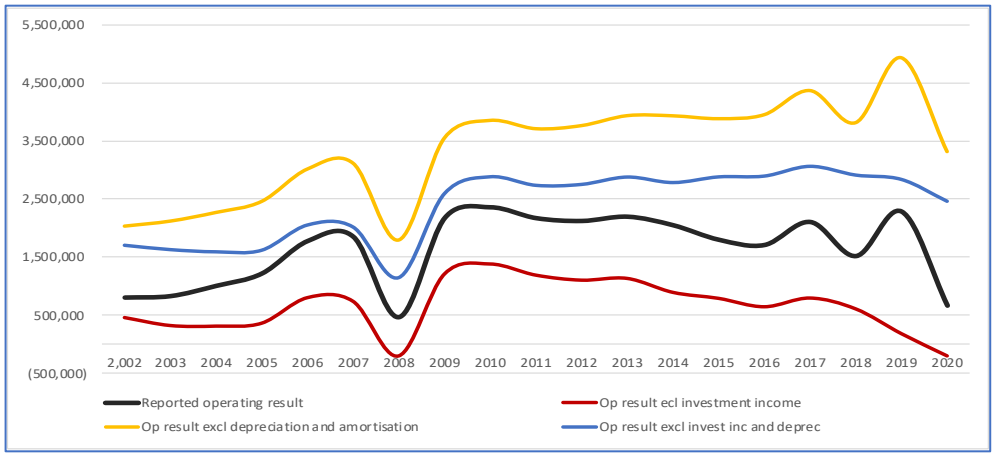
Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Australian Government grants and international student revenues have not been the only factors.

The other significant impact has been the growth in reported expense on asset depreciation and amortisation (a "non-cash" accrual item) and a cyclical fluctuation in reported investment income due to the impact of "fair value" accounting treatment of financial investments.

Figure 4 highlights the impact on the operating result under scenarios where depreciation and amortisation of assets are excluded (yellow line), investment income is excluded (red line), and both are excluded (blue line).

Figure 4: University financial results 2002-2020 (inflation-adjusted)

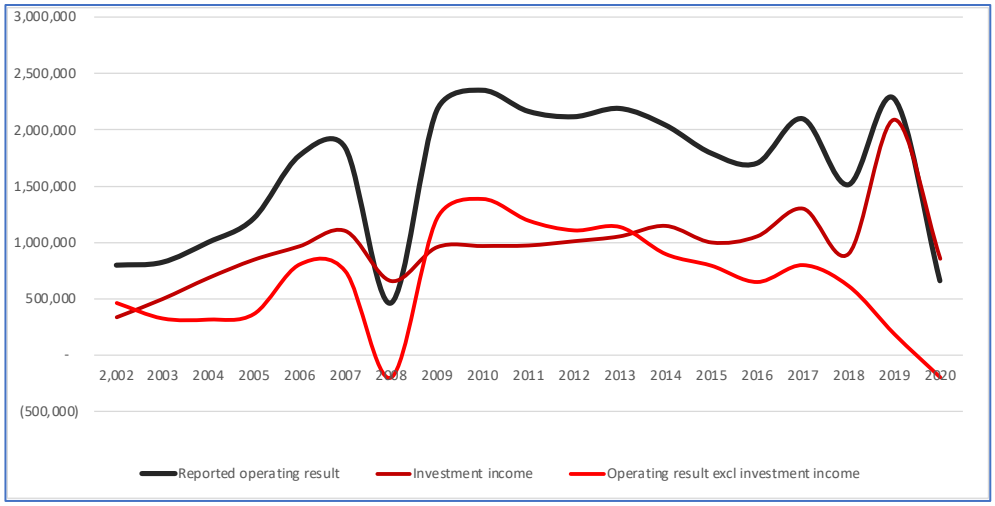


Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

It is apparent from Figure 4 that the reported operating result (black line) has been trending down since 2009. Universities' operating income, excluding depreciation (yellow line), shows a *trend increase* from 2009 until 2019. However, as illustrated in Figure 5, the impact of fluctuations in reported investment income has been much more severe. Investment income in this context includes interest and dividend payments received and the returns from investments at their current market value, much like the returns shown in a "live" superannuation portfolio. These are "marked to market" on a daily basis.

If all investment income is excluded from reported operating results and depreciation is still included, the sector would be in an overall loss situation in 2020.

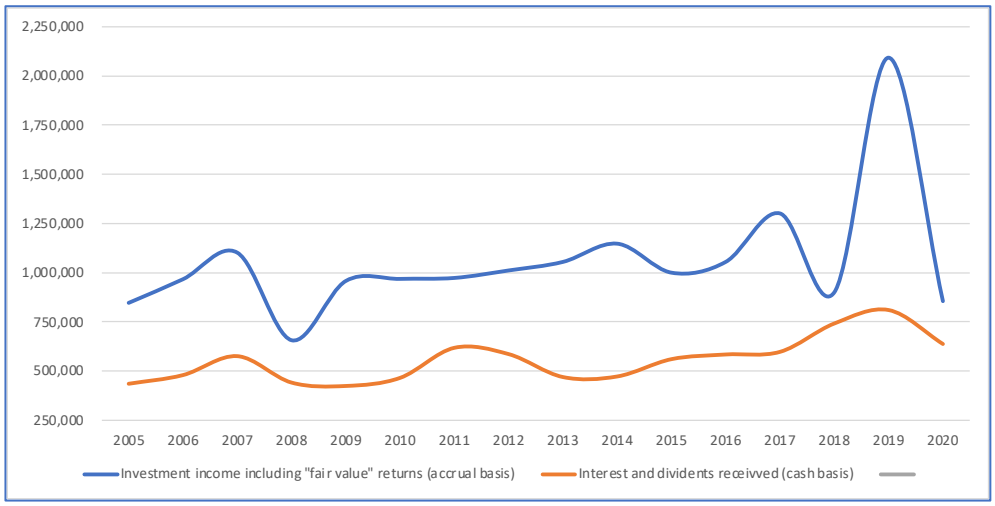
Figure 5: Impact of investment income on operating result



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

The *cash generated by dividends and interest* derived from universities cash flow statements may be quite different and very much lower than reported in the Income Statement, as indicated in Figure 6.

Figure 6: Comparison between Income statement and Cash flow statement of investment income



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Given the pattern indicated in Figure 4 and Figure 5 it would appear that 2020 has been a repeat of the pattern established in 2008 with the impact of the GFC. Already, during 2021, asset values have recovered, which will, if sustained, substantially lift investment income for 2021. But without updated financial information coming from the universities, this can only be speculative.

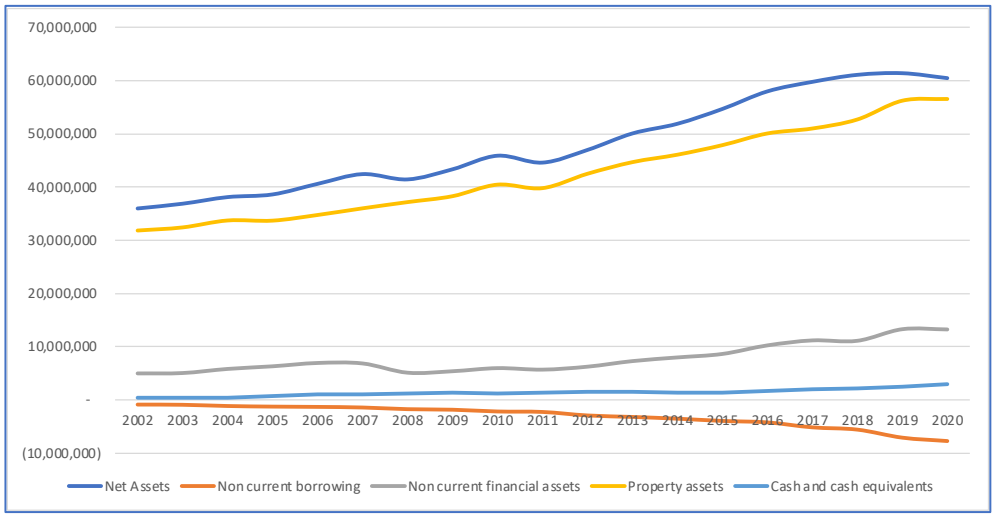
There is a difference between 2008 and 2020, though. 2008 saw the implementation of the Bradley recommended target of 40 per cent of 25-34-year-olds having a university degree by 2020, the associated lifting of enrolment caps, and introduction of the demand-driven funding system. Capital funds flowed from the Education Investment fund introduced under the Nation Building Program Education Investment Fund (EIF).

In 2020, with so many calls being made on the Budget by a plethora of industry lobby groups, there is a limited prospect for a similar stimulus. This time the Australian public university sector will have to commit to significant financial and management change to achieve long term operational sustainability.

2.3 Increase in asset values

Over the 2002-2020 period, universities have substantially increased their net asset values. In 2020, combined assets amounted to $60 billion, increasing from $36 billion in 2002 in constant price terms. The major components of the net asset portfolio are shown in Figure 7. Universities are generally regarded as having strong balance sheets which generate high ratings with international credit ratings agencies. Many universities are now issuing their own securities to financial institutions and the capital market for the purposes of campus development. Each state treasury department provides some oversight of university borrowing in their state.

Figure 7: Growth in university net assets 2002-2020 (inflation-adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

The net asset growth trajectory stalled in 2019, mainly due to the flattening in the value of property assets. Investments in non-current financial assets were relatively stable between 2019 and 2020, while non-current borrowing increased through the issue of university securities and other borrowing instruments.

2.4 Tighter cash flows

Universities are cash flow businesses. They generate substantial amounts of cash from government grants, students, and particularly international students. Cash is used mainly to pay staff and service suppliers and for buildings, plant, and equipment. Over time universities have become much more adept at managing their cash flows.

Universities consistently run a cash surplus on their operational activities, as shown in Figure 8 below. The operational cash surplus shows a near steady-state (grey dashed line) since 2010. Universities can achieve a target cash surplus by adjusting cash outflows to match fluctuations in

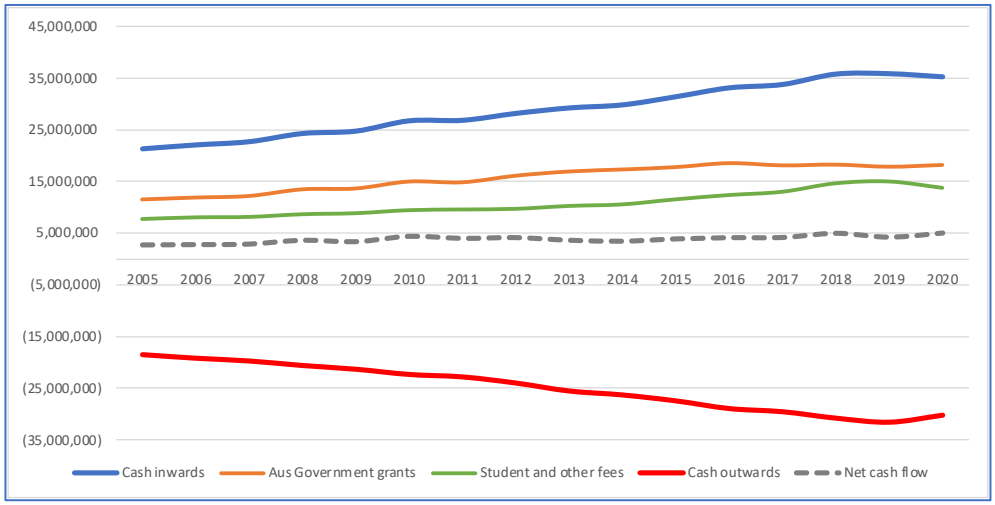
cash received. Thus, in 2020 the cash surplus was maintained as cash inflows dipped due to a drop in international student income by reducing expenses, particularly payments to casuals, suppliers and reducing discretionary expenditure such as travel.

A substantial proportion of cash is received for specific purposes under a wide range of government grant programs, fee for service work, and philanthropic purposes. A significant amount of cash is received for engagement activities outside the Education portfolio, including, for example, from Department of Infrastructure city deals and other engagement-type initiatives not specifically related to teaching and research commitments.

The availability of other Australian Government grants has meant that the trend in Australian Government grants has remained steady and could be expected to increase as the "social contract" between science and society (covering industry and the community engagement) develops and strengthens.

Nonetheless, there is a significant amount of "free" cash which can be applied to investing activities, predominantly the purchase of financial assets, paying for property, plant and equipment. In challenging times universities also increase their cash holdings.

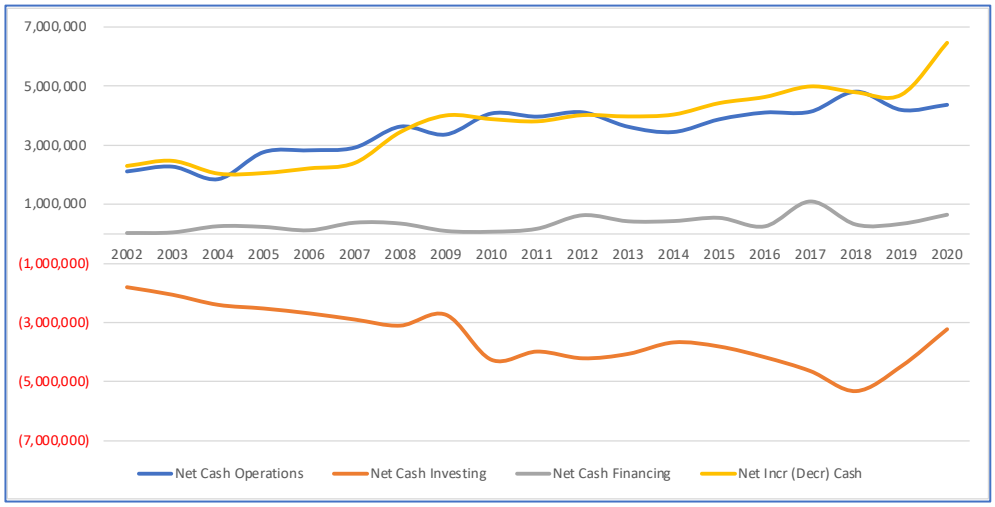
Figure 8: Australian universities – trend in cash flows on operations 2005-2020 (inflation-adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Figure 9 shows the trends in cash flows from operational activity (blue line) together with cash applied to investing (orange line) and financing (grey line) over the 2002-2020 period. Figure 9 also shows that in 2019 and 2020, net cash for investing purposes was curtailed, resulting in a substantial increase in cash and cash equivalent holdings (yellow line).

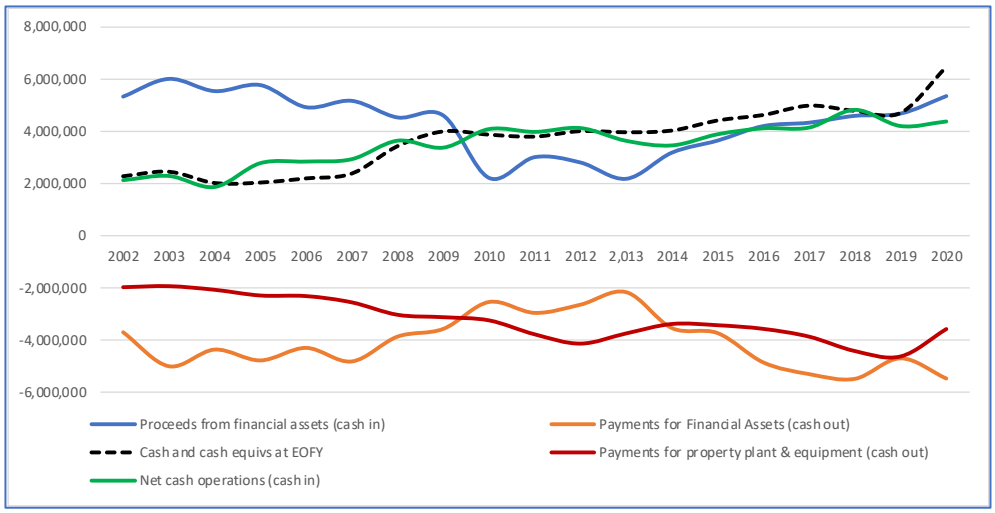
Figure 9: Cash flows from operations, investing, and financing 2002-2020 (inflation-adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Figure 10 shows the cash flows for several categories for the 2002-2020 period. Of note is that since 2015 universities have been allocating an increasing amount of cash for purchases of property, plant and equipment (red line) - until 2019. Payments for financial assets (orange line) increased substantially from 2013, stalled in 2019, and rose again in 2020.

Figure 10: Cash flows for major categories 2002-2020 (inflation-adjusted)

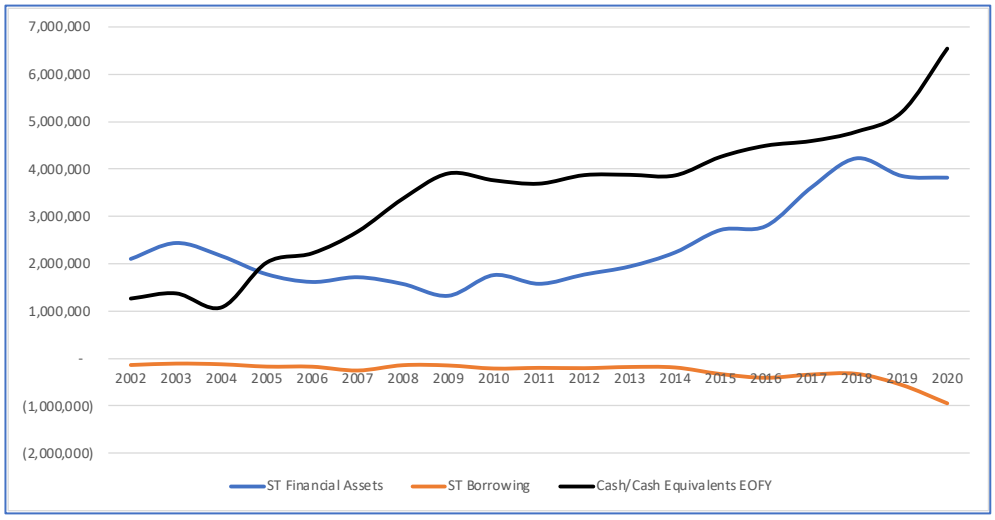


Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Figure 10 also suggests a return to active financial portfolio management since 2013 with an increase in the proceeds of financial assets (borrowing, etc. – blue line) and payments for financial assets (term deposits, investing in shares, and selling university securities, such as bonds – orange line).

Universities also appear to be active managers of cash. Figure 11 shows movements in short term lending, borrowing and the build-up in cash and cash equivalents since 2015 as international student income began to flow.

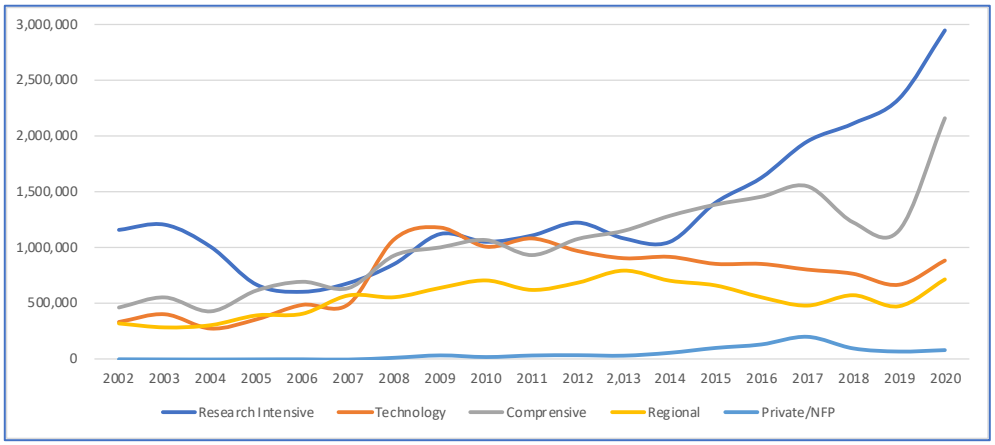
Figure 11: Investments in short term financial assets, borrowing and cash holdings



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Holdings of cash and cash equivalents vary considerably across the sector, with the research-intensive universities being the most substantial holders – as indicated in Figure 12.

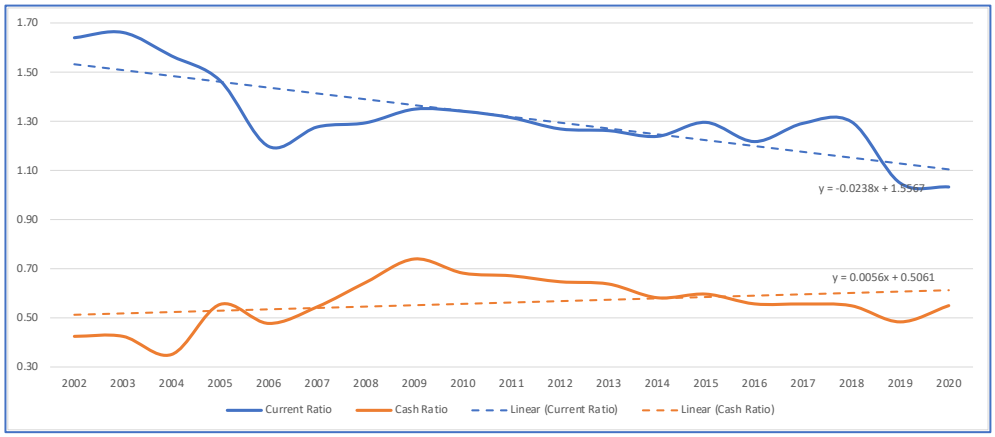
Figure 12: Holdings of cash and cash equivalents



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Active management of cash means that universities can operate at lower liquidity ratios. The trends in the two main liquidity ratios, the current and cash ratios, are shown in Figure 13.

Figure 13: Trends in major liquidity ratios 2002-2020

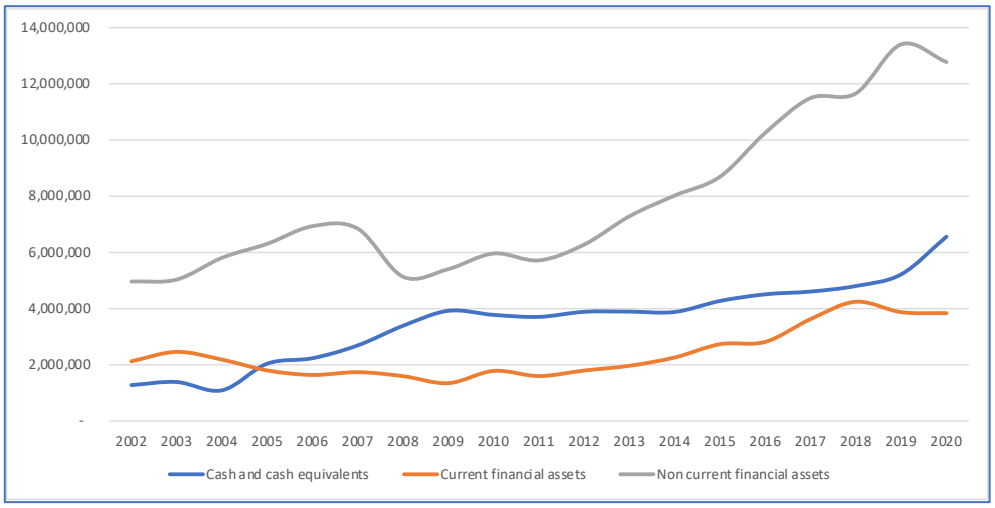


Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

2.5 Universities as financial corporations

With substantial incoming cash flows, several universities have become active investors and traders in financial assets, particularly since 2011 when funds started to flow from the demand-driven system and a few years later from international student fees. Trends in holdings of cash and current and non-current financial assets are shown in Figure 14.

Figure 14: Universities holdings of cash, current and non-current financial assets



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

Investments in assets generate returns that are potentially available to finance the furthering of university objectives. There does not appear to be any prudential guidance on the holding of financial assets in relation to the need to invest in academic facilities and equipment or in industry and community engagement.

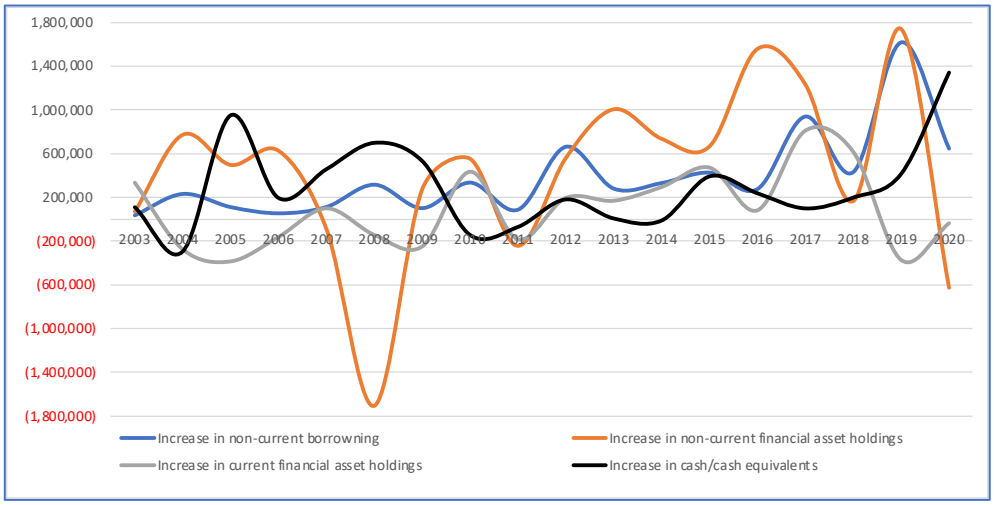
However, the "fair value" of financial holdings fluctuates substantially over time. For example, with the onset of the GFC, asset values declined rapidly. These declines are reported in the university Income statements as reductions in investment income that flow through to the operating result. This is, on the surface, a distorting picture, but no one could be certain if and when asset values will recover.

As in 2008, if universities hang onto their financial assets and values quickly recover as the economy and financial markets recover, investment income will show an increase. This is shown in Figure 15

where asset values increased in 2009 and 2010 and 2013. In 2008 universities also increased their cash holdings.

The recovery in the ASX over the last eight months is likely to have substantially increased the "fair value" reporting of investment income. But universities will not provide financial reports for 2021 until May 2022 or, in some cases, very much later. There is an urgent case for quarterly financial reporting as is required for ASX listed companies.

Figure 15: Changes in the value of financial asset holdings 2003-2020 (Inflation adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

2.6 Concluding comment

Universities secure revenue from various sources, but principally from Australian Government grants for teaching, research and engagement activities, domestic student fees paid by income-contingent loans, international student fees, investment income and a category of "other income". Investment income, mainly generated by interest and dividends paid on financial assets, has fluctuated widely following movements in financial markets.

Unlike listed and unlisted corporations, universities do not publish an operating result "before interest, taxes depreciation and amortisation" (EBITDA), which can provide a snapshot of operational efficiency. The use of EBITDA over other metrics is essential for conducting financial analysis. In this Paper a metric of operating results before depreciation and amortisation has been used to portray a brighter picture of university operating efficiency.

Although universities are required to produce financial statements under Australian Accounting Standards (AAS), the interpretation of the *meaning* of an operating result varies widely across the sector. Attention is often drawn to an "underlying result", which makes deductions and additions to the audited operating result presented to parliaments.

The misinterpretation and confusion created by "point in time" financial reporting makes a strong case for a prudential body, similar to APRA, that would provide oversight of university financial performance and accountability and transparency in the use of public funds and assets, for example, an appropriate level of funds held in financial assets which might otherwise be used to purchase much-needed university infrastructure (laboratories, instruments, equipment, and software, for example).

Prudential oversight might also include benchmarks relating to Vice-Chancellor and senior executive remuneration, the use of casual and part-time employment, reporting of investment income and managing the risks associated with generating international student income.

3 Challenges for higher education in a changing environment

3.1 The COVID induced revenue shortfall challenge

Against the background of financial trends set out above, the financial impact of COVID-19 can be placed in context. Responding to the impact involves choosing between short-term reaction and tactical responses or laying the foundation for building and sustaining a national higher education system that is among the best in the world.

The higher education sector is currently in a position of great financial strength due to the structure of its financial resources and the growing sophistication of financial management. The 2020 drop in revenue from international students marks the end of a longer-term trend of rapid revenue growth from this source, which paid for research staff and built unprecedented strength in university balance sheets.

Many factors made the impact of COVID-19 appear worse than it was. A substantial commentary has emerged from some universities and the university lobby from a "point in time" perspective about the need to restore the flow of international students to shore up university finances, restore education exports and retain skills in Australia. But, in a strategic sense, this may not be the main game.

Responses to COVID have been essentially reactionary rather than strategic. They have included the following tactics:

- Lobby for the return of international students and restoration of international student income. Argue the case on national economic benefit grounds (exports and addressing the skills shortage).
- Argue for more subsidies. Seek access to government emergency funding, including through initiatives such as the Job Keeper program.
- Introduce internal expenditure cuts and efficiency measures to maintain operating margins and cash flows. This was achieved during 2020 with aggressive cuts to staffing, discretionary expenditure and spending on property purchases, plant and equipment.
- Lobby hard for the restoration of increases in research income. For example, seek continuation of the $1 billion in additional research funding in 2020.
- Argue there is "nothing to look at here". Point out that universities are doing a great job and should be celebrated for their long-standing contribution to industry, the economy, and civil society. The *status quo* is fine: we just need more money.
- Run broadly targeted mass advertising and public relations campaigns. Firstly, tell the community about the importance of universities, their past achievements, and their vital role in the economy. Secondly, tell Government and industry that concerns about university performance and expenditure cuts are misguided or simply wrong-headed.

By and large, the responses have been tactical with a short term time frame – out to the end of 2022 at best.

But the problem runs deeper. There is a need to address more fundamental and multiple challenges impacting the higher education sector's financial security and strategic direction over the next ten years and more. However, the current financial strength of the higher education sector provides a sound basis to look at the changes and challenges that are emerging and will need to be addressed over the medium to the longer term and respond accordingly.

3.2 More fundamental challenges

Many of the challenges facing higher education are well known and being addressed at the provider level. But system-wide strategic responses are required. This is up to the independently structured higher education sector to address as an industry.

Setting out manifestos of what government "needs" to do and intensive political lobbying is not a viable response: Government has many things that it might need to do, but it has policy priorities and competing calls on its revenues. It is a matter of tapping into those priorities to deliver mutual benefit.

The major challenges have been variously identified as:

- Availability of alternative learning providers. There will likely be continued growth in non-university higher education providers, shifting preferences for "white collar" VET in digital technology areas, private and bespoke short courses, and growth in corporate learning models among multinationals.
- The growing importance of online and multi-modal delivery. It became apparent during the COVID-19 crisis that technologies are improving, and faster broadband and wider bandwidth are facilitating connectivity. However, STEM and medical students particularly will still require access to laboratories, expensive analytic equipment and high-speed computing capacity. Many students will also desire an on-campus experience to benefit from learning in a social context.
- The trend of reduced government grants for higher education. This is likely to continue well into the future due to strong fiscal pressures and increasing calls on the Budget for health, social welfare, defence, infrastructure, and national security.
- Growing expectations from industry and government for universities to direct research priorities and commitment to areas that address their specific knowledge requirements; there is a ‘mismatch’ between higher education R&D expenditure and business and government R&D expenditure.
- Growth in staff and overhead costs. The professionalisation and growth in corporate, academic, campus, and student support services is resulting in increased expenditure which is difficult to contain. Higher education providers are under intense pressure to ensure that these services are efficient and effective and deliver maximum value for money.
- Opportunities and motivation to study abroad. Just as Australian universities seek to attract international students, Australian students have preferences and respond to incentives to learn and undertake research in the UK, US, and Europe. In 2019, 58,059 Australian students were studying abroad, up from 44,045 in 2016 (Department of Education Skills and Employment, 2021)
- Falling birth and net migration rates. The pool of students looking to enter higher education is trending downwards. This is offset to some extent by increasing numbers of mature age students and the attractiveness of "life-long" learning.
- The plateauing of the university graduate earnings premium. Potential students are increasingly wary of the level of accumulated loan debt and the impact on the capacity to borrow for other purposes.
- Changing career opportunities. Highly paid professional jobs in general management, accounting, finance, law, and marketing are disappearing as business processes become automated and driven by AI, visualisation, and global platforms.
- Making education in science, technology, engineering, mathematics and medicine more attractive, particularly at the postgraduate level. Talent is required across industry in these areas and can only increase in the coming decades. School leavers must be adequately prepared to enter higher education courses in these areas. Increasingly, the creative industries require high-level digital skills.
- Internal restructuring to reflect demand. Ensuring that resources allocated to education and research fields match current and prospective demand. Providers must also look towards new and innovative structures that prioritise external engagement in teaching and research.
- Delivery of higher education to the socially and economically disadvantaged. Low completion and high attrition rates among these groups, particularly in regions, are matters of serious national concern.
- Identifying and capturing other revenue streams to fund research. Revenue growth from research commercialisation, commissioned research and consulting has been disappointing.

Opportunities lie in exploring third mission strategies and universities as 'places' in urban and regional landscapes.

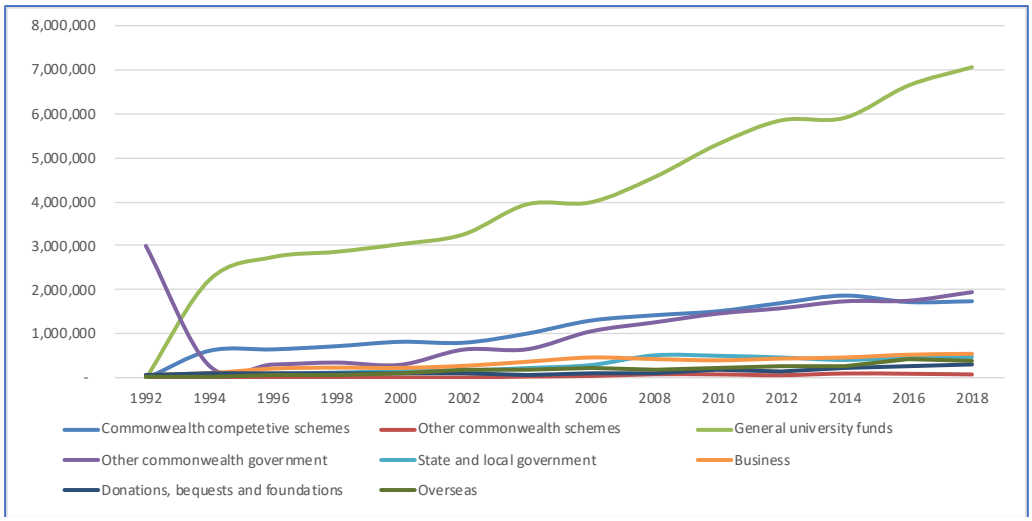
Addressing these challenges requires strong governance and strategic leadership from university chief executives (Presidents). With constrained revenue growth, but substantial asset portfolios, the requirement for knowledge, skills and experience in higher education financial management will increase.

3.3 The changing mix of public investment in research

In 2018 total higher education expenditure on research and development amounted to $12.16 billion (Australian Bureau of Statistics, 2020). Although Australia's overall R&D effort has been declining as a proportion of GDP (Howard, 2020), the research expenditure commitment by the higher education sector has been stable. This is due in part to the continuing commitment of general university funds to R&D (56 per cent) and the availability of other Commonwealth funding (16 per cent) (Australian Bureau of Statistics, 2020).

The source of funds for higher education R&D is indicated in Figure 16.

Figure 16: Higher education expenditure on research and experimental development 2002-2018 sources of funds (inflation-adjusted)



Source: ABS, 2020, Research and Experimental Development, Higher Education Organisations, Australia, 2002-2018 Cat.81110DO003_2018

Figure 16 indicates that the fastest-growing source of funds for higher education research expenditure has been "general university funds". Over the years, a large proportion of these funds has come from the Commonwealth through the "teaching surplus" and, more recently, from international student fee income. This source of income peaked in 2019 and is expected to take several years to recover.

With the introduction of the *Job Ready Graduates Package* (Department of Education Skills and Employment, 2020), the teaching surplus has been severely constrained, implying an intention by Commonwealth to separate teaching and research funding streams. This provides an opportunity to lift public investment in research to achieve outcomes that meet national, community, and university goals.

Associated with the *Job Ready Graduates Package* the 2021 *Budget Research Package* (Department of Education Skills and Employment, 2020) provided $1.2 billion to support university research in 2021. This included funding for a Strategic University Reform Fund, a Research Infrastructure Investment Plan, a Scoping Study for a University Research Commercialisation Scheme, and a Centre for Augmented Reasoning (AI) at the University of Adelaide.

This recommitment to investment in public research is in line with a responsibility to meet the objectives of publicly funded research (see section 4.5 below). However, the mix of research fields supported is likely to change with the Government's priority to support research in the STEM fields.

The distribution of higher education research expenditure across research fields has also been relatively stable in recent years, with a third of expenditure being for Medical and Health Sciences ($3,722 million or 30.6 per cent). Science fields accounted for 25.9 per cent, and engineering and technology made up 16.4 per cent. Fields covering the humanities, arts and social sciences contributed 27.1 per cent to the total.

The challenges outlined above require well-considered, evidence-based, long term strategic responses from higher education providers and the higher education system as a whole. The nature of these responses is addressed below.

4 Setting long term strategic directions

The larger, more financially robust, and strategically oriented higher education providers are looking to reposition and recover as the market changes and to adjust their business models accordingly. They are likely to create differentiated offerings to both domestic and international students, employers, and governments. They will need to switch their focus from supplying a portfolio of education and research outputs to meeting industry, government and community demand.

4.1 Switching the focus from supply to demand

A strategic response means that universities will need to discover the learning capabilities and qualities, and research outputs they believe will be valued by students, employers, and entrepreneurs across existing *and new* industries - and why. Warren Bebbington, a former vice-chancellor of the University of Adelaide, has commented that the 2020 pandemic experience signals a pivotal opportunity for a university transformation, critically narrowing and sharpening a distinctive mission and aims for each campus (Bebbington 2021).

Universities will need *to accept that they are in the experience business*. They will have to take a genuine interest in building the knowledge, skills and *experience* of their students and their potential employers for working in a changing economy. Many students will not become employees: they will move from university to creating a new business. Several universities have invested in providing the experience of establishing an entrepreneurial business or a start-up.

Universities will also need to engage more fully in public and private sector strategies that create innovation precincts, hubs and districts. Already they are becoming more active in urban development and renewal initiatives that deliver research and education outcomes and broader economic and societal results. This means much more than "co-location"; it means committing to collaboration in research and creating the talent to sustain existing businesses and create the industries of the future.

Strategies for the long term or "third horizon" (10 years or more) will also need to address:

- Board (Council, Senate) leadership with capabilities for innovation, strategy development, and government, industry and community engagement
- The future of the unified national system, established under the Dawkins Reforms of 1988. To date, the system has been remarkably stable, notwithstanding the progressive addition of more rules and centralised controls
- Investment in new and replacement infrastructure. Buildings, laboratories, equipment and technologies must be at the leading edge of functionality and capability
- Boosting research collaborations. A movement from a culture of transactions to partnerships. Organisational structures must be created, and social capital developed to enable this.

- Place-based strategies. Universities as leaders in innovation hubs, precincts, and districts across metropolitan areas and regions.

Unless new strategies can be developed and instituted, other revenue sources found, cost structures redesigned, and trust by government, industry and the community restored across the sector, higher education is on a declining growth trajectory. The sector was in decline after the 2013 Budget.

4.2 Diversifying revenue streams

Advancement

Australian university advancement (fundraising) strategies are remarkably unsophisticated compared to universities in the US and UK. US university Presidents are incentivised and rewarded for their fundraising performance. Alumni relations are built around engagement and preserving the university brand, rather than periodic "giving" initiatives that we see in Australia.

In 2019, universities raised only $474.7 million in donations and bequests; this includes $85.4m at Sydney, $69.3m at Melbourne, $54.4m at UNSW and $40.5m at UWA

It is not sufficient to argue that Australian graduates, businesses and communities do not support universities. Examples of generous gifts over the years counter this position. The problem is that Australian universities are simply not very good at developing, implementing, and sustaining advancement strategies. It has been much easier to rely on the soft income from international students.

Universities have not been good at developing and maintaining international Alumni engagement and encouraging international students to remain in Australia to set up their own businesses. Too often, students return home to establish companies there.

Enterprise and the entrepreneurial university

Innovative university boards (councils, senates) and executives have been looking beyond student numbers and research income to generate commercial returns – that is, "selling their services for a profit, as Dereck Bok has documented in *Universities in the marketplace* (Bok, 2003).

There was a much earlier take-off in the US and Canada for this commercial orientation as state or provincial governments began defunding their universities. This pressure is now being felt in Australia as the Australian government continues to experience severe fiscal challenges.

Universities have some options to generate revenues to support their missions and core functions – in much the same way local governments, other statutory authorities, and charities have done by diversifying their income-generating options.

The scope of university commercial services extends from commercialising research, contract teaching, and commissioned research and consultancy through to investments in start-ups and related entities (discussed below) to merchandising, naming rights, endorsements, sponsorships, and sports teams.

Twenty years ago, Australian universities were not good at this – and had poor skills to do it, along with substantial academic pushback. Over the ensuing years, many university councils and Vice-Chancellors have become much more commercially adept at generating commercial income streams. But there are risks and ethics issues, and there have been some disasters.

Research commercialisation

In 2020 Australian universities generated $139.2m in royalties, trademarks and licences - amounting to 0.4% of revenue. In 2018 the ABS reported that higher education expenditure on research and

development amounted to $12.67 billion (up from $9.7 billion in 2010, inflation-adjusted). In other words, research commercialisation returns only about one per cent of research expenditure.

Research-intensive and technology focussed universities generate the overwhelming proportion of commercialisation income. Many other universities do not have strategies to register, secure and commercialise IP or create start-up companies. There have been some remarkable successes that are regularly celebrated, but also many disappointments.

This overall poor performance in generating income from royalties, trademarks and licenses reflect, in part, an absence of research commercialisation opportunities, but perhaps more significantly, the very low priority given to these commercialisation strategies outside the research-intensive universities and academics' preferences to publish rather than protect Intellectual Property for exploring commercial opportunities.

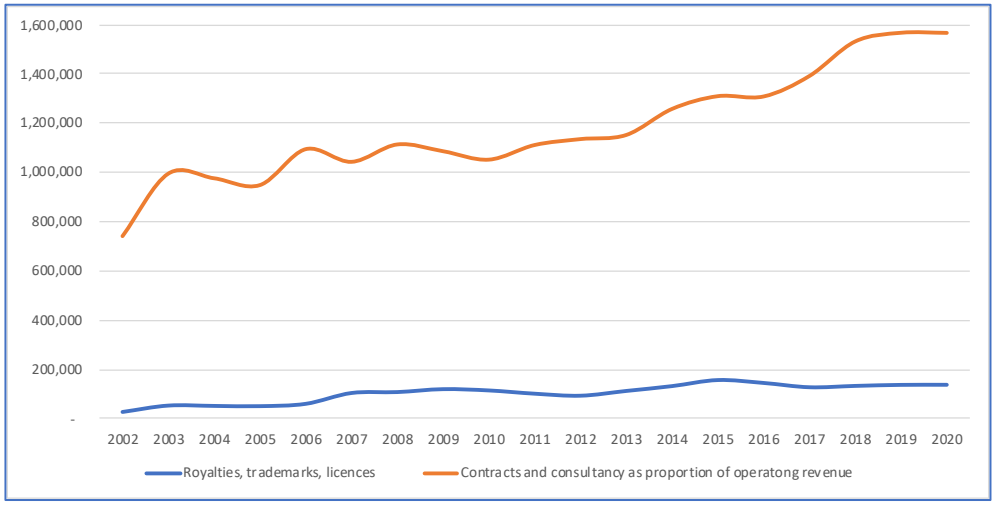
For over 20 years, industry organisations have been saying that universities are very difficult to deal with in negotiating access to Intellectual Property Rights.

Research contracts and consulting

In contrast to commercialisation income, Australian universities have significantly increased their contract research and consulting income over the last four years.

In 2020 universities were reported as generating a total of $1.6 billion in revenue from consulting and contracting, accounting for 4.6 per cent of overall revenue. This is 13 per cent more than $1.4 billion in 2017 and more than double the $0.7 billion recorded in 2002 (inflation-adjusted). The long term trend in revenue from research contracts and consulting, together with the trend in revenue from royalties, trademarks and licenses, is shown in Figure 17.

Figure 17: Trends in revenue from research contracts and consulting and from royalties, trademarks and licenses 2002-2020 (Inflation adjusted)



Source: DESE *Finance publication* (Department of Education Skills and Employment, 2020) and earlier years. University Annual Reports. Calculations by author. Inflation-adjusted by the implicit price deflator for GDP.

There is scope to increase revenue from this source by developing stronger relationships with potential research partners, a focus on generating outcomes and results from research, and developing engagement skills. There is also a need to develop instruments for securing and managing contracting and consulting through standardised collaboration agreements and consistent approaches to IP management.

Related entities

Australian universities have established related entities and participate in joint ventures to deliver English language programs, overseas campuses, professional training, consulting and start-up companies to commercialise research. They have also established community health centres and clinics, technology development co-working spaces and incubators and student accommodation and staff housing. Several have gone further into conference venues and facilities.

Many universities own cultural facilities, such as the Melbourne Theatre Company (a department of the University of Melbourne) and sport and recreation facilities available to the broader community. These are critically important community cultural assets but not necessarily major income generators for the parent organisation. Many operate under lease arrangements which reduces university financial risk.

English language programs have suffered in the COVID environment, while training and consulting operate in a highly contested market, often with disappointing results. On the other hand, several universities have succeeded in the clinical area, such as Melbourne IVF.

Several universities have established or participate in early-stage private equity funds to help commercialise their research.

The message seems to be “ensure that involvement in a related entity is close to core capabilities and can be distinctive in relation to competition”. The case for universities owning student and staff accommodation, for example, is by no means clear—risks and losses impact on the parent.

Campus development

Over the last few years, several universities have become significant property developers, leveraging their property asset base to generate income streams either on their own behalf or collaborate with state governments and private developers. The process has created iconic buildings – for example, in Newcastle, ECU in Perth, and Western Sydney at Bankstown.

Several regional and outer metropolitan universities have sought relocation in CBDs to recruit international and graduate students, particularly in management and commerce, working in CBD offices (e.g., UNE offers law at Paramatta).

The University of Tasmania is undertaking a $600 million move from Sandy Bay into central Hobart by 2030. It has also commenced an urban renewal project at Sandy Bay to create a “sustainable community with a mixture of housing, education, aged care, commercial and retail spaces”. Sandy Bay will remain the home to the University sporting fields and facilities.

4.3 Segmentation and specialisation

There is a need to think again about diversification of the system better to meet society's broadly defined education and research needs. Diversification should be driven by explicitly addressing the knowledge requirements of students, industry, and government. It would mean:

- Acknowledging that not all universities play on the same field; the five largest institutions have choices not open to the others; providers must base their strategies around their financial, education, research, and industry engagement strengths in response to demands for knowledge
- A greater mix of teaching and research priorities and provider concentrations across fields of research and education in science, technology, engineering, medicine, management and commerce, the liberal arts and creative practice to build global scale and critical mass
- Some providers becoming financially larger in terms of their research commitment and capital intensity, particularly in increasingly complex disciplines and emerging technologies; others may become focused on building highly specialised niche research and policy areas and operating as

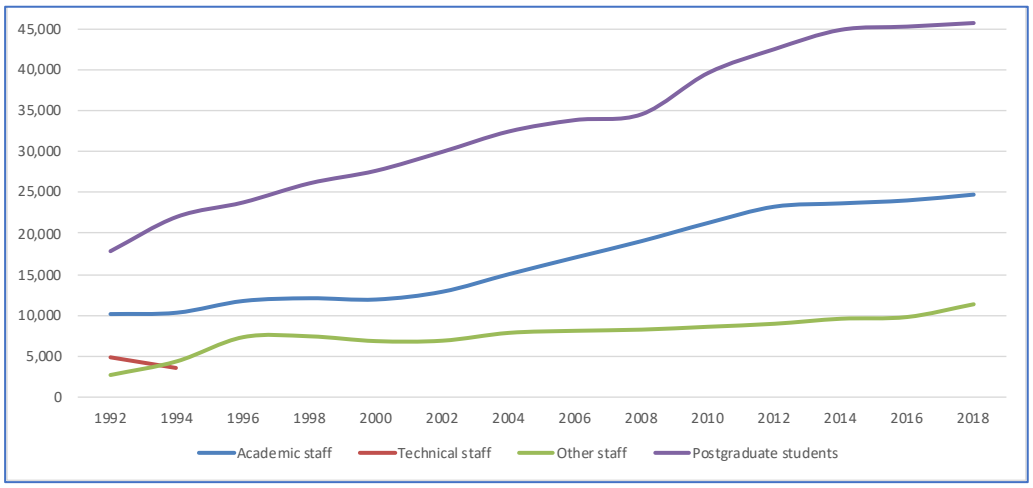
policy think tanks; still, others may focus on localised high-quality education delivery and strong research and teaching partnerships with industry and the community.

The higher education system could grow and transform around several distinct but connected, provider categories each with solid and distinctive capabilities, catering for specific marketplace segments. Many of these segments have already started to "self-select" around research-intensive, technology-focused, metropolitan “place-based” providers in local innovation systems and regional providers.

4.4 Boosting the numbers of Australian postgraduate students

DESE data indicate a declining trend in the numbers of Australian students studying for postgraduate research degrees. Postgraduate students make an essential contribution to Australia’s R&D effort. This is reflected in Figure 18 which shows trends in staffing, based on person-years of effort (PYE), across employment categories between 1992 and 2018.

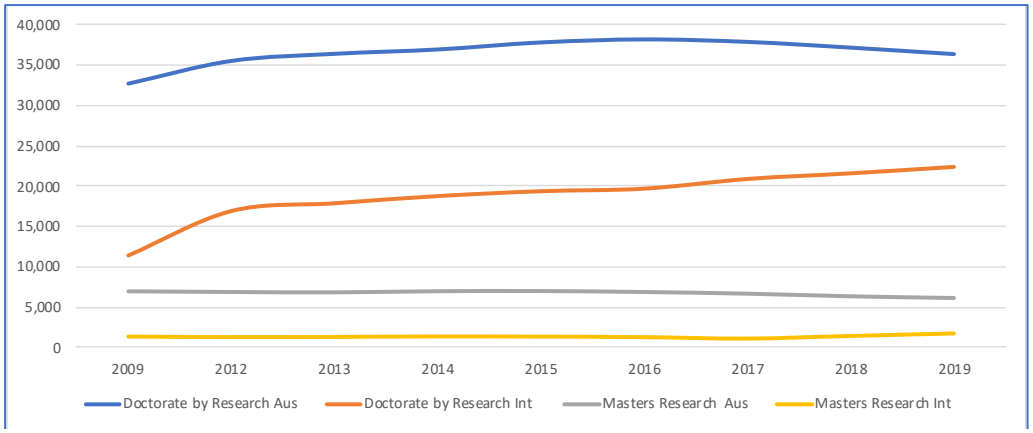
Figure 18: Higher education expenditure on research and experimental development 1992-2018 - staffing numbers



Source: ABS, 2020, Research and Experimental Development, Higher Education Organisations, Australia, 2002-2018 Cat.81110DO003_2018

Figure 18 suggests that postgraduate students are carrying the weight of Australia’s higher education research and development effort and, as Figure 19 shows, by an increasing proportion of international students. The flattening in academic staff numbers since 2012, notwithstanding the income generated from international student fees, is also disappointing.

Figure 19: Australian and International PhD and Masters degree enrolments



Source: Source: DESE (Department of Education Skills and Employment, 2020) and earlier years.

Overall, postgraduate students, including Masters by coursework, accounted for 63.3 per cent of total international student numbers in 2019.

Between 2016 and 2019, the number of Australian students studying for a PhD dropped by 4.6 per cent, and the number studying for a research Masters dropped by 12.6 per cent. Over the same period, the number of international students studying for PhDs increased by 13.5 per cent.

Many international PhD students will stay in Australia to work with Australian businesses or commence their own start-up companies. The Biden Administration is encouraging international PhDs graduating in the US to do just that.

These trends suggest that Australia must do much more to increase the numbers of PhD students, particularly in the STEM areas, to provide the talent required to grow the Australian industries of the future. This can be met by substantially increasing the number of PhD scholarships and working with industry to increase industrial PhD places.

4.5 Making a case for sustained public investment in research and innovation

Universities are being criticised for their current obsession with international rankings to lift prestige and capacity to attract international research income and students. Rankings overwhelmingly focus on research excellence (reflected in citation counts) but comparatively little on research relevance or engagement with industry and the community.

Universities are also seen to have an unrelenting focus on money, evidenced in a gap between the objectives of unbound scholarship and the practical requirement to run a university as a public corporation with a need to generate a surplus of income over expenditure.

Rankings are of little relevance to Australian businesses and governments wanting solutions to complex problems and students wanting the knowledge and qualifications to enter a profession, secure employment, or start a business. Only a very small number of students want to pursue a career in academic research and, potentially, become a member of an influential group of great minds and influencers. Nonetheless, the system should embed a capacity for brilliant people to achieve greatness by making resources available for pathbreaking discoveries led by inquiring minds.

Government and industry often require research for purposes that are more immediately useful. This does not mean turning universities into research contracting organisations: university research carries with the appearance of independent and "disinterested" objective scientific inquiry. Governments and industry generally prize this characteristic.

The case for public investment in universities should focus on what they do and do best. This covers:

1. Increasing the stock of useful knowledge
2. Educating and training skilled graduates
3. Creating new scientific instrumentation and methodologies
4. Accommodating a capacity for scientific and technological problem-solving
5. Reducing technical uncertainty and risk in the application of inventions, discoveries, and in economic, industry, and social policies
6. Preparedness concerning unexpected events and incidents, including pandemics, disasters and environmental change
7. Creating new firms and improving business performance
8. Supporting the development and growth of knowledge-intensive industries, particularly through innovation ecosystems creating the “industries of the future” including (but not limited to) robotics and artificial intelligence, advanced life sciences, cybersecurity, visualisation and animation, autonomous transport, advanced materials, energy capture storage and transmission, and smart farming and precision agriculture (Howard, 2020).

Building the investment case should avoid loose (and flawed) formulations of economic impact and "big numbers" using questionable economic modelling. It should focus less on the amount of money required and more on what can and will, be *achieved* in terms of mission, challenges and change – for the better. The case should concentrate on areas of distinctiveness and need - with collaboration rather than rankings in mind.

The investment case cannot be just for any research – but targeted strategically oriented research and capability building in industrial and national interest and community priority areas. With the articulation of a clear, compelling and mature approach to public and industrial research investment, a case for long term commitment can be made. The research investment must move away from the short term (one to three year) funding programs that have been typical over the last few years.

Government responses are predicated on the numerous other calls on public revenues, particularly defence, health, social security, industrial strategy, infrastructure, urban and regional development and renewal, environment, and increasingly, public safety.

The case for public research and education investment must be compelling and built around how the allocation of scarce resources will lift performance in each and all of these areas – not as a substitute or alternative – with clear economic, social and sustainability outcomes. Vague notions of the public good and broad economic impact are rarely convincing to policymakers and their advisers.

A sound and compelling investment (business) case should oblige Government to seriously consider increasing the level of research investment in coming years. This issue assumes significant importance in the context of a changing mix of public investment in higher education research.

5 Strengthening the *institutions for engagement* in university-industry-government interactions

For many years, there has been an implied social contract between science and society that universities will generate new knowledge from the pursuit of scholarship in teaching and research from the allocation of public funds. They may interpret and suggest applying that knowledge in practical situations in industry, government and the community. But they are not responsible or accountable for the way it is used, if at all.

There is an implied clear separation between the work of universities in their institutional setting of scholarship and the institutional setting of industry in making and selling goods and services to customers. The institution of Government has a role to deliver effective policies and programs that address market failures or are considered to have national or local value and merit.

With the expected continuing decline in public funding for higher education, the once-clear demarcation of roles between universities, industry and government can no longer apply. The distinctive functions of basic research (conducted in universities), applied research and product development (conducted in industry), and separate careers in universities, industry and government are becoming even more blurred.

The science-policy literature has well established that knowledge creation and its application is a multifaceted process with no particular sector specifically responsible for one or the other (Nowotny, et al., 2001; Gibbons, et al., 1994; Gibbons, 2003). Collaboration, not conflict, is the way forward. Acknowledging this reality means building and strengthening *institutions for engagement* between sectors. In addition to casual and informal interactions, new frameworks that build cooperation and collaboration are required.

Creating *institutions for engagement* requires a new level of partnership and trust between universities, industry, and government in the manner of a triple helix of relationships. It refers to a situation where sectors with fundamentally different institutional drivers are in partnership to

achieve economic and social outcomes with none dominating the other. It is a collaborative concept that receives attention worldwide but has never really developed traction in Australia.

Developing effective engagement institutions requires organisational innovations, such as the Cooperative Research Centres framework set up in 1992 and models for university-industry research centres, such as the successful NSW Centre for Sustainable Materials Research and Technology (SMaRT@UNSW).

Building engagement will also require innovations in the legal instruments that establish the foundations for negotiating and managing successful university-industry collaborations and partnerships. A start has been made with developing the *Higher education research commercialisation framework* outlined in the consultation paper released by Minister Tudge on 21 September 2021 (Department of Education, Skills and Employment, 2021).

On the teaching side, the model of the dual-sector university is well established in Victoria. The NSW government is implementing a framework for NSW Institutes of Applied Technology (IAT) to fully integrate university's theoretical study with the practical vocational education training (Gonski & Shergold, 2021).

Effective institutions for engagement demand innovative structures, systems, governance, leadership and staffing arrangements and income models suited to diverse areas of university, industry and student requirements. The evolution towards a new social contract is ongoing, realising that a one-size-fits-all approach will never work.

6 Conclusion

The development and execution of strategy requires leadership and commitment. It inevitably requires change and an appreciation that change is required. The COVID-19 crisis has been, in many ways, a call to action. More government money and a return of international students are attractive in bringing this back to a comfortable *status quo.* Whilst superficially desirable, this particular path is no longer practical or feasible. Even if international students return to 2019 levels, it will do little to address the more fundamental challenges facing higher education in Australia.

Higher education is a big industry, constituting just under two per cent of GDP ($1.85 trillion). It controls a lot of money, and it is financially very strong. It is in everyone's interest that it performs in the best interest of Australia and Australian students and researchers. It must also modernise and innovate – and become relevant to other industries and government priorities.

The experience of other industries is that leaders who continue to demand subsidies and do not reform and innovate end up being ignored by government – manufacturing and agriculture, for example. Both industries have recently changed their approach and are now being supported.

Higher education should use its position of financial strength to argue from a collaborative position under principles of mutuality and respect. The 2020 financial crisis has delivered quite a few lessons in how to work effectively with government. Many institutions and peak bodies are working through this with good results. Others have some way to go.

The role of higher education in the economy and society is changing and creating new opportunities. The future lies in greater engagement between sectors to ensure that each set of institutions can retain their distinctive missions and meet the demands and expectations that people place in them – individually and jointly.

A new, workable, higher education strategy is unlikely to emerge from a "top-down" government initiated plan for the whole sector, with peak bodies and others being invited to respond to consultation papers culminating in a *White Paper* or *Policy Statement*. Experience demonstrates that the shelf life of such documents is short, and the premises on which they are prepared may turn out

to be disputed – or simply flawed (Howard, 2020) Attachment 3. The experience of the top-down 1987 Dawkins reforms is not highly regarded in industry and higher education.

A better approach is to create a robust environment for conversations about the current issues and future course of higher education over the next ten years and longer. That should create a better, shared understanding of the perspectives of institutions, regions, states/territories and the Australian Government across the multiple agencies interested in higher education. That would help build a new social contract, and establish a new framework for collaboration and interaction between the three institutional pillars of government, industry and higher education.

Higher education must position itself as a partner in growth. It must approach government and businesses as collaborators, not as a source of money to fund university and researcher determined objectives and interests. With strong partnerships, increased revenue streams will inevitably follow. This means committing to creating high levels of engagement, and above all, trust (Howard, 2009).

We are now seeing greater collaboration between universities, industry and government in the evolution of innovation precincts and hubs across cities and regions. These combine research and education objectives with broader social and economic objectives in urban renewal, health, and economic development. This is following international trends and experience. Initiatives that originate in property development objectives do not have a good success record.

One of Australia's first precincts was the Bio21 hub in the Parkville area of Melbourne, established in 2002, which has grown to a global biotech centre. Other initiatives are currently underway in capital cities and regional areas, including the technology hub in central Sydney. These are being strongly supported with state government investment and changes in land use planning, in collaboration with industry, universities, TAFEs and schools. It is a recognition that science, research and innovation has both strong local and global dimensions.

Research and education is both local and global – a recognition that should be at the heart of setting a course for the future.

About the Author

John Howard is a highly experienced policy analyst and management consultant with a track record of achievement in science, research, and innovation policy, programme and project performance review, industry economics, and regional development.

As an adviser and project leader, John has been at the forefront of facilitating collaborations and strengthening relationships between universities, business and government. He has advised businesses and government on the tools and techniques for assessing research impact, the management of innovation, knowledge transfer and translation, and business transformation.

John's career portfolio includes over 200 policy reviews, programme evaluations and management consulting assignments for research organisations, government, business, and industry bodies.

Among John's recent achievements in industrial strategy analysis and advice include publication of *Rethinking Australian higher education: Towards a diversified system for the 21st century* (Howard, 2021), *Challenges for Australian Research and Innovation* (Howard, 2020) and the comprehensive *Performance review of Australia's rural innovation system* (Howard Partners, 2018).

Between 2008 and 2011, John was Director and later Pro Vice-Chancellor (Innovation and Engagement) at the University of Canberra. In that role, he was responsible for promoting innovation and knowledge transfer at the University, engaging with Government and industry, and representing the University in industry forums and networks. He also led teams to prepare and submit applications for grants under major higher education funding programs and attracted over $50m in grant funding for the University.

In 2011 John returned to full time consulting through Howard Partners.

John retains academic connections through appointments as Visiting Professor in the Office of the Deputy Vice-Chancellor Innovation and Enterprise, University of Technology Sydney and Adjunct Professor in The Institute for Governance and Policy Analysis at the University of Canberra.

John holds a Doctor of Philosophy (Innovation and Engagement) from The University of Sydney (2004), a Master of Arts (Public Policy), University of Canberra (1983) and a Bachelor of Economics (Honours) University of Tasmania (1971)

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