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Preface

This study provides an overview of the history, current status, and future challenges to the Australian university system through the eyes of its leaders. Hopefully, the report will be informative and useful and will raise critical and important issues that need to be considered and addressed for the continuing success of the system and the society it enables. The intended audience includes: university leaders, managers and staff; higher education policy makers and analysts; and, Australian and global higher education researchers and scholars.

The idea for this project surfaced at the annual President's meeting of the Association of Pacific Rim Universities in Canberra in Spring 2014 at which the Presidents/Vice-Chancellors of Australian National University, the University of Melbourne and the University of New South Wales shared their observations about the issues and challenges facing the Australian higher education with their colleagues from approximately 30 universities from around the pacific rim. Having studied and advised universities in the US, Brazil and India, I (William Lacy) was struck by the similarity of the issues in higher education and also wondered how the observations of the three Australian Vice-Chancellors compared with other Australian university and government leaders. Having previously visited several Australian universities, I was aware that these institutions were seen as global models. Each of the three Presidents/Vice-Chancellors invited me to spend my 2015-2016 sabbatical leave at their institutions studying the Australian university system. Near the end of the field interviews, Gwilym Croucher, a higher education scholar and Policy Analyst at the University of Melbourne's Centre for the Study of Higher Education, joined the effort. Romina Mueller and Andre Brett were subsequently hired to assist in analysing the interview transcripts and survey data.

The study involved 117 in-depth interviews and surveys with university and higher education leaders throughout the country as well as an extensive review of the literature. The Australian higher education system is at a key juncture in its evolution and development. It has experienced significant changes in the last 30 years, including dramatic domestic growth, internationalization, and numerous new challenges to, and opportunities for, its primary goals of knowledge generation, dissemination and application. Increasingly, the system is recognized for both its importance for the future of the Australian economy and society and as a leading global education provider. However, major internal issues, as well as significant external changes, currently challenge the sector and must be addressed for its continuing success.

Executive Summary

Can Australian universities continue to punch above their weight?

Australian universities have experienced significant changes in the last 30 years and are at a key crossroads in their evolution and development. Although there have been multiple government taskforce reports and legislative initiatives, as well as scholarly books and policy analyses of the Australian university system, there exist few, if any, systematic surveys and analyses of the perceptions and observations of the sector's leaders. This 2015-2016 study, which focuses on interviews with more than 100 university, government and community leaders, provides a unique review and analysis of their perceptions and insights. With this as a foundation, the report concludes with a summary of the key observations.

Those interviewed believed broadly that the sector has performed well in research and education, has played a key role in Australian society, and has often served as a model internationally. As one metropolitan Vice-Chancellor observed: *"Australian universities make an incredible contribution to their regions socially, economically, culturally, and intellectually. They are really the heartbeat of our communities in many places in Australia … [and] actually a vital part of their economy."* Nearly all the leaders, however, felt there are significant issues facing the sector as it has become increasingly more diverse, complex, financially challenged, and internationally dependent. At the same time the broad domestic and international context in which the sector functions has also experienced major changes.

There were important differences between how issues were viewed by the different groups of leaders interviewed – university leaders, senior managers and analysts, government leaders and other sector leaders - but all agreed that major changes are coming. As one academic leader remarked: *"I'm not at all confident that the university or anything like its current form will be here for even 20 years."*

Planning, internationalisation, needs of society and student learning outcomes

Leaders shared similar perceptions of the issues facing the future of Australian higher education. A brief summary of the major findings from a survey of 32 issues facing the universities entitled "Australian Higher Education: Opportunities, Issues and Challenges" follows. Four issues: ***Internationalisation, Student learning outcomes, Address the needs of the society (including the Grand Challenges),*** and ***Strategic planning,*** were rated most important for the future of the system.

Another five issues considered important were***: University/industry partnerships; General partnerships; Research infrastructure*** (e.g. big data and computers***); Composition of the faculty*** (i.e. tenured, contract, and part time staff); and ***Federal budget support***.

Different priorities among university, network and government leaders

While a high level of consensus existed among all leaders, important differences by subgroups surfaced among university, academic organization and government leaders. **Shared governance** was considered the most important by academic organization leaders and the least important by government respondents. Significant differences also emerged regarding the issue of **Competition for students,** with university leaders considering this most important and leaders of academic organizations viewing it as least important.

Differences also existed among leaders from the Group of Eight, the Australian Technology Network, Innovative Research Universities, and the non-affiliated universities. Leaders in the Group of Eight saw **International rankings** as more important than the other university groups. On the other hand, the Australian Technology Network leaders viewed **Promotion of technology transfer** and **Student accessibility** as more important than other groups. Interestingly, the non-affiliated universities noted that **Federal budget support, Role of state government,** and **Student financial aid** were more important to them than to other university leaders.

A new system structure, university missions and staffing

In response to the open-ended questions, numerous leaders raised the need to review and **restructure the sector,** to **diversify** institutional goals and functions and to seriously consider **merging and/or reducing the number of institutions**. One senior regional university Vice-Chancellor mentioned the issue explicitly: "*Australia has too many universities for its population. It has too many campuses. It has too much duplication and too many trying to do the same thing."*

It was also argued that universities need to rethink and enhance their **outreach and engagement** efforts to address societal needs. One university leader stated succinctly: "*Australian universities have to rethink what it means to be an engaged university. What is the public value and how do we serve society in new ways?"* However, another leader pointed out that active engagement is not going to happen without some change in the institutional incentives: "*If an institution wants to get into the engagement agenda… it needs to install an incentive system in the institution that actually drives people towards that engagement."*

Numerous leaders reiterated in the open-ended discussion the importance of **partnerships,** particularly **international partnerships**, which was viewed in the survey as the most important issue. A former Vice-Chancellor and government leader stated: "*The rest of the world is moving really fast and if we don't move with it, the gap will get so big that we will never be able to fill it. We have to focus more on the outcomes than process. We have to see ourselves as the three percent player in the world. And so, we have to link in with the other 97 percent. We have to establish international connections."*

The interviews also revealed a concern about the changing nature of the academic staff and the **Composition of the faculty in terms of tenured, contract, and part time staff**, which further aligned with the survey results. One government research leader and scientist commented: *"I think a big issue is the casualisation of (university) work forces. When you have a tenured work force there is the commitment of your tenured staff for the betterment of the institution. When you casualise it, you diminish the conditions for most."*

Technology

Numerous leaders commented on the dynamic impact that **technology** will have on education and the broader society. A Group of Eight Vice-Chancellor framed it concisely: *"The digital realm penetrates everything: how people access information; how people see the many different ways they can interact with one another; how they receive services; how they can themselves interact with services."* A metropolitan Vice-Chancellor observed: *"Technology is going to change the nature of both our interaction with students and the nature of the higher education system."*

Stable and informed public policy and sustainable funding

A frequently stated frustration was the lack of development of stable and informed government **public policy** for education, particularly higher education. The following statement by a senior administrator and researcher exemplifies the numerous frustrations expressed by leaders about the state of public policy: *"We have moved away from what were at that time visionary and long-term policy directions into an incredibly short-term ad hoc type of policy, almost policy by stealth and completely disjointed."* Another senior government research administrator and former Vice-Chancellor stated succinctly*: "So what is the biggest shaping force in Australian Higher Education? The fact that there is no policy."*

Not surprisingly, the issue of **funding** generated some of the strongest statements from many leaders. Funding has become particularly important in light of the uncertainty of continuing strong federal financial support, along with the heavy reliance on international student fees as a source of cross-subsidy revenue, and the potential effects of a downturn in international student enrolments. One metropolitan Vice-Chancellor stated *"At times of challenge, unfortunately, Australian governments tend to pull back rather than invest and with that context it is a challenge to get them to find more money for higher education."*

Embedded in the federal funding issue is the government support and the accumulated debt for the Higher Education Contribution Scheme (HECS, now called **HELP-Higher Education Loan Program**). A Pro Vice-Chancellor for academic programs framed the federal funding challenge: *"The risk here for the sector is that the volume of HECS-HELP debt will become politically unsustainable. If HECS-HELP collapses, then we don't have what is being viewed around the world as a very good if not ideal way of deferred payment."*

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The issue of **funding for research** is equally critical, if not more important, for the continuing global leadership of Australian universities. The increasing cost of research equipment and infrastructure, and the failure of the federal government to provide adequate support for the indirect costs of research have further compromised university research. In recent years, university research has been funded increasingly with domestic and international student fees. Some leaders stated they believed the current process of funding research was unsustainable and immoral.

Strategic planning, public policy and strong leadership

The report began with the question: "Can Australian universities continue to punch above their weight?" Relying heavily on the insights of its leaders and supplemented by numerous reports and analyses, we conclude that the system has the history, foundation, capacity and knowledge to continue to be highly successful. However, several significant developments and challenges identified through the study suggest it is at a critical crossroads and unlikely Australian universities can continue to perform above expectations and be global leaders unless these issues are addressed. As a consequence of the issues highlighted in this report and a wide range of both internal and external issues and opportunities facing Australian universities, we agree with the general consensus expressed by its leaders that thoughtful, comprehensive, long-term **strategic planning** at multiple levels is needed. This planning should include assessment of the opportunities and challenges to the individual university, the region, the Australian system of both public and private, as well as domestic and international, institutions, and the broader international higher education context. Australian cannot afford to be parochial. Equally important is the need for stable and long term **public policy** at the national government level and potentially at the international level that would lead to a sustainable future.

In this often rapidly changing and dynamic environment, addressing the issues facing the future of Australian universities will require **strong leadership** throughout the system and country. Given the study respondents' thoughtful and insightful analyses of the issues facing the sector, one of the strengths of the system is the senior leadership itself. They will be called upon increasingly to seek additional expertise, build new partnerships within and outside the system, and to respond to these challenges in new and creative ways.

Introduction and Overview

This study of Australian universities focuses on the past, present, and future of these institutions as seen through the eyes of university and sector leaders. This large, complex, and important system is a global model for higher education. However, the system, a product of history, law, policy, cultural values, and economics, is at a key juncture in its evolution and development. It has experienced significant changes in the last 30 years, including dramatic domestic growth, internationalization, and numerous new challenges to, and opportunities for, its primary goals of knowledge generation, dissemination and application. Increasingly the system is recognized both for its importance to the future of the Australian economy and society and as a leading global education provider.

As a consequence, the university system has been the subject of multiple government taskforce reports, white papers, and legislative initiatives, as well as scholarly books, reports and policy analyses (e.g. T. Barlow, 2006; D. Bradley, 2008; B. Chapman, 2013; P. Coaldrake,2013; G. Croucher, et.al.,2013; G. Davis, 2010; M.; D. Gonski, 2015; H. Forsyth, 2014; F. Larkins, 2011; S. Macintyre, 2013; S. Marginson, 2013; D. Markwell, 2013; A. Norton, 2013, 2014; B**.** Probert, 2015). It has also received significant media coverage for several years in the major Australian papers, including *The Australian* and the *Australian Financial Review*. Finally, numerous student and staff surveys have been conducted to assess their perceptions of and attitudes towards their university experiences (C. Baik, R. Naylor & S. Arkoudis, 2015; S. Arkoudis, C. Baik, S. Marginson, & E. Cassidy, 2012; E. Bexley, 2013; E. Bexley, S. Arkoudis & R. James, 2011).

However, few, if any, systematic surveys and analyses of the perceptions and observations of the sector's leaders exist. This 2015-2016 study, which focuses on university, government and community leaders, provides a unique review and analysis of their perceptions and insights. With this as a foundation, the report concludes with a summary of the key observations and recommendations for Australian universities.

The report begins with a brief introduction of the evolution of the higher education system and its universities. Some of the strengths, as well as the issues facing the sector at this key point in its history, are summarized. This introduction also provides an overview of the methods and participants in the study. It concludes with a description of the organization of the report and the unique value of viewing the system through the eyes of its leaders.

Background and important issues

The majority of Australian universities are now comprehensive, offering undergraduate and graduate studies, as well as undertaking basic and applied research across the major disciplines and professions. This relative homogeneity of mission is largely a result of the policy architecture established in the late 1980s by then Minister for Education, John Dawkins. The 'Dawkins Reforms' created the Unified National System, seeking to both grow the system and shift the focus of institutions toward better supporting national economic growth (J. Dawkins, 1987; G. Croucher, et al, 2013).

Prior to 1987, a binary system comprised of 19 universities and approximately 70 other higher education institutions, including teacher training colleges and colleges of advanced education, existed. In 1988, this system was effectively abolished with all institutions to function as comprehensive universities. This was achieved through a series of mergers that resulted in today's system of 37 public universities, three private universities (University of Notre Dame Australia, Bond University and Torrens University Australia), and one university of specialisation (University of Divinity). The original universities (e.g. the University of Melbourne, the University of Sydney, and Monash University) merged with smaller institutions such as teachers' colleges; technical colleges (e.g. the Queensland University of Technology, University of Technology Sydney, and RMIT) were transformed into universities; and new universities were created from the amalgamation of many smaller colleges, (e.g. Western Sydney University, which has now expanded to become a university of 45,000 students)(DET, 2015). More recently two international universities (Carnegie Mellon University, US and University College London, UK) also began offering programs. However, nearly all university students in Australia attend one of the public universities and these institutions conduct most university research.

Although significant differences exist among the current universities in terms of size and disciplinary focus, they now all share a similar mission, goals and philosophy. Even those established with an explicit science and technology focus, such as the University of New South Wales, and those with a more applied and undergraduate emphasis, such as Charles Darwin University, have become more comprehensive universities. Under the current Australian regulatory framework for higher education all must offer at least three doctoral programs.

This uniformity among institutions is part of the provisions in Australian law, which explicitly regulates Australian public universities and requires, among other criteria, that they actively engage in research. The government, through the Tertiary Education Quality Standards Agency (TEQSA), establishes standards for teaching quality and higher degree research programs. Still, all Australian universities are independent, able to self-accredit courses, and issue their own degrees. They now, on average, receive only about half of their revenue from public funds and yet are more closely monitored than at any time in their history. Similarly, in the United Kingdom and other European and North American Organisation for Economic Co-operation and Development (OECD) countries, as the level of federal and state government funding has decreased over recent decades, regulation and oversight have increased. The overseas universities operating campuses within Australia, each offering bachelor level qualifications, also need to be accredited by the Australian government. Today this vibrant system, which comprises 37 comprehensive public universities, one university of specialisation, three private universities, a number of international universities and over 130 other higher education providers, generates revenues of over $28 billion (2015). This constitutes approximately 2 percent of Australia's GDP or $1339.54 billion in 2015).

Growth in Australian higher education

The Australian higher education system has undergone significant development and changes over the last several decades and has moved from the periphery to the core of Australian society, particularly in terms of participation. While university enrolments initially experienced steady growth, since the late

1980s enrolments have expanded dramatically. In the mid-1970s for example, only 3 percent of working-age Australians held a higher education qualification. Just 40 years later, over 25 percent reached this goal. Total student numbers, including both domestic Australian students and international students, increased from close to 31,000 in 1949 to around 1.4 million in 2015 (DET, 2016).

In the future student numbers are projected to increase even further. Following the Bradley Review of the Australian higher education system in 2008, the then Australian government set a target of 40 percent of the population holding a bachelor degree. It aimed to meet this milestone for 25 to 34 year olds by 2025. Although this policy was rescinded by a Coalition government in 2014, Australia is well on its way to achieving this ambitious goal, with around 37 percent of young people awarded a bachelor degree (ABS, 2016). The number of people enrolling in postgraduate qualifications supplements the increase in undergraduate student numbers. The proportion of students studying at postgraduate level increased from around 15 percent in 1980 to near 30 percent in 2015, reflecting a trend towards graduate professional qualifications, such as coursework Masters degrees (DET, 2016).

While the majority of full-time Australian students attend university soon after finishing high school, the proportion of mature-aged and part-time students has increased markedly over recent decades. Part-time students now comprise a third of the student population in Australia (DET, 2015). Despite the changing student demographics, student preferences for where they study have remained remarkably stable over many years. Australian citizens have a strong preference to study in their hometown. Only a small number of people travel to attend university and even fewer choose to study abroad.

This historic growth in student numbers has also resulted in significant changes in the gender composition of the university population. From the establishment of the first Australian universities in 1851 until the second half of the twentieth century predominantly men taught and attended university, with only around one in five students being female. However, as with many other countries in the OECD, over the last 50 years the ratio of men to women decreased consistently. Since 1987, female students have constituted the majority and now account for over 55 percent of enrolments.

Along with the expansion in enrolments over the last 25 years, the number of staff has grown significantly. Australian universities employ over 100,000 people, around half of whom are academic staff.

Higher Education Contribution Scheme (HECS) and the demand driven funding system

The expansion of the Australian higher education system since the late 1980s has been in part a consequence of a pioneering scheme of income contingent loans for student fees, the Higher Education Contribution Scheme (HECS, now the Higher Education Loans Program, HELP). In addition to providing all students with financial support, the scheme is particularly important for those least able to afford tuition, giving them the opportunity to undertake a university education without the need for a bank loan or parental support. Participants are not obliged to begin loan repayment until their income reaches a certain threshold (In 2016-17 this threshold was $54,869). Theoretically, HECS-HELP has

allowed the government to expand the higher education system without relying solely on general public revenue. At the same time, the program has ensured that financial barriers, such as the capacity of students to pay fees or secure private finance, do not prevent access to university education. Despite this, the number of students from disadvantaged socio-economic backgrounds has not increased significantly in recent decades.

The heavier reliance on student fees to fund the university system means that Australian students now contribute to a larger proportion of their tuition costs than most other students in the OECD. Since the government provides the initial funding until graduates income reaches a particular threshold, the government accrues the debt, and was owed $52.2 billion Australian in 2016 in tuition and other fees through HELP. Moreover, a portion is not expected to be repaid in part because some graduates will not reach the income threshold (APBO, 2016).

The size of the system and the overall debt owed by students is expected to grow because of the creation of what is called the demand-driven funding system. The government now guarantees a publicly supported bachelor degree place for any student that a public university is willing to teach. That is, they offer an effective 'voucher' so that a student may study at a public institution. This means the government provides an income-contingent loan to the student for the tuition fee, as well as providing a public subsidy to the university.

This represents a significant shift from the central allocation model that until 2012 capped the number of Commonwealth-supported places in the public system. The policy shift means that universities can now offer courses that will better match student demand along with the needs of industry and the nation. The higher education system should now be more responsive to student preference for study rather than rely on central planning to assess the availability of places.[1] Whether a demand-driven system is better able to produce the graduates business and society need is yet to be tested, as is government support for its 'uncapped' liability on the Commonwealth government's budget, which has increased by several billion dollars since introduced.

With the significant growth in university participation, a number of issues have arisen. As entry requirements are moderated, more students struggle academically. Moreover, after many years of improvement in overall employment outcomes, graduates are now finding it increasingly difficult to obtain full-time employment.

International students

As the domestic higher education system has expanded in Australia, so too have international student enrolments. Over the past 25 years, the government has allowed universities to enrol international students in a largely unregulated market, with enrolment growth rates consistently being in the double-digits. Since the late 1980s universities have been permitted to enrol international students at fees they can establish, under the expectation that they will charge fees that reflect the additional infrastructure costs. This policy has been highly successful with students from all around the world now educated in

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[1] A limited number of places, such as for medical and postgraduate students, are still subject to government allocation.

Australia. Given its relatively small population, Australia has a disproportionately large share of the international student enrolments, educating around seven percent of students who travel internationally to attend university (UNESCO, 2010). This remarkable achievement has transformed the Australian system into a highly internationalised one and has provided revenue that has cross-subsidised research and domestic teaching. As a consequence, Australian universities are now well conditioned to the challenges of market dynamics in attracting and educating international students.

The origin of this successful internationalised sector dates to the federal government's Colombo Plan of the 1950s. The Plan provided assistance to Australian universities enabling them to train the brightest young minds of many Southeast Asian countries. It prepared many universities for the challenges of the future international market. International students now constitute a large proportion of those enrolled in all universities throughout Australia, comprising on average one in five students, and considerably more in some institutions. In 2015 Australian universities enrolled a total of 363,451 international students. Including English language, vocational and other enabling course students, Australia hosted over 587,365 international students (DET, 2015). In the last ten years heavy dependence on China, with nearly a third from that country, has led Chinese student enrolment to grow more than 10-fold. The remaining majority come from the Republic of Korea, India, Malaysia or Japan.

International student enrolments peaked in 2010 followed by a decline which was likely due to increased competition from overseas universities, changes in immigration policy, a strong Australian dollar (which is no longer the case), and negative publicity about student safety. Tuition recently rebounded to previous levels. Some institutions are considering increasing international student enrolments to 50 percent, but, given the broader global context, it is unclear if this is feasible or prudent.

Australian universities offer distinct courses that cater to this large cohort of international students and have developed sophisticated bridging and introductory programs. In addition, multiple universities have offshore campuses (13 in 2017) including: Monash University branches in China and South Africa; University of Wollongong and Murdoch University in the United Arab Emirates; Monash University, Swinburne University and Curtin University in Malaysia; Newcastle University, James Cook University and Curtin University in Singapore; and RMIT in Vietnam.

Formation of international branch campuses is a major development in this century, growing from 35 in 2000 to nearly 250 in 2017. According to the Cross-Border Education Research Team at the University at Albany, in 2017 universities from 33 countries have formed a total of 247 international branch campuses, with an additional 21 campuses planning to open. Those countries with the largest number of international branch campuses are the United States (77), United Kingdom (38), France (28), Russia (21), and Australia (14). The countries with the largest number of international campuses within their countries are China (32), United Arab Emirates (32), Singapore (12), Malaysia (12), and Qatar (11). These efforts have not been without numerous and diverse challenges. By 2017, 42 international branch campuses have closed, including the University of New South Wales in Singapore, the University of South Queensland in the United Arab Emirates, and Charles Sturt University in Canada. While Australia

was one of the leaders in this effort, little change has occurred among its universities in recent years and it is unclear if further expansion is a wise strategy.

The university-based research system

Australia has a strong research performance given its relatively small population. It consistently ranks highly in the OECD in per capita output, above many other strongly performing systems, such as those in Canada, Germany, the US and the UK.[2] The quality of this productivity is also high, with Australia scoring significantly above the OECD median score for the number of publications in top-quartile journals, relative to GDP.[3] Higher education makes a critical contribution to this relatively strong performance.[4] Australian universities and affiliated research organisations currently spend around AU$10 billion annually on research, a threefold increase in the last 20 years. The OECD uses the number of universities in the Shanghai top 500 relative to GDP as an indicator of the strength of a country's science base. On this measure Australia performs well above the OECD median and ahead of Canada, the US and the UK, and in 2016 had several institutions ranked in the top 100.

Funding for the Australian higher education research sector is also relatively large, with most of the monies administered through two bodies, both of which are now independent statutory authorities, and supplemented by block funding grants for indirect costs of research and research training. The Australian Research Council (ARC) supports applied and discovery research in all disciplines except clinical medicine and dentistry, which are the responsibility of the National Health and Medical Research Council (NHMRC).

National Health and Medical Research Council funds experienced a seven-fold increase between 1990 and 2010. In the late 1980s, an increase in the competitive funding available through the ARC resulted from repurposing general university funds in what was known as the 'ARC clawback'. Subsequent increases in ARC funding were concentrated between 2000 and 2010 (an increase of 178 percent) (F. Larkins, 2011). As well as underpinning a significant increase in Australia's research effort, this greater emphasis on competitive funding, determined through rigorous peer review processes, has helped to enhance the productivity and quality of university-based research in Australia. For example, ARC funded research has a higher impact on a range of measures, including publication and citation rates, than global averages (ARC, 2003; ARC, 2009).

Research block funding grants to universities have evolved to address the costs of research training and the indirect costs of research projects incurred in delivering research directly funded through competitive grants. Allocations are based, at least in part, on performance data relating to publications, research degree completions and external research income. While some aspects of these performance measures have a quality component (e.g. publications must be scholarly), they are primarily

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[2] See the OECD, *Science, Technology and Industry Scoreboard* for more detail.

[3] Although Australia ranks above OECD median and the US, Canada and Germany on this measure, it is well behind the leaders, including Switzerland, Sweden, Israel and Denmark. OECD Dataset: Comparative performance of national science and innovation systems. Data extracted on 08 Oct 2013 from OECD.Stat

[4] Australia ranks sixth in the OECD on this measure, behind New Zealand, Israel, Sweden, Finland and Austria. OECD Dataset: Comparative performance of national science and innovation systems. Data extracted on 08 Oct 2013 from OECD.Stat

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quantitative. Thus, while they help to focus attention on productivity, their emphasis on quantity has the potential to distract from considerations of quality. The combined use of competitive grant programs and performance-based block funding appears to have achieved its principle policy objectives of enhancing quality and productivity in an expanding sector.

In recent years, universities have diversified their sources of research funding. The combined contribution of competitive schemes and general university funds to Higher Education Expenditure on Research and Development (HERD) has dropped from 82 percent to 73 percent, with the difference being made up from other government, philanthropic, industry and overseas sources (ABS, 2012). Generally, such diversification of funding sources has been welcomed for the new opportunities it represents. However, it can present challenges for universities, as research funding inadequacies require shifts within the internal allocation of general university funds. Universities report cross-subsidising research from discretionary funds (including teaching revenue) and from international student fees. This represents a significant vulnerability in the Australian research effort, particularly if international student enrolments decline.

There is also an on-going debate in Australia about how best to encourage research-related university-industry links and translational research more broadly. Since the early 1990s, policy initiatives in this area have focused on the use of competitive schemes to support collaborative and translational research activity. The ARC has administered a range of schemes that aim to foster strategic research alliances between universities and other players in the innovation system, particularly industry. In addition, the Australian government has funded a Cooperative Research Centre (CRC) program to support medium to long-term, end user driven collaborations to address major challenges facing Australia.

However, the strength of university-industry links in Australia remains weak. The OECD uses the percentage of public R&D financed by industry as an indicator of the adequacy of knowledge flows between publicly funded researchers (including those at universities) and industry. On this measure, Australia performs only slightly above the OECD median and well behind the global leaders. As an indicator of commercialization activity, the OECD uses the number of patents filed by university and other public laboratories, and on this measure Australia's performance is mediocre. [5] Funds from industry for HERD increased substantially between 1990 and 2010 (from $29.9 million to $401.4 million). However, while the percentage of HERD funded by industry has increased, it still remains proportionately low.[6]

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[5] The top five performers with respect to public R&D financed by industry include the Netherlands, Germany and Finland. OECD Dataset: Comparative performance of national science and innovation systems.
[6] Up from 2.2 percent in 1990 to 4.9 percent in 2010. OECD Dataset: Gross domestic expenditure on R-D by sector of performance and source of funds.

Important issues

Universities around the world have become more international in recent years in all areas of their functions and activities. As Lino Guzzella, president of ETH Zurich, noted recently, "being international in itself is not the goal". Rather, universities become international to be "excellent in science, excellent in teaching and excellent in knowledge transfer". Although there is wide agreement that internationalisation is important, there is no consensus about what it takes to be a truly global university. Sir Eric Thomas, the retired Vice-Chancellor of the University of Bristol, has been quoted in the *Times Higher Education* (E. Bothwell, 2017) to have stated that there is a tendency to say that an institution with "many international links" is a global university, but this would capture "every single university on the planet". When he was chair of the Worldwide Universities Network, an international network of 21 research-intensive institutions, between 2003 and 2007, he identified several more substantive characteristics. These are: a clear brand with international recognition; comprehensive excellence in teaching, research, staff, facilities, leadership and governance; innovative research with global partners that address global problems; global distribution of teaching and learning; a significant percentage of international staff and students; and close interactions with global businesses.

It is clear that universities care about internationalisation. A 2015 European University Association survey of staff from 451 universities across 46 countries found that the issue was rated as highly important by 69 percent of respondents, up by 8 percentage points since the previous EUA survey five years earlier. An overwhelming proportion of respondents (92 percent) said that internationalisation had enhanced teaching and learning at their institution, with the mobility of students (66 percent) and staff (43 percent) and international collaboration in learning and teaching (41 percent) cited as the main reasons.

Similarly, a survey of 1,365 European university staff in the same year by the European Association for International Education (EAIE) found that improving the quality of education (56 percent) and preparing students for a global world (45 percent) were considered the most important reasons to internationalise. Strategic partnerships and student mobility were singled out as the highest internationalisation priorities for universities, while overseas branch campuses were rated the least important.

Equally important is international research collaboration. For example, between 2003 and 2012 nearly all member nations of the OECD increased their level of international scientific collaboration as measured by the proportion of scientific papers published with international co-authors (OECD, 2016).

Two-thirds of the citations of English language science papers now come from countries different from those of the articles' authors, according to a recent paper entitled "The role of the state in university science: Russia and China compared" by Simon Marginson, former professor at the University of Melbourne and now professor of international higher education at UCL. Furthermore, the number of articles with co-authors from different countries rose by 168 percent between 1995 and 2012, much faster than the overall growth in the number of papers (S. Marginson, 2016).

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Ellie Bothwell recently summarized the results of a new *Times Higher Education* (THE) ranking of the world's most international universities (E. Bothwell, 2017). The ranking is drawn largely from the "international outlook" pillar of the *THE* World University Rankings 2016-17, which covers international staff, students and co-authors. In 2017 it also included a measure of universities' international reputations, taken from THE*'s* annual Academic Reputation Survey. Utilizing the criteria used in this ranking it is clear that Australia has been a leader in internationalising its campuses, with five of the top 25 international institutions worldwide (Australian National University, 7; UNSW, 14; University of Melbourne, 18; Monash, 21; University of Sydney, 23). Attaining these rankings are contingent on a number of factors including the political context. Bothwell quotes Marnie Hughes-Warrington, deputy Vice-Chancellor (academic) of the Australian National University who notes that governmental support was critical to her institution attaining its status as the seventh most international university in the world: "Government policy decisions around visa processing, admissions and post-study work rights are important", she explained, observing that Canberra's territorial government also "makes our international students very welcome" – by providing them with free travel on city buses, for example. She concluded that "Simple things like that can make a really big difference".

Australian universities also rank generally high in terms of a range of world standards in international rankings. In the 2016-2017 world university rankings by the four major organizations that evaluate universities (QS Top Universities, THE World University rankings, the ARWU Shanghai rankings, and the US News Best Global Universities) show that in any given year approximately half of Australia's 40 universities rank in the top 500. Moreover, between 6 and 7 of its universities were ranked in the top 100 by each of the rankings (QS, 6 universities; THE, 6 universities; ARWU Shanghai, 6 universities; US News, 7 universities; University of Melbourne, 33-42; Australian National University, 22-80; University of Queensland, 51-60; University of Sydney, 46-82; Monash University, 65-79; University of New South Wales, 49-100+; University of Western Australia, 95-100+). Both the THE and QS Top Universities have also developed criteria for evaluating universities under 50 years old. Once again, the newer Australian universities rank highly, with 19 in the THE top 150 and 17 in the QS top 100. Similarly, a number of Australian universities receive top 100 world subject rankings (e.g. the 2015 Global Nature Index of Science, 6 universities; 2015 THE: Arts and Humanities, 8 universities, Engineering and Technology, 6 universities, Life Sciences, 7 universities, Social Science, 7 universities).

However, caution needs to be exercised in interpreting these rankings. As noted above, since they use different criteria, considerable variation exists in the rankings among these organizations. Reputation is often given substantial weight, disadvantaging the lesser known and perhaps equally accomplished institutions. Most of these systems are heavily biased towards research-intensive universities and may include very specific criteria such as number of Nobel Prize winners. Moreover, these evaluations may not be particularly useful for students selecting an institution to pursue their education since a number of the variables are not relevant to most students. Nonetheless, students, faculty, administrators and policy makers are using these rankings increasingly often in their decision-making.

Another important issue is the sustainable and stable financing of the university system. In Australia, as with many countries worldwide, a preference for neoliberal policies has reduced public funding for a variety of services and functions, such as higher education, while promoting their privatization.

Historically, the Australian government has provided substantial support for universities. Prior to the changes made by Minister Dawkins in the late 1980s, overall university funding was almost entirely provided by the Australian federal government. Following the Dawkins' changes, students were charged substantial fees for the first time in decades, and the total income from students grew to 23 percent of university budgets between 1989 and 1993. During the same period, government funding grew overall by 30 percent before entering a decade stagnation. In recent years, there have been several implemented and proposed government budget cuts to higher education. While overall university budgets have grown to over $28 billion (AUD), the federal government only provided around half of the revenue for many institutions. In his 2013 edited collection, Simon Marginson noted that while the Rudd government proposed restoration of public funding for higher education in 2007, they actually imposed a 3.5 percent "efficiency dividend" on universities and cut $3.8 billion (AUD) from the projected funding for higher education and research.[7] He further reported that public funding of higher education as a proportion of GDP had declined and was only two thirds of the OECD average (S. Marginson, 2013). In 2016, however, the Turnbull government decided to repay the 3.5 percent efficiency dividend. During budget discussions in 2017 Belinda Robinson, Universities Australia chief executive, warned the government that "enough is enough" and reported figures showing that universities and students had contributed $3.9 billion (AUD) to government measures to address the budget deficit since 2011. Today significant anxiety exists about the government plans for the sector. Government funding support is likely to continue to be an issue and subject to changing government policies and economic conditions.

In the area of student and academic staff interaction, Andrew Norton (2014), a Grattan Institute higher education researcher and Policy Analyst, has observed that engagement between academics and students remains below levels achieved in other countries and may result in Australian students having poorer learning outcomes than students elsewhere. Increasingly universities are also relying heavily on casual staff and temporary teaching-only academics for classroom instruction. Moreover, despite stable per student public funding, significant growth in student numbers is increasing Australian government costs, exceeding $12 billion in 2011-2012. In addition, as of 2016, students in higher education and vocational education have accumulated income–contingent loan program (HELP) debts of $52.2 billion (AUD). This represents a projected loss of over $15 billion (AUD). As a consequence, some Australian higher education analysts have concluded that the federal student aid system is broken, in part because it is an increasingly costly program and in part because it was designed for a different era and for a different student population. These analysts find that the new "majority" student is more likely to be a person who is working at least 20 hours a week while attending university part time, perhaps also caring for children or parents or taking off for a semester or two. They recommend that a primary need may be the design of a new financial aid program that better serves the needs of all students.

Despite these conditions and policy concerns, Norton concluded that Australia does not have a crisis in higher education. In contrast, a report by Ernst and Young Australia, a globally integrated professional service firm, argued that Australian universities are on "the cusp of profound change and that time is running out for traditional university business models" (J. Boker, 2012). Justin Bokor, the report's

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[7] Legislation required for the 3.5 percent "efficiency dividend" did not pass the Australian parliament so most of the cut was returned to universities in 2016.

author, further noted that "There's not a single Australian university that can survive to 2025 with its current business model."

The Australian government continues to engage in numerous reviews of the higher education goals, functions and funding (e.g. D. Bradley 2008, J. Lomax-Smith 2011; Office of the Chief Scientist 2014; Australian Government-International Education 2015; Australian Parliamentary Budget Office 2016; Australian Research Council 2016) and several proposals for new initiatives and legislative policies. These include the New Colombo Plan (2013); the National Strategy for International Education (2016); Science, Technology, Engineering and Mathematics: Australia's Future (2014); the National Collaborative Research Infrastructure Strategy (2015), and Prime Minister Malcolm Turnbull's emphasis on research engagement, impact, innovation and collaboration with business through the National Innovation and Science Agenda (2015).

Recent changes and proposals also include the creation of a new higher education regulator in 2012, the Tertiary Education Quality and Standards Agency (TEQSA), and the relatively new 'demand-driven' funding system for undergraduate places in public universities. At the same time, in recent years the sector has been faced with significant budget cuts and a proposal to deregulate fees or remove regulations setting maximum fees while further reducing federal funds by up to 20 percent. The government has considered restructuring portions of the student income-contingent loan programs and charging real interest on student debt. One concern is that these proposals may differentially impact both students and institutions.

Study design

Within this context, this 2015-2016 study, which draws upon interviews with 117 university and policy leaders (Appendix A), provides a unique review and analysis of their insights on the Australian university system, its history, challenges, opportunities and future. Seventy university leaders interviewed included: Chancellors (chairs of university governing bodies); Presidents and Vice-Chancellors (chief executive officers); deputy and Pro Vice-Chancellors (senior executive positions for functions such as research; academic, student, and international affairs; administration; and development); Deans (college and school chief executives); Policy Analysts; and academic staff at 22 institutions in twelve cities (Adelaide, Armidale, Brisbane, Cairns, Canberra, Darwin, Hobart, Melbourne, Newcastle, Perth, Sydney, Townsville). In addition, interviews were conducted with 20 leaders of higher education academies (Australian Academy of Science-AAS, Australian Academy of Humanities-AAH, Academy of the Social Sciences in Australia-ASSA, and Australian Academy of Technological Sciences and Engineering-ATSE), university networks (Universities Australia-UA, Group of Eight Universities-Go8, Australian Technology Network-ATN, the Regional Universities Network-RUN, Innovative Research Universities-IRU, and Worldwide Universities Network-WUN) and other higher education organizations and related associations (National Tertiary Education Union-NTEU, International Education Association of Australia-IEAA, Grattan Institute, Australian-American Fulbright Commission, NAVITAS, the Business Council of Australia-BCA, and Ernst and Young). These one to two hour in-depth semi-structured interviews were complemented by over 25 similar interviews with senior government leaders, including:

a member of the Senate; assistant and deputy secretaries and group managers in the Department of the Prime Minister and Cabinet, the Department of Education-DE, and the Department of Industry, Innovation & Science-DIIS; two Chief Scientists; the executive officer of the Australian Research Council-ARC; the chairs of the Tertiary Education Quality and Standards Agency (TEQSA) and the Higher Education Standards Panel (HESP); and managers in the Commonwealth Scientific and Industrial Research Organization (CSIRO).

Nearly all interviews were conducted face-to-face (two conducted by phone) and recorded. The interview (Appendix B) consisted of open-ended questions about the respondents' higher education leadership experiences, their perceptions of the major forces and developments that shaped the current university system and the likely forces and major developments that will shape the next 15-30 years. Given these forces and developments, the leaders were also asked about the opportunities and challenges for strengthening the system. After these open–ended questions, they received a survey addressing 32 issues or components of higher education organized into five categories (Appendix C) and were then asked to rate each item from 1-5 (1=not important to 5=extremely important) regarding the importance of each issue for the future of Australian universities. The last two questions addressed any decisions that need to be made in the next 5 years for the continued success of the system and their views of how Australian higher education will look in 20 years. In concluding the interview, each interviewee was asked if there were other leaders that should be interviewed or documents we should review. In most instances, other key leaders were identified and documents were suggested or contributed.

The insights and observations of these university leaders and policy makers were enhanced and augmented by several sources including: personal web pages or vita/resumes; organizational web pages; and numerous public and private reports, books and media articles. A report and analysis of these documents and particularly the leaders' observations and insights follows this introduction.

This detailed and complex information is utilized to provide some concluding observations and recommendations for consideration for the continuing, long-term success of the Australian public universities and the larger evolving system.

Insights from University Leaders-Past and Present

Leaders of Australian universities and higher education are experienced, talented and diverse in their background and roles. As noted in the previous section, the leaders include senior administrators, policy makers, government officials, businesspeople, bankers, and labour officials (Appendix A). This section and the next provides a summary and analysis of the leaders' insights and observations garnered from in-depth interviews (Appendix B) and surveys (Appendix C) with a significant number of these leaders across the country. Each interview began with a discussion of their various leadership roles, accomplishments and frustrations or disappointments. A discussion of their perceptions of major developments during the last 15-30 years followed. Next, leaders shared their expectations of major developments in the next 15-30 years and the opportunities and challenges for strengthening the system. Following these open-ended questions, the leaders completed a survey addressing the importance of 32 issues or components of the higher education system. Finally, the interview concluded with a discussion of any perceived critical actions needed in the next five years and their views of what the system will look like in 20 years.

Accomplishments and satisfying leadership experiences

Utilizing a representative selection of leaders' responses, this section describes, in their own words, key experiences that shaped their careers and their reflections on their most satisfying accomplishments. Not surprisingly, most of the interviewees had extensive educational experience and numerous successful professional positions with increasing responsibilities. Several Vice-Chancellors talked about how critical and satisfying early leadership roles were in providing creative and institutional building opportunities. Many leaders reflected on the satisfaction they received from developing and strengthening their staff and their institutions and promoting the value of higher education and its impact on society. These early experiences were the foundation for their later more complex and sometimes less satisfying leadership positions

One Vice-Chancellor remarked that *"I think that my achievements during the period at (Y,* a technology university earlier in his career*) were actually more noteworthy than my achievements here"* (X, a Group of Eight institution). He went on to note "*At an institution like X (*Go8*), you can nudge it…It is a big beast with a reputation and if anything, you have to make sure the reputation doesn't go down during your watch. Whereas at Y (*previous institution*), it was an institution that had what we call in Australia, 'a sleeves rolled up' mentality… People actually wanted to do things and so it had 'a can-do' type attitude…the transformation of that institution during eight years is really quite remarkable and some of that was down to me."* Similarly, a Pro Vice-Chancellor commented that, in his earlier years as a dean *"I learned hugely valuable skills around conflict mediation, different rights, people's views on things, their territories – fantastic."*

A senior university strategic planner and Policy Analyst identified her most satisfying experience by referring to her previous institution*: "Well, I suppose I am very satisfied… with my work at* [*a previous*

institution.] *I worked there for 12 years in a different role, and then, the last five years as a member of the senior leadership team. I saw that university participate in a really strong change project which saw the university consolidate its place in the heart of this city and leverage its strengths… to become… an institution that's very well understood, globally. And it has been very successful and it is, from what I hear, going from strength to strength, so I feel proud to have contributed to that."*

An academic leader who has been a Rhodes scholar and held positions at several Australian universities observed the following greatest satisfaction*: "I think the thing that most satisfies me is when you see your staff level come up and they… become great leaders themselves. That is the greatest satisfaction in what I do."*

Similarly a senior Policy Analyst in government with multiple decades in university administration noted: *"I suppose on a more personal level what I found the most satisfying is when I have been able to help bring together teams of people who collectively have been able to move the institutions forward in particular ways. Sometimes it is those things that are not headline makers but which make a difference to the life of the academic staff or strengthen the university's position in terms of its ongoing sustainability, that as an administrator I am most proud. They are not always highly visible but you can see the change.*"

One senior university Policy Analyst described his most satisfying experience as follows: *"It is about thinking out how the system can work better. Of course, that means compromise, but it is about working out what is the best compromise... If your ultimate goal is to contribute to society through education, and you are heavily constrained by the current political environment, current politics, public finances, what people can afford to pay, and the public's general support, the trick becomes designing a system to make sure it benefits everybody even if they are not fully in support of it and even if they don't fully want to pay for it… That's really the satisfying part of this job… You actually shape policy. It is not just about analysing it. It is about potentially contributing to the broader conversation."*

A government official with responsibility for international education remarked that his greatest satisfaction is at a global level: *"I think one of the most positive influences on where the world is going these days is what we are seeing in the education space. Many countries across the world are cooperating to create a sense of global harmony by encouraging the young people to study across borders… I think it will contribute to world peace in the long run if that doesn't seem too naïve. I have a general feeling that we are working towards making the world a better place through these endeavours. That probably sounds a bit idealistic but that does generally give me a feeling of satisfaction for the role I play."*

Finally, one senior administrator and researcher commented: "I love higher education, as a working unit and as an object of study… The changes over the last 25 years have been absolutely phenomenal. Being in Australia makes you part and parcel of that in probably one of the most extreme forms because we have witnessed change here that is unparalleled. Moving from binary to unitary and now to who knows what. It's absolutely mind-blowing to be in this space in this time."

Frustrations and disappointments

The Australian leaders of higher education are generally an optimistic group who realistically recognize the challenges of leadership. However, they have a number of frustrations and insights about the roles they play, the organization and structure of the institutions that compose the university sector, and the external environment in which they function. Many of the frustrations are external to the higher education system and often it is beyond the capacity of the leaders to have much of an impact on providing solutions. However, below is a selection of some of the frustrations and disappointments mentioned.

One senior administrator and Policy Analyst in government and multiple decades in university administration indicated his sense of the frustrations: *"There aren't many, really. These jobs are big and challenging and carry a lot of frustration but in terms of disappointment, I think you know you are in a complex space. And progress is going to be incremental and disappointing would not be the right word. I think probably, the government winding back of its plans to substantially invest in higher education research would probably be the hardest, among the most disappointing moments. We had a brief shining moment which promised a genuine, game-changing investment [during the government of Prime Minister Rudd]. Not just in terms of investment, but in terms of positioning higher education and research as a nation building activity. I was very disappointed when the global financial crisis intervened and that inevitably higher education fell victim to a whole range of competing political priorities."*

A senior higher education Analyst had a frustration that was internal to the system. He stated *"I think the thing that is most disappointing to me about Australian higher education and higher education policy, is that the worst enemy of this flourishing system is by far the people in the system itself. It is fine to be myopic when you are a small cottage industry and where you have patrons that let you get away with bad behaviour. But when you are a mass industry — when you are a mass system like we are now, you just can't afford to be myopic because there is a lot of public money, a lot of time and energy, and a lot of private money tied up in it. There are a lot of people investing a lot of themselves. The onus is always on us in the universities and in higher education to demonstrate why we do what we do and why it is important. It does not mean we have to sell ourselves constantly but it means that we should always be open to having that discussion, rather than spending a lot of time shutting it down or ignoring it."*

Another internal frustration often not discussed by senior leadership is the important mid-level leadership needs of universities. These positions of department, institute, and college leadership are generally filled internally. The criteria utilized to fill these roles, however, are scholarly achievements in particular disciplines and not leadership qualities. This can be detrimental to moving the university ahead and pursuing its strategic goals. One regional Vice-Chancellor characterized this issue and potential frustration concisely: *"Sometimes it (the frustration) is around people and leadership, so hiring people who are education leaders or research leaders is critical. You may reach a plateau. You have a great person with a great record but they may not be able to take their part of the organisation to where it needs to be. It is often disappointing because sometimes you have made the appointment yourself because a good track record is very beguiling, then you have found the actual leadership skills have not*

really been up to the job. Appointing the wrong person, for good reasons but the wrong person, into a role and seeing the possibility or potential, plateau after four or five years is (frustrating)."

Several leaders representing the full range of universities expressed concern and some frustration about the lack of solid policy and strategic planning. One institute leader at a Group of Eight university observed: *"I think the first has been the inability to… adopt a long-term position and see it through. Now what do I mean by that? I think it goes to the vagaries of the nature of the environment that we have in Australia on higher education policy… A lot of the decisions that we have made were predictable on the one hand and going the wrong way; we just kept repeating those decisions, hoping that the second time around, they were going to be done differently. We have not actually changed any of the parameters so, that's been really frustrating. Another part of my frustration, is related to the massive amount of change at the policy level in the Commonwealth where they are supposed to be looking after this area. The Department (of Education) has virtually nobody left that ever worked in a higher education institution."*

A metropolitan university Vice-Chancellor reiterated this same concern about the lack of long-term government policies which effect strategic planning in the universities, coupled with the lack of understanding of the policy process among many university leaders. He stated: *"I think one of the greatest frustrations undoubtedly has been the incredible volatility of public policy around universities. As you know, universities work in very, very long timeframes, or they should, and if you have constant changes in public policy then your ability to plan effectively is quite weak and incredibly nerve-wracking. You can set a goal for five years that suddenly after six months would radically change."* In addition, he added: *"A real problem for universities is most of them don't understand the policy process so their ability to influence policy decisions is quite weak."*

A Group of Eight university Vice-Chancellor expressed some of the same frustrations and expanded the discussion to comment on the lack of bipartisan agreement on policies and the different levels and frequent changes of policies at the state and federal levels: *"I think the frustration I have had is the constant change to the policy environment in which we operate. The lack of a bipartisan agreement on education being a national priority has been an immense frustration. It is very hard to set a strategy of how you want to evolve your organisation if you always have to worry that the foundation upon which that strategy is built, can actually be taken away. I think the uncertainty of policy direction caused by instability in the funding environment, what is a priority, what is not a priority, and the lack of a bipartisan approach, is probably the biggest frustration.*

Another frustration identified by some leaders results from two different levels of government requiring or implementing regulations and policies regarding higher education. Another Group of Eight Vice-Chancellor observed: *"Something that is frustrating to all is that our universities have at least two different government masters … a lot of reporting and permissions have to come from a state-based government and its bureaucracy, and yet the funding comes from a national government … the changes in ministers and secretaries of education is a constant. You spend an inordinate amount of time forming relations and re-educating top decision-makers."*

An Innovative Research Universities Vice-Chancellor expressed a frustration within the universities that was voiced by several leaders. He was concerned about the culture of universities and his perception of the strong resistance to change often exhibited by the staff. He commented*: "It is not limited to Australia, but universities are places that are all about creating reasons for other people to change. We educate people so that they can change who they are or where they want to go. We undertake research to find better ways of doing things or to do things that we could not do before. Yet as institutions, universities are the most change-averse places I had ever had the privilege to work, and academics are some of the most change-averse people in terms of their own spaces. I find that both a fascination and a constant frustration."*

A metropolitan technology university Vice-Chancellor also expressed some of the frustrations of dealing with the two levels of government, and particularly with the state government: *"What they (state government) do is give us very, very little money but give us a lot of interference. They might then determine the shape of our council … Their interference and their lack of sophistication and understanding about what good corporate governance is, is a barrier to us being agile and responsive and being able to be in charge of our own future. You feel like you are being hit from the right and hit from the left. They are saying there is less money, stand on your own two feet, off you go, but by the way, we will put all these barriers to good governance around you."*

And finally, a senior administrator and researcher commented on the state of strategic planning and policy in the sector. He *noted "It is incredibly frustrating to see our policy in shambles... I don't think anyone has an idea what they are actually doing here… I think Australia used to have a very proud history of policy development, policy analysis and being quite serious about evaluating what they were doing. Over the last ten years, we have moved into a sense of secrecy, of not wanting to be scrutinized on the logic of the policies and their internal consistency. We have moved away from a time of visionary and long-term policy directions into an incredibly short-term ad hoc type of policy, almost policy by stealth and completely disjointed."*

These frustrations were offered by dedicated leaders who were generally positive about the system, saw significant challenges, and desired to strengthen and enhance the sector.

Major developments - last 15-30 years

Leaders were asked to share their perceptions of the major forces/developments over the last 15-30 years that have shaped today's Australian higher education and university systems. Not surprisingly many of the events and developments summarized in the introduction to the report surfaced in these interviews. The developments are organized by the three primary academic functions of the university: research and discovery/knowledge generation; teaching and learning/knowledge dissemination; outreach and engagement/knowledge application and other important components of universities including administration/infrastructure/resources/human capital and general and cross-cutting activities and agendas.

Research/knowledge generation

The leaders viewed research developments as generally very positive. They noted that over this period, the system grew considerably in quantity, quality and diversity with accompanying challenges. During this period, significant growth of research funding and productivity occurred in Australia, with nearly 3 percent of world scientific publications produced by a country with only 0.3 of the world's population. Interviewees also commented on the great expansion of the number of universities involved in research with expectations that all institutions will offer at least three research PhD programs. Accompanying these dramatic and positive developments, however, the leaders identified many issues and expressed a number of concerns as discussed below.

An institute director expressed succinctly one perspective held by many of the interviewed leaders. He stated: *"We still have a lot of universities who push their staff to publish, publish, publish. I don't think that is a really good thing. In a system that is massively growing, research is unevenly distributed and research capacities are unevenly distributed. Why push half the staff who will never be able to do anything significant in research towards mediocre journals, towards research proposals that never have the chance of being funded and are just clogging up our system. I think we need to make some hard choices on what we are going to do because the system has huge potential."*

A similar comment about the nature and orientation of the research was reflected in the comment of another university research institute leader *"Research is terribly important … but research can be done in a variety of ways. And we are doing it all in the same way. Trying to climb up on rankings, that bear little resemblance to what the country needs, does influence international student behaviour to a degree."*

The emphasis on research, the increasing cost of research and the aging infrastructure were seen as other important issues. A Pro Vice-Chancellor noted: *"We actually have quite a lot of aging infrastructure in the education sector. Because it is related to the funding model, we don't have very creative approaches on how to fund infrastructure, separately from the issue about how to fund the education and research. I think we need to do something a bit more adventurous there."*

Similarly, a Vice-Chancellor at a regional university concerned about the costs of research and the failure to adequately fund the research infrastructure under the current distribution of federal funds commented: *"The great structural weakness buggers up everything in Australia. You will have heard about it because you've been talking with Go8 leaders. The systematic refusal to fund the indirect costs of research, in even a vaguely sensible way, utterly bedevils everything. It means you have very wealthy universities who are wealthy for entirely the wrong reason. They are wealthy because they do not do research and they do not have to make the cross-subsidies. So the wealthy universities in Australia are located in wealthy geographic areas, usually the centres of big metropolitan areas. They are large in terms of their student body and they are poor in terms of research performance. Think of the (technology universities). Have a look at the buildings that these universities build and the spare wealth that they have. That comes from the fact that they are not doing the research that the Group of Eight is doing. The*

Group of Eight disproportionately is suffering because it gets the same income stream but it is required to take a big chunk of that income stream and cross-subsidise research."

In addition to several similar observations about the appropriate number of research universities, several leaders commented on the issue of funding and potential ways of addressing inadequate resources. A Group of Eight Vice-Chancellor observed: *"Research funding here is …approaching a crisis point if it's not already there… The Commonwealth budget is on hard times and costs are rising. So the sensible way to do this was to just untie our hands, because at the moment, the public universities here can only collect regulated fees. No one should pretend the system of fees is rational. … We really have to get the funding landscape right. I favour a fully deregulated system because I think that would diversify missions … The minute you deregulate the fees, you would have some of them (universities) deciding to specialise in teaching and some in their regional needs and some research-intensive."*

The expansion and emphasis on research at the possible neglect of other university functions was identified by a Group of Eight institute leader who noted: *"Most academics believe they are here to do research. That is what they want to do. They know they have to pay their taxes in order to get the chance to do their research. 'Taxes' means you have to teach. … Provide engagement? They don't even know what it (engagement) means."* In contrast, a senior Vice-Chancellor pointed out the unsustainable and immoral process of funding a large portion of university research with both domestic and international fees. She observed*: "They have to do something about research funding … We are in this weird system where because we were teaching and research, they fund implicitly a significant amount of research through teaching. Then they don't fund the research overheads properly. We live in a system where we charge an international student a certain amount of money and we know just like the domestic students, some of it is going to research. Now I think there is a proportion that is quite reasonable but if you keep depressing research funding and causing it to be (*funded with student fees*), in the crudest level, I am asking you to buy this car and you are paying for the BMW and I am giving you the Skoda. You can't do that. I am not even talking about whether that is sustainable. It is not morally right. So we have to address research funding. The government can put more money in if it rethinks that split (between research and teaching) … Ironically what the [deregulation] debate has done is brought people to the point that there probably does need to be an increase of fees. It just can't be one where we are allowed to set the fees and it can't be to that level [$100,000 degrees]."*

Another issue is the role of graduate students in the research process. A senior analyst observed: *"I fear that institutions, including us, are partly addicted to this model of producing PhDs. The reason is that these PhD students, especially in lab-based disciplines…are doing a huge amount of the work. We have … twice as many PhD students as we do full-time staff in a number of areas, full-time researchers, and they are doing the heavy lifting. They are doing a lot of the grunt work that allows people with big groups to produce … I don't think we can continue to train this many PhD students in the way that we train them because it is not doing them any favours. It is not an entirely sustainable system."*

Finally, some key leaders expressed a concern about the integrity of the research system. While apparently not a particularly pressing issue in Australia, fraud in science is becoming a more important global concern. Although the number of publicly visible cases of fraud are relatively small, the negative

impact can be very significant for the individual scientists, the research institutions and potentially for a national system. A senior government research administrator and scientist commented: *"I think all research agencies in the world and all universities in the world need to be increasingly vigilant about issues of research integrity. It will come back and undermine the whole of the research enterprise. Instances I can think of where it has done enormous damage is a couple of cases on the heels of each other in the Netherlands. There a social science researcher fabricated the data behind 15 PhD theses. … One person really has undermined the credibility of the whole Dutch research enterprise. The risk is enormous."*

These leader comments and observations are only a selection. They represent what many leaders shared. However, these observations are not without controversy and certainly not uniformly held across this diverse system.

Education/knowledge dissemination

Most of the leaders saved the majority of their observations of developments in the system over the last 15-30 years to their insights on changes in education and knowledge dissemination. It was clear from their comments that they had spent a great deal of time thinking about the topic, exploring alternatives, adjusting to dynamic changes, and implementing a variety of programs. They often differed on their views of the developments. The following were the general observations and highlights of those developments:

- Introduction of undergraduate income contingent loans, HECS-HELP, to help pay for significant expansion of Australian higher education in the late 1980s;
- Development and implementation of the demand-driven system which stimulated significant growth in student enrolment among particular institutions;
- Continued growth of international students in Australia, going from a few thousand in the 1980s to 292,352 in 2015;
- Changing student demographics (previously students were predominantly those who had just finished high school), with an increasing number of older and part-time students;
- Emerging digital and information technology for delivery of education, such as Massive Open Online Courses (MOOCs);
- Opening of overseas branch campuses by Australian universities, which now enrol tens of thousands of students each year;
- Development of general education programs and liberal colleges for undergraduates and professional education at Masters level (e.g. the model used by the University of Melbourne and University of Western Australia).

Several of the leaders commented in detail about these and related developments. A number of respondents provided specific comments about the importance of the HECS-HELP in greatly expanding student access to Australian universities and providing a progressive model for student financial support globally. Because the HECS-HELP income contingent loans have been seen as a model worldwide, expanded access for more Australian students, and potentially significantly increased cost to the

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national government, they have received particular review and scrutiny, which raises issues that need to be addressed to maintain its viability and sustainability.

A Pro Vice-Chancellor for academic programs, institute leader, and scholar observed: *"Obviously, the central issue is how are we going to fund a system that is still growing. We have to solve the issue of price, fee deregulation, without losing our deferred payment scheme. I don't know if you have seen the data on the accumulated debt to the government… The risk here for the sector is that the volume of HECS debt will become politically unsustainable."*

This Pro Vice-Chancellor went on to discuss possible explanations for this problematic development: *"The problem with HECS is the interest rate has been too low. It has been too generous a scheme. But the fundamental tactical problem with HECS is that whilst you have a deferred payment scheme, if you move to price deregulation, there is a risk that you accidentally encourage universities to push their prices up because they know that students are paying later. The existence of HECS does not force the equity issue upon universities. If, for argument's sake, students had to pay upfront, then universities would really have to confront the consequences of high prices. But HECS means they can almost put it to one side saying 'Well, students will only pay this back when they are in a position to be able to do so'."*

The HECS-HELP program also receives strong support from the private sector. A Policy Analyst with a leading industry group observed: *"We're strong supporters of HECS. It should be continued because it is really important for access and equity. But we have moved to a state now in Australia where the majority of people are going to a university or a tertiary provider of some description and we still have arrangements that were in place when it was a more contained system. In 2012 when they uncapped places … it has had a massive impact on HECS. We need to rethink about how we make the system more sustainable and also give the government value for money in the sense of balancing the risk of people not paying back their loans while also maintaining those equity and access ideals. At the moment in its current form it's not sustainable, but we would not be arguing for it to be eliminated. There needs to be some high-level thinking about how to make it sustainable that is not necessarily about closing off access. It is about looking at how you can pull the different policy levers, how you work indexation and how you work eligibility provisions within it… This was part of what the government was trying to do when they put their package up (2015)."*

An equally important issue cited by many leaders was the role of undergraduate teaching and learning, in light of the emphasis on research, particularly among the Group of Eight. This issue generated very different responses. One Vice-Chancellor from this group noted: *"So for my institution, we have been through 25 to 30 years, where gradually being a teaching academic has been suppressed."*

In sharp contrast an academic leader and Pro Vice-Chancellor at another Group of Eight institution observed: "*Well the frustration was just how long it took for teaching and learning to be seen as an equal at this institution … Its value is infinitely higher than it was 20 years ago when I started. I feel I played some part in changing that. A frustration is when there is still the 'god professor', it is usually a bloke, a researcher, who doesn't want to ever see an undergraduate. Those people still exist. When I won a teaching prize, there was a kind of resounding silence from all my colleagues … Why would you waste*

your time trying to be a good teacher when you knew you got promoted by publishing, not by being a good teacher … [promotion to professorial rank was] quite hard and you had to have ten international referees to talk about you. The assumption was obviously that they will be talking about your publications … I could get ten international referees to talk about my commitment to teaching and learning, which I think surprised people … They changed the guidelines afterwards to make it easier for people to get promoted on the basis of their teaching."

A leader at a third Group of Eight institution expressed a distinctly different view, observing that: "*We have an awfully impersonal higher education system here. The quality of student experiences is lamentable.*"

As noted above, with the introduction of the demand-driven system in 2012, the Ministry of Education cap for enrolment in various disciplines was lifted and several institutions grew rapidly. While it provided expanded access for many students, it also raised some issues and challenges. Some leaders feared it would undermine specific institutions, especially as the large, wealthy universities now enrol as many of the most talented applicants as possible at the expense of smaller, newer institutions. Others feared the demand-driven system would have more far-reaching consequences for both the higher education system and federal finances. A leading Policy Analyst observed:

 "*The demand-driven system is just unsustainable. The funding rates are unsustainable because of this un-capped liability for the government … and there is not a lot of political will to put more money into it... I don't think uncapped liability is going to last forever, but at least it changes the conversation to say some institutions should be able to do the postgraduate education, other institutions are better off as broad-based undergraduate institutions.*"

Many leaders commented on the important role that international students have played in the past with Australia being a leader in hosting undergraduate international students. As we will see in the next section, most believe they will continue to be critical for the future but not without a number of challenges. One non-university academic leader focused on how Australian universities have often regarded these students primarily as sources of revenue. He suggested that there is a need to continue to take a broad view of all the contributions these international students make to the educational goals of the nation. He focused particularly on the need to be sensitive to both the parents of these students who have often made great sacrifices to send their children to Australia, and the needs of these students in a foreign country: *"I've seen that sometimes universities see international students as statistics, as bringing in dollars to fill their coffers. Others have been very strong advocates about looking at the needs of international students, and how they play a key role. In 2009 and 2010, we had the big Indian student issue and murders… All universities were quite stressed about losing their funding. I was quite appalled… You have to find a balance and say you are compassionate, caring, and stand up for these issues. You need to recognise that these students and their families have invested in them and invested in higher education."*

He went on to say: "*Some good things came out of it, but I think universities first panicked about their dollars rather than the duty of care to the students. I think we need to flip that coin a little bit more. They*

(Australian universities) do care, but sometimes the public image is it is more about the money rather than the student, the student experiences and the graduate attributes. Parents first want education and the best for their children. They are investing in it. They are selling homes. They are taking loans. They are doing everything to support their child. And you have to be able to show that you care for their child and your student."

This need to strike an appropriate balance between various goals for enrolling international students will likely be even more important in the future for Australian higher education.

Outreach and engagement/knowledge application

The research (knowledge creation) and teaching and learning (knowledge dissemination) academic functions of the university have been well defined and generally well understood both within the institutions and outside. In contrast, how the institutions apply that knowledge through various outreach, extension and engagement activities is not nearly as clear. Engagement is sometimes defined as programs in health, law, policy, engineering, agriculture, and community development that utilize and apply the knowledge of the university to address issues in those areas. It is often expressed in terms of development of intellectual property, technology transfer, and commercialisation of knowledge in partnership with the private sector. Occasionally it is misinterpreted as the important, but non-academic, service to the college, university, professional organization, and community. Several of the leaders commented on dimensions of this academic function and the ways in which it is rewarded. One government leader and former university researcher noted:

"We have reasonably innovative people in Australia, but yet we sit at the bottom of this league table of OECD countries with the interaction of the university sector and the business sector. The difference I think comes in the nature of the business sector and industry in Australia compared to comparative countries … You can put one of these centres down just about anywhere in England or southern Scotland or Wales, and within 50 kilometres you will have a network of industry that can meaningfully collaborate on just about any sort of thing you decide to focus on. If you did the same thing in Australia, the density and intensity is completely different. And so, models that might work, say, in the UK or the Netherlands and elsewhere in Europe, just are not applicable here because the scale of investment at the right level of industry is just not here. You have to look at the profile of potential industry partners in Australia. We have some excellent large businesses such as mining companies that are world leaders … What we miss in this country is the mediums. There isn't the capacity in the small (business sector) to absorb what comes out of the university research system."

The issue of developing appropriate incentives, and a reward structure for this function to complement the existing strong reward structure for research, was identified by a university institute director: *"Our funding system is a very complex one, but if you dissect it, what are the parameters that influence the volume of money that you get? It's research, and that is problematic. If an institution wants to get into the engagement agenda…it needs to install an incentive system in the institution that actually drives people towards that engagement. That is an incentive system that is fundamentally different from the public allocation model that we have. We know from literature, that one of the hardest things to do is to*

have your own incentive model that is not mirroring what the national allocations are. That requires… strong management and very strong leadership at both the central and the faculty research institutes' levels to change behaviour because individual careers at Group of Eight institutions are based on research performance, as they should be in a research-intensive university. But the nature of that research is the classic blue skies fundamental research. That is not what an engagement strategy would entail. It's a huge challenge."

The issues of appropriate outreach and engagement goals, activities and reward structures will be further discussed under issues facing the future of Australian universities over the next 15-30 years.

Infrastructure, human capital, resources and administration

The three primary academic functions of the university – research and discovery, teaching and learning, and outreach and engagement – require significant infrastructure, human capital, resources, and professional administration. The leaders identified a number of important developments in this area over the last 15-30 years including those below:

- The Dawkins 'revolution', which involved the merger of institutions of the 19 original universities with nearly 100 other higher education institutions and campuses to create 37 public universities;
- Development of several Australian university lobby groups with membership sharing key characteristics (i.e. the Group of Eight, Australian Technology Network, Regional Universities Network, Innovative Research Universities);
- Growth and professionalisation of university administration (i.e. more of the corporate model) with growth in the roles undertaken by professional staff;

- Growth of new international university organizations (e.g. U-21, Association of Pacific Rim Universities, World Universities Network);

- Increasing reliance on temporary, part-time contract lecturers and researchers.

As noted earlier, the Dawkins 'revolution' transformed the Australian university sector and has been assessed in numerous books and policy papers. However, some issues have been created by this dramatic integration of many diverse higher education institutions. One senior analyst and university institute Director was quite frustrated by the loss of differentiation of goals, mission and values among Australian universities following the Dawkins restructuring. He noted: "*We now have regional universities that aspire to be world class research universities, which they are never going to be and which they were never established to be. They were there with a regional mission to develop that particular region and that is what they should be doing. My greatest frustration is that we don't have a differentiated policy where we really push the institutions to achieve their mission. Although we all say that the great example is the California system with the master plan and the differentiated sectors and keeping those sectors, I actually believe that there is a lot of value in defining missions for institutions and keeping them to that. We need to avoid academic drift and all those things that we see happening around us on a day-to-day basis, because not every university can be Harvard or University of California,*

not every university can be Melbourne or Sydney or ANU … We have a narrow understanding of both the history of universities and their roles in societies. Our system is a really young system. Half of our universities are from the Dawkins era. They are essentially very different from the founding universities that now constitute the Group of Eight. Because they were the first universities in all the states. They (the newer universities) should be doing very different things."

An Innovative Research Universities Vice-Chancellor and national higher education leader summarized some key historical events in the last ten years that will likely shape the future of Australian universities. She thoughtfully traced the political decisions from Julia Gillard's tenure as education minister in Kevin Rudd's Australian Labor Party (ALP) ministry to the Abbott Coalition government. *"All nations find it increasingly difficult to fund [higher education] as they would wish. Issues like welfare and education and health costs are going up so the capacity to have money to confer on these things is much more difficult than ever before and then because of that resource scarcity, choices have to be made internally. When you are faced with choices like health, for example, it is really hard to privilege education, particularly in circumstance like ours, where there are expectations around universal health coverage and subsidised medications. The exception to that rule was the Rudd government in 2007 … they would seek to fund higher education to a greater extent and more adequately fund research and the indirect costs of research. This was an important moment in time… until it all came crashing down in November 2012. Even that government that was motivated to genuinely to do something in this domain, understanding the need for a knowledge economy, and with an accent on participation and accessibility on education, could not sustain it. They could not sustain the investment that they wanted to make and so they began to make the cuts. I think for me that was a signal moment because what that said to me was that no government will be able to adequately fund higher education and research to the level at which I think it ought to be funded. That means something different needs to happen."*

This Vice-Chancellor went on to discuss her view of next steps in this context: *"If you are faced with resource scarcity there are only two things you can do. There are only two strategies. One is buffering, and so that is to protect your inner core, protect your institution, maximize the cost effectiveness of your use of every dollar. You look inward. You try to make sure that you are protecting as much as possible your positions. You might even increase your marketing spending to certain extent. That is an element of buffering, even though that is an external element of it … The second strategy is bridging and that means you try to open up to the outside world. You look for other sources of revenue, you look for other partnerships, you look for other means by which you can generate funding, and more than that, generate knowledge and insight."*

Several of the leaders addressed the issue of changing university staff and the human capital needs of the university. A senior institute director, researcher, and Policy Analyst at a Group of Eight institution noted: *"We are not doing what we should be doing in terms of providing a climate for our staff to flourish. Like all the other major universities, we have post-docs who are in completely uncertain conditions. They all depend on their supervisors getting the next grant, so they can be employed again. We have this huge challenge of casual staff, like you have in the US, but I think we have it even in a more extreme form … I think Universities Australia is now starting to realise that there is an issue with staff.*

We have more than 50 percent of our staff being casuals. The majority of teaching is done by sessional staff. I don't think that is a sensible and a good thing."

While many leaders voiced concern about the federal funding of universities, one Vice-Chancellor was particularly alarmed and frustrated. He commented: *"The federal funding landscape is critical… There is a race to the bottom here in terms of federal support of the universities. The public spending on education now is 30 percent below the mean in the OECD. We now can proudly say we spend as much as Estonia on higher education. There's no appetite among parties of both political persuasions. They have different rhetoric but what it amounts to is that neither of them thinks there is any votes in universities. The model is collapsing."*

In sharp contrast, a veteran politician and education leader does see significant differences in the overall goals and values of the two parties, which may have important consequences for higher education and universities in the long run. He stated: *"You can't separate these questions (about the future of Australian higher education) from the approach that you take. Some people like to pretend that somehow or another it does not matter whose hand is on the lever. It does. The priorities are set based on principles espoused on a deeper value set. … The institutional resistance to fundamental change in these issues is quite intense and it would be naïve to think that you could overcome that by a stroke of a pen. The institutional resistance essentially arises from a neo-liberalist philosophy that does not value the role of the state, does not value the role of creativity through state enterprise or public enterprise, and espouses that, in some way, this activity is illegitimate. When it comes to a constrained budgetary environment, (education) is not regarded as the same level of priority as national security would be regarded or in a support for some types of corporations. If we lose… and the conservative view is successful, we will have a much more stratified system and it will resemble more the American university system than the European. It will have much sharper demarcations on the basis of private wealth and we will see the rural and regional parts of the country seriously disadvantaged. We will see the research-intensive universities do very well. In my opinion, you will see the economically weaker universities do very poorly. You will see much higher levels of privatisation of the system; that is, non-university providers will grow in number because they will be able to pick the eyes out of provision. … Under us (the Labor Party), we will be dramatically increasing public investment. The funding will be much more sustainable and consistent and predictable. The university system will be required to be more responsive to local communities and I think we will actually pursue this issue of standards and excellence much more. Public higher education will be given more prominence. There will be requirements for the universities to be more responsive to public demand, not measured by 17-year olds trying to pick what is easy but what the needs of the economy and society are."*

Comparison: US leaders' perspectives on most significant developments

In 2016, during the period of this Australian study, the US-based *Chronicle of Higher Education* was celebrating its 50th anniversary. To assess the major transformations that had taken place over the past 50 years in higher education, the *Chronicle* surveyed their subscribers. They recently reported the

responses of nearly 50 senior faculty members, presidents, administrators, and higher education thinkers to several questions about the past and future. Of particular interest to this section of the report were the responses on perceptions of the most significant change, positive or negative, in the past 50 years. Although the timeframe was longer than our Australian study, many of the same significant changes were identified.

One of the most prevalent responses among these leaders addressed the dramatically expanding access to higher education for diverse students and the policies making this possible. Dan Greenstein, Director of Postsecondary Success Strategy at the Bill & Melinda Gates Foundation and former Vice Provost for Academic Planning, Programs, and Coordination at the University of California's Office of the President, noted: *"The creation of federal and state financial-aid programs for low-income students has played a critical role in democratizing higher education and is an example of bipartisanship at its best. It's truly been a game-changer."* Joni Finney, Professor and Director of the Institute for Research on Higher Education at the University of Pennsylvania, further commented: *"The development and expansion of open-access colleges and universities, where any student is able to enrol regardless of income, age, or race, has fundamentally altered our notion of who is educable".*

Freeman A. Hrabowski III, President of the University of Maryland Baltimore County and former Chair of President Barack Obama's Advisory Commission on Educational Excellence for African Americans, concurred with the above statements: *"The most positive change has been the inclusion of students from all racial, ethnic, and socioeconomic groups. Since the passage of the Civil Rights Act and the Higher Education Act, in the mid-1960s, more families across the United States have been able to realize the value of higher education and its importance to their children's future. Millions have been able to access higher education who might not have before."* Similarly Earl Lewis, President of the Andrew W. Mellon Foundation and former Provost at Emory University (the University's first African-American Provost), noted: *"The greatest change has been the democratization of access. The number of postsecondary institutions nearly doubled between 1950 and 2010, going from roughly 1,800 to 4,500. There was a concomitant growth in enrollment numbers, going from roughly 2.3 million to 21 million."* Finally, Nancy Weiss Malkiel, Professor of History at Princeton University and the longest-serving Dean of the undergraduate college in Princeton's history, summarized why this issue of access is so important. She stated: *"The broadening of access has been the most significant positive change: The assumption that women, African-Americans, Hispanics, Asian-Americans, and other students from underrepresented backgrounds have just as much of a right to higher education as white males; the assumption that institutions of higher education have a responsibility to prepare these students for leadership in business, the professions, in community and national affairs; the assumption that talent can be found in students from families of the most modest means, just as it so often is in students from families with significant resources; the assumption that American society, and the larger world, will benefit from extending educational opportunity more broadly than had previously been the case."*

Equally important in the eyes of several of these US leaders in higher education has been the issue of public funding. Greg Britton, Editorial Director of the John Hopkins University Press, commented on the funding challenges as a consequences of a change to a neoliberal funding model. This has resulted in a decline in public support and a rethinking of the way in which the universities are led and managed. He

stated that one of the most significant developments in US higher education in the last 50 years has been : *"The development of a consensus that colleges and universities are businesses and should be run like businesses, that students are consumers and faculty members are employees delivering services to them."* Carolyn (Biddy) Martin, President of Amherst and former Chancellor at the University of Wisconsin, Madison and Provost at Cornell University, described what she considered to be the appropriate model for funding higher education in the US*: "Higher education should be financed, as it has been over time, by: 1) federal and state investment in financial aid, teaching, and research; 2) institutional sources, including philanthropic giving; 3) students and their families. This model works but only as long as each leg of the three-legged stool does its part."* Troy Duster, Chancellor's Professor of Sociology at UC Berkeley and director of the Institute for the History of the Production of Knowledge at New York University explained the issue very simply*: "Without state funding, higher education simply recreates the existing system of social stratification, especially by class and race."*

Similarly, in the same article, Adrianna Kezar, Professor of Higher Education and Co-Director of the Pullias Center for Higher Education at the University of Southern California, summarized her perceptions of the most important development very succinctly*: "Neoliberalism, period. Nothing has created so many changes as this single philosophy or reshaped the enterprise for the worse. It has turned higher education from a public good into a commodity and private benefit."* This observation has been reiterated in several recent books. Lawrence Busch in his 2017 book *Knowledge for Sale: The Neoliberal Takeover of Higher Education* notes that neoliberal economics calls for reorganizing society around the needs of the market. In higher education, the market influence leads to shifting the cost of education from the state to the individual, turning education from a public good into a private good subject to consumer demand; redefining higher education as primarily focused on job training; and turning scholarly research in the pursuit of knowledge into a competition based on metrics including number of citations, grants, patents and licensing agreements. As a consequence, colleges and universities are viewed as businesses to be run like businesses with students as consumers, faculty members as employees delivering services to them, and professional managers directing the operation.

The third issue identified by several US leaders as the most significant change in the past 50 years was the development of online learning and digital resources. Steven Brint, Vice Provost for Undergraduate Education and Professor of Sociology at the University of California, Riverside, noted: *"Digital resources have had a profound effect on both research productivity and teaching effectiveness. I marvel at how easy it is to remotely access any article I want through links provided by the university library system*." Nannerl Keohane, Professor of Political Science and former President at Wellesley College and Duke University, commented on both the positive and negative aspects of these developments. She observed*: "The most significant change has been the development of online learning, which has become universal in less than a decade. The consequences have been both positive and negative. On the positive side, it makes possible access to knowledge by people in many different circumstances, and allows faculty members to learn more about what works in teaching. On the negative side, this style of teaching and learning does not work well for courses that require regular, continuing dialogue and probing, analytical discussions, including courses in philosophy and literature."*

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Finally, one of the leaders identified the changing nature of the academic staff and faculty as very significant. Cory Robin, professor of Political Science at Brooklyn College and the Graduate Center of the City University of New York noted: *"The most significant change in higher education in the past 50 years has been the increasing role that contingent workers play on campus, and particularly in teaching students. From graduate employees to temporary instructors to semi-permanent adjuncts to postdoctoral fellows: More teaching today is done by non-ladder faculty members than was the case a half-century ago. In this, as in so many other respects, the American academy has mirrored the larger economy. As American jobs have become increasingly precarious, so have the positions of academic instructors. Academics were always under the illusion that the university was somehow separate from the rest of society, protected from its mores and manners, its ways of doing business. Now we are seeing just how dangerous that illusion has been."*

These diverse perspectives and perceptions of the significant changes in US higher education provide an important comparison to the changes that have been identified in Australian higher education. Although the US leaders were asked to identify only the most significant development, there was considerable overlap and agreement on the key developments in the two systems.

Insights from University Leaders-The Future

Major developments – next 15-30 years

Following discussion of the various forces that shaped the past and provided the foundation as well as the challenges for Australian universities, the leaders were asked about their perceptions of the likely forces and major developments that will shape the next 15-30 years in Australian universities. One senior government research administrator and former Vice-Chancellor stated succinctly and strongly: *"So what is the biggest shaping force in Australian Higher Education? The fact that there is no policy."* There were also a number of more specific observations in the areas of research, education, outreach and engagement, and administration that build on comments about the past 15-30 years.

Research/knowledge generation

The research productivity of the Australian universities has been a strength of the system. The leaders identified several areas of future development and new opportunities. However, they also identified a number of critical issues facing the research agenda and its future developments, including:

- Greater attention to the grand societal challenges and high priority public needs;

- More emphasis on interdisciplinary translational research;

- Expansion of big data/computer infrastructure with cost-sharing between universities, and between universities and other partners such as government and industry;

- Greater collaboration with international partners;

- Development and expansion of university-industry research partnerships;

- Increasing high-cost start-up packages, particularly for the sciences, technology, engineering and mathematics (STEM) fields;

- Declining research infrastructure coupled with large-scale, costly infrastructure needs;

- Increasing challenges of funding support particularly for indirect costs;

- New means and mediums for disseminating research results (open access journals, web based conferencing, etc.); and,

- Increasing protection of intellectual property (trade secrets, patents, licensing).

Once again several of the leaders had a number of specific predictions. The discussion of the need for research to address societal needs is primarily reported in the section on Outreach and Engagement. However, a Pro Vice-Chancellor for research noted that attention is being given increasingly to the application and impact of research and how that is likely to be framed in the future. He observed: *"I*

think within 20 years we won't be doing research to have an impact, we will be thinking 'what is the impact we want to have?' and then 'what research do we need to do or acquire to do that?' Now the current grand challenges are only because that was the label that was first put to those problems. But dealing with Indigenous kidney disease is not a grand challenge, but it's a problem-based approach to things."

The sector leaders raised the importance of partnerships often. As we report later, the leaders ranked both international and university-industry partnerships among the most important issues/opportunities facing the future of the sector. A Pro Vice-Chancellor for international programs stated that international partnerships are the greatest opportunity to strengthen the Australian system*: "We are a land-mass-huge but population-small country. We have some wonderful academics but our strength is going to come from our partnerships in teaching and learning and particularly in research. In research, the machines and equipment that scientists use become more and more expensive. We have to find ways to share with a partner, particularly the really big infrastructure items … UK and US have been really strong traditional partners, but China and Germany would be the two that I would say have the greatest potential to be transformative for us. India may be a good partner in 30 years and that is why we are working hard in those three areas now."*

The staffing and human capital needs to conduct research was identified by several leaders. A Vice-Chancellor and world renowned scientist commented about one of those issues relating to funding post-doctoral scholars with student fees: "*You do your research and in order to continue to do more research, you have to take on more (undergraduate) students. I would say this is a relatively distorted system right now where obviously, students probably should pay for some research because they want to be taught by people doing research like myself. But it is not clear they should be paying for my postdocs, which is what they are beginning to do now. And so finding that happy medium in the middle is the challenge. It is a journey that is probably not going to be solved anytime soon."*

The increasingly complex issue of disseminating research findings was raised by a number of leaders. A senior government official with research leadership responsibility commented on the future of research journals, knowledge sharing and the role of publishers. He noted: *"It has been interesting to see how that debate [on open access] has shifted around the world in the three years that I have been in this position … There has been a movement over the last three years among most public funders of research around the world who now see that making the outputs of the funded research broadly available as a critical part of what they do. In the past, it was acceptable to bury it away in a journal where publishers may reap a benefit, but they are not broadly distributed. This will shape academic publishing for the next generation … the revolution in academic publishing is going to be as profound as the revolution in newspaper publishing. And the academic publishing regime is starting to realise that."*

A Vice-Chancellor at one of the Innovative Research Universities reiterated a concern shared by many of his colleagues and also discussed elsewhere in this report: the low level of federal research support and the strong comparative potential of Asian research partnerships. As a consequence he noted that, in addition to making a more compelling case for federal support, Australian universities need to explore new Asian university research partnerships where he perceives Australians have a comparative

advantage. He explained: *"Government support for the sector is amongst the lowest in the OECD, so there has to be a case made for better government investment. I know it is pushing a rock uphill although I probably would argue for it more in research than in teaching of students because I think this country stands to lose our competitive edge in our research and innovation system. The investments the governments in Asia are making are frightening when you compare them to the investments we are making here, really frightening. We are just going to be left behind. But that leads to the second opportunity, which is to engage much more deeply with those Asian institutions. Australia is actually uniquely placed of all the developed Western countries, given the history of relations between China and Australia and higher education and other Asian countries like Singapore. We are really well placed to build on that history. I don't think we have done it. It is actually an opportunity that is going begging at the moment … Our government can do a bit to help there as they have done in international education with the New Colombo Plan. The New Colombo Plan has been hugely successful. For a relatively small investment Australia has gained a huge, potentially very influential set of relationships. I do not see why you could not do that in research."*

Education/knowledge dissemination:

The leaders also predicted significant and widespread changes in the ways in which university education is provided, the knowledge and skills that are developed in students and the criteria for excellence. The general changes anticipated included:

- Continued growth in the proportion of Australians obtaining a university education and degree, currently at over 35 percent of 25-34 year olds;

- Continued growth in the number of international students enrolled at Australian universities;

- Increased competition for international students from both developed and emerging nations;

- Growth in the number and depth of international arrangements and Memorandums of Understanding (MOUs) or Agreements of Cooperation (AoCs) (for example 2 + 2 and dual/joint degrees, greater emphasis on graduate education);

- More international university branches/campuses in Australia, especially in the event that the government makes them eligible for some public subsidy;

- Increasing cost to the students with possible deregulation of fees;

- Expansion of the role of digital and on-line education;

- More private degree-granting universities/colleges which exploit profitable market niches;

- More non-degree public and private providers (e.g. associate degrees, English as a Second Language (ESL) gateway programs, NAVITAS);

- Greater diversity in the types of degrees and timelines to complete degrees;

- Expanded types of learning settings with decreasing numbers of large lecture halls;

- Greater undergraduate student interest in internships and service learning opportunities;

- Greater attention to student diversity issues including access for limited resource families; and,

- Greater focus on learning outcomes.

During the study, a major debate was occurring about student fees, the future and nature of federal financial student support and deregulation of student fees, on which there were very diverse opinions. One regional Vice-Chancellor was quite critical of the apparent lack of concern about the increasing costs to students somewhat concealed by HECS-HELP. He commented about affordability for students: *"Everyone in America is talking about getting the cost of higher education down. Not usually so much through fees, more by interesting pathways through things like community college. Affordability is a major issue. In Australia the only debate we have is how to charge students more. I have never ever heard a Vice-Chancellor talk about trying to reduce the cost of education in Australia. Ever."*

A university academic leader was equally concerned about the costs to students but focused more on the possible implementation of deregulation. He observed: *"This [deregulation] needs to be done relatively carefully and it has to be done in appropriate concert with the funding system to go with it. Our kind of HECS-HELP scheme is probably the best designed higher education kind of funding scheme in the world because it achieves very high levels of equity … It produces a high quality outcome at actually quite low cost. So you don't want to lose the equity outcomes from our HECS-HELP scheme, although it is going to cost you a bit more. Equally, you do not want to let price run away … There is a danger that you get the kind of prices that are priced too high, and actually covers a lot of inefficiency. The price for the students ends up driving too large a cross-subsidy and ends up cross-subsidizing too much of research, which is a socially inefficient outcome. If you are designing a scheme in Australia well, you would actually liberalise that cap and then you would release that cap over time, treat it in a way we have liberalised various other sectors of the Australian economy … In other areas we have slowly released the caps once the market had settled down and we were confident that actually we have a sufficiently competitive market working … You would need to do something not too dissimilar to that here (in education)."*

Other leaders were quite critical of their colleagues that support deregulation. A former Vice-Chancellor and government leader stated: *"I think Vice-Chancellors basically as a group have lost any moral compass. I don't think that is why they exist … I would have opposed it [deregulation] if I was still a Vice-Chancellor. I thought it was pathetic that they came out on the first night of the last year's budget, and said how great it was... I am thinking to myself, this has to be Neptune. It is not planet Earth."*

An Innovative Research Universities Vice-Chancellor commented on the government's efforts at deregulation: *"The whole deregulation debate last year was so badly mishandled by government. We had a government that in one sense was willing to do a very important, welcome thing, which is take a serious look at the funding of higher education and do something about it. That was a good thing, but the way they went about it resulted in a missed opportunity. No future education minister is going to have a go at this for a long time to come. I was talking to another Vice-Chancellor who said, 'You know,*

all along, I have assumed that they actually knew what they were doing, but actually it turns out they didn't.' The Minister of Education put the legislation into the senate twice now, but on both occasions, you think he has surely some plan in place to make sure he gets the numbers... and he can't just be running on enthusiasm and optimism but it turns out that is all there was ... I supported the proposals ... the expansion of the system to include non-university providers. I did not like the 20 percent cut because that drives fee increases to students, and it was a fairly crude cost shift from government to the students. They never really went into the details. The problem with all of this was it was announced on budget night, the biggest shake-up to higher education funding in 30 years ... a cost-saving measure, that had profound implications for students, for parents, and the profile of the sector and they just dropped it from on high. In retrospect, you think how did they possibly think that would work, especially when they did not have control of the Senate?"

A Vice-Chancellor at an institution in the Australian Technology Network noted*: "I think we will return to the debate about fees and there is, undoubtedly, a medium, not withstanding my view that some of the other universities are flabby in their overheads. I do think that because we can't rely on government, we will have to come to a sweet spot regarding what is an acceptable contribution level for students and that has to be done across the board."*

A leader in a non-university academic institution commented that he believed if deregulation led to substantial increasing costs for Australian students there might be an exodus of some of the best and brightest students. He noted that if deregulation of fees resulted in increased costs: "*People might be making a choice, 'Do I get a degree or do I get a job?' The other thing is the brain drain. People do not like to talk about brain drain, but I can say that some of the best and brightest are going to say, 'Well, if I am going to stay in Australia and pay higher education fees for my degree, I may as well go to the United States'. Actually, it is creating a pipeline for international education of our outgoing students, which is a brain drain, and they are not going to come back to Australia. We have lost our kids and the investment in that whole. There is going to be a generation now that is going to make those choices. ... It is kind of ironic. Australia is recruiting international students, but we may not be holding on to our domestic students."*

Another issue leaders identified is the appropriate length of education needed to obtain particular degrees and adequate experience and knowledge. One government leader predicted, in the future*: "There is going to be more and more demand for the length of courses to be compressed. People want to get in, and learn as much as they can as quickly as they can and get out, so that is going to be a real tension for universities. The whole debate over what a Masters looks like, two years, eighteen months? Is it the length of time? So that question is going to play into the competition agenda."*

The role of the large lecture hall in the future was critiqued by a number of leaders. One specific comment about that issue was made by a Group of Eight Dean*: "The future does not look like lecture theatres ... We need to actually build the kind of spaces where proper peer to peer learning can be facilitated and driven. So in 20 to 30 years' time, the campus should probably have one or two really nice lecture theatres for a kind of performative academia for occasions of celebration and ritual around performative lectures. I think that is a good thing. It will always be important because ritual is important.*

But the rest needs to be bulldozed. I cannot understand why we are still building lecture theatres at some level except that we haven't changed the model yet, so we are wasting a lot of capital and that is a real problem."

A number of the leaders indicated that more of the newest generation of undergraduate students desire practical experiences such as internships and service learning opportunities. One Pro Vice-Chancellor for academic programs noted that while the students would like these experiences, many of the professors and instructors do not understand this desire. He stated: *"A generation of students who are paying lots of money for their degrees, are very pragmatic and prosaic about the purpose of universities. They (students) are here to get something that is going to help them get a job. … A lot of academics I speak to, do not understand why students want to have internship opportunities and be work-ready. They are only able to conceptualize university training as a way to reproduce themselves, as producing more academics…. A very small proportion go on to do PhDs and become academics … What are we doing for the other 95 percent who are not going to academic research jobs? A lot of academics have not thought that through. The students have and are very conscious of it."*

Related to this issue is better understanding of student perceptions, needs and evaluations of their experiences. One non-university academic leader suggested that there is a need to listen more closely to student opinions and insights. He stated: *"I feel the students are going to shape the future of higher education. It is not the academics. … [universities will] have to engage a lot more with their students to seek their feedback. I think universities have to realise that they are a rich resource, get their ideas and ask them. They are going to tell you what they think. If they don't tell you what they think personally or in a meeting, they are going to tell you on social media."*

The issue of the nature and quality of the educational experience was rasied in a comment by a senior government leader. He criticised the over-emphasis on research as the basis for international rankings, stating, *"I would like to think the international ratings are not important but they are."* He went on to note: *"This [teaching] is where the international rankings exercise is so interesting because so much of it is based on refereed research and publications in general … You have some nods in the direction of quality teaching from the Times, but I don't think the others even pretend … Higher education is globally competitive and the market will become more and more sophisticated. There will be some top end institutions that will be able to charge top dollar regardless of what they do. They will always attract people. But I think over time, in a more and more competitive labour market, students will not just be looking for, nor will employers, the name on a testamur. They will be looking at the skills that you can get. You will have more and more universities that are going to seek a reputation as niche experts in particular areas (in Australia and globally)"*

Another important development facing higher education is the increasing reliance on rapidly emerging technology. Numerous leaders commented on the technology changes, when they might occur and with what consequence. An Innovative Research Universities Vice-Chancellor observed: *"Obviously technology and the disruptions that it will bring will affect Australian higher education. You hear many differing projections about just how disruptive technology is going to be. You listen to somebody like Larry Smarr who spoke at the Australian-American leadership dialogue last week and for him it is the end*

of the world as we know it for higher education. But other people say, it is containable or it's manageable. It will result in some shifts in the way we do things, but still campuses and physical co-location in a place of learning is still going to be a model that will survive."

An Australian Technology Network Vice-Chancellor had a slightly different take on the impact of the new information and educational technology: *"People always underestimate technological change or any big change. People overestimate in the short term and underestimate in the long term. Your massive online courses and technology chains a few years ago said 'death to universities, everything is changing'. It didn't happen so now a lot of people are saying 'Oh, okay we can relax.' Wrong. It is going to happen; it is just going to happen over a longer period of time. So I see the actual business model of the university fundamentally changing."*

A metropolitan university Vice-Chancellor also saw great impact from the emerging information and educational technology: *"The role that technology will play in changing the nature of the higher education experience for students and the way in which the millennials, young people born in the 21st century, are going to both engage with technology and the way in which technology expands more pervasively throughout the world, is going to give access to high quality higher education in ways that have never been possible before. It is that challenge and in this last five years or so we have seen emergent elements of that such as the MOOCs phenomenon but with no business plan to sustain it … We have begun to question our business models in higher education and governments are questioning the business model as higher education becomes very, very expensive. Technology is going to change the nature of both our interaction with students and the nature of the higher education system."*

A senior research administrator, scientist and government official also commented on the future role of technology: *"I don't think anyone in universities quite understands the tsunami that is going to hit with our new students. The way the people that are now 15 years old access data is through smart technologies … Very few people in universities quite understand the different psychology of the people that are going to hit universities in five years' time … The next generation will be completely different in the way they are accessing information, and they will be much better at harvesting and synthesising an output from that harvesting than they are at thinking through problems.*"

A Group of Eight senior deputy Vice-Chancellor endorsed the observations of the importance of the new technologies but went further, suggesting that these new technologies will be one of the major forces shaping higher education, and that they will have multiple effects on both education and the broader society: *"Obviously, technology and digitisation have had a huge impact on higher education and that is shaping society but it is also shaping education in society and it is shaping the way in which higher education is not only delivered but it is shaping how higher education is used, perceived and understood. That is one of the major forces."*

A Group of Eight Vice-Chancellor provided perhaps the most positive view of the impact of the new technologies. "*Shaping the education more generally is definitely the digital realm and what that means for the way people expect to interact in a whole range of different ways… The digital realm penetrates everything: how people access information; how people see the many different ways they can interact*

with one another; how they receive services; how they can themselves interact with services. So the digital realm is just making major changes, not just to education and its opportunities, which I think are wonderful and I do not think displace the face-to-face. They are massive augmentation of our ability to customise and personalise, and greatly enhance what we provide. Educationally, I think they provide much better ways of assisting people's learning, making us more effective at helping people to learn. But I think the digital realm transforms the whole way your organisation operates through its major systems and services."

Several leaders commented on the increasing competition for students among public Australian universities and higher education institutions as well as private degree and non-degree institutions nationally and internationally. A Group of Eight Vice-Chancellor noted: "*Clearly competition locally and internationally will be a force affecting Australian higher education. It is easy to see a lot of private providers starting to move into the higher education space, or move into the disciplines in which we offer higher education qualifications, but offering competing qualifications that are more appealing and delivered in a more appealing way. I think competition is going to be a very big force.*"

This perspective on competition, particularly international competition, was reiterated by a senior government leader in the Department of Education who commented: "*We are a phenomenally popular destination for international students from China and India, but as China evolves as a sophisticated market in delivering education and actually challenging us in the next quarter of the century as a destination when they get universities in the top two hundred themselves, they will have significant effects on our international market.*"

As noted earlier, Australia has been a leader in internationalizing its universities, particularly in relation to the undergraduate student body. Many of the Vice-Chancellors see great opportunities in continuing to internationalise undergraduate education. One Group of Eight Vice-Chancellor noted: "*I do think there are a lot of opportunities in the whole globalisation area with the MOOCs, offshore campuses and the onshore international students.*"

A Group of Eight senior deputy Vice-Chancellor had a slightly different perception of internationalization and viewed it as one of the major forces shaping Australian higher education. She stated: "*Because the world has shrunk so much and we are into a global market, the international mobility of students is something that we are all grappling with. It is driving our higher education policies and driving the sector to think much more about porous boundaries. Although we still have an undergraduate domestic market everywhere in the world, the fact that we have such reform in funding, we don't have sustainable funding models anywhere in the world for higher education. We are all working to get sustainable business models.*"

A Pro Vice-Chancellor for international affairs similarly stated that: "*Internationalisation will continue to be critical to Australia because of how it is now hooked on international fee revenue, which is fine if it is done responsibly…But if you look beyond just international student revenue, I think internationalisation in general for the higher education sector will be significant because of research collaboration and the educational experience of undergraduates. Australia is too small …to not be international.*"

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Another issue facing higher education in Australia and elsewhere globally is the question of student access, equity and diversity from populations that historically have not attended a university. Many efforts have been made both in Australia and elsewhere to review admission policies and procedures, to recruit a more diverse student body and to target particular groups. However, while these efforts have had some modest success, they have been generally limited in achieving diversity of the student body. Moreover, the overall graduation rates of students from some equity groups, including those from limited resource backgrounds and indigenous communities, have not matched those of the students from more traditional backgrounds. An Innovative Research Universities Vice-Chancellor clearly summarized one of the key issues: *"We have all had a tendency to talk up our capacity to be good for society in providing equity access programs. However, about 80 percent of those coming in on those programs do not go out with anything. They do not graduate. The move to not only admit them, needs to include actually supporting them throughout and graduating them. Otherwise, you do not have the impact that you think you are scoring. It is not just the learning outcomes. It is actually getting the student to reflect those experiences in a successful outcome."*

Another critical issue identified by the leaders was quality teaching and quality learning outcomes. An experienced senior leader in government commented*: "I think one of the things that I would like to see, and it is a challenge that has to be… addressed, is the quality issue … really grapple with the question of what is quality teaching, what does it look like, how do you measure it? Now that is a really difficult question, and academics do not always warm to the question being posed … It is going to be an important part of the self-regulation of the sector. They have to come up with robust and meaningful measures of what good teaching requires. The problem is, of course, that you run into the issue of so much of this is based on student perception, and student perception can easily be poo-pooed as a popularity contest. You have to find a meaningful way of addressing that objection to quality, of being assessed partially through surveys … There is a lot more work to be done on getting really robust procedures in place for focusing on what quality teaching looks like, and for building up a reputation about quality teaching …It should not be beyond the wit of the academic community to come up with some robust measures around quality."*

As noted above, the expansion of non-degree public and private providers is likely to continue. How these forms of education will be integrated into the university curriculum and how credit will be efficiently and fairly transferred may be key issues in the future. A Policy Analyst with a leading industry group noted: *"The integration… between VET (Vocational Education and Training) and higher education is not very good in terms of the transfer of credit. Sometimes the credit that you have received at VET is not necessarily counted as soon as you try to transition into a university course. You might find yourself repeating material that you have completed in your VET. Some universities are very good. For example, the University of Technology in Sydney has a couple of established pathways … Recognition of prior learning between the two types of education providers, is not always easy as well. We have this credit transfer in theory, this place where you are supposed to be able to move between them both, but we do not really have the infrastructure at the moment to automatically let it happen."*

Finally a senior political leader commented on the goal or end product of education as follows: *"The critical issue is that what we have to do is develop a system in which the qualifications that people learn*

are of value throughout the world, that they are tradeable value, that amongst your peers they are acknowledged to be a credential of great worth. That is the aspiration I am trying to develop."

Outreach and engagement/knowledge application

Outreach and engagement or extension has been an acknowledged third function of universities in Australia and of universities worldwide. It has also often been misunderstood and undervalued in performance evaluations at the individual and institutional level. Many leaders, however, identified and discussed a number of directions that this academic function may take and the plethora of roles it may play in the future. One key area identified by numerous leaders is in the development and expansion of university-industry technology transfer partnerships. A Vice-Chancellor with experience in intellectual property (IP) and technology transfer commented: *"I have a desire and passion to ensure that intellectual property developed by Australian researchers remains in this country for the benefit of this country and so that industry can develop around that rather than necessarily see our intellectual property commercialised overseas with the benefits largely - at least in the early stages - accruing in other jurisdictions. Probably my biggest frustration and disappointment lies in that space where I was involved in the early stage start-up of a number of ventures to commercialise Australian IP. They were ultimately successful but they're only successful when they were either bought out by a multinational or they were taken over by venture capitalists in the United States. This is in a sense reflects the challenge we have right now in Australia where we have a Prime Minister talking about innovation and talking about the downturn in the resources sector … Innovation, of course, comes off the back of great R&D and universities are the enablers of the research and development. They're so important to innovation in Australia so we need to fix the way we support R&D in Australia to avoid great pieces of IP finding their way to the benefit of others before we can reap the benefit."*

One Pro Vice-Chancellor stated that: *"the link to industry is very important… Universities will have to be more active players in economic development and growth but I don't think that means that everybody should have to do that… because somebody has to do the basic research which we all know underpins much of the later tech transfer."* Another university leader offered a similar caution about this priority: *"The narrative being used currently by the government is that they want to see a closer connection between the research and its application so they want more immediately commercially viable research outputs… Fundamental research and basic research are under threat because government is keen to push a job creation agenda, an innovation agenda, commercialisation agenda… They feel that the research they fund… needs to be applied research… That doesn't suit a university where the majority of research is basic."*

A senior university social scientist and Policy Analyst observed: *"One of the real problematic parts in Australia is the interaction with industry. University–industry engagement is pretty poor in this country. It is pretty underdeveloped and we don't have very many multinational organisations operating in Australia and setting up their R&D labs. They are setting up their R&D labs in Malaysia, in Vietnam, in Singapore. They are never going to come here. We are way too expensive and we are way too ill equipped for it. It simply means that we need to move out farther with the region and be part of those*

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developments. I don't think we are taking that opportunity and that is a real problem. It is not supported by the policy settings that we currently have in place in the country."

The concern that the knowledge generated in universities is not reaching the public was expressed by a Vice-Chancellor in the following way: *"I do think the most frustrating thing for me is for how many years I have been arguing for the introduction of a measure of broader impact of university research and reward thereof, without actually achieving it."*

A Deputy Vice-Chancellor also expressed the need for universities to contribute to the national economy and stated: *"In terms of value to society, it's absolutely critical for universities to be able to demonstrate their contribution to the economy of any country because wherever we are, knowledge is what we sell. That is our best product as a country and universities have a really fantastic opportunity to turn what they are doing into a product that is really marketable internationally for the government. And we have to be able to sell that in a way that is clearly articulated to the government. I am not sure we are there yet."*

The same Deputy Vice-Chancellor went on to say: *"One way that universities can show, in a really evidence-based way, their contribution to the economy and the knowledge economy… is through the impact agenda. Translating what it does into end-user outcomes, showing the impact of public funding on, for example, what this means to a person's health, what this means to a person's quality of life and translating that through impact case studies and showing how the innovation that we are engaged with through our research actually leads to outcomes. To do that, we have to be able to put some investment behind developing indicators of how research dollars translate directly into the latest technology that enables you to be able to live the quality of life that you have or to educate in the most effective way or to be able to get the most effective transport infrastructure. What that means is that any government is actually going to have to start to invest in that translation agenda. I think that the Australian higher education system and the whole system needs to rethink its approach to understanding its allocation of funding to both education and research, and the impact agenda has to somehow be contextualised as deserving of at least equivalent investment. And that's where the future is for higher education".*

Finally, several leaders commented on the need for universities to be engaged broadly in addressing the needs of society. A Pro Vice-Chancellor and institute director observed: "*Australian universities have to engage with Australia in different ways. Australian universities have to rethink what it means to be an engaged university. What is the public value and how do we serve society in new ways? I guess the old idea of the academy was that universities serve society through generating and storing knowledge and teaching, but these days we are thinking more about how do we more actively use our knowledge and innovation capacity to support industry, to support business. How do we prepare graduates who can help transform Australia? I am just flirting around the edges of what more an engaged university might be. This is really difficult because it is a real transformation of people's thinking."*

A cabinet-level government leader concurred with the university leaders in his observation: *"I guess that one's community engagement in terms of to what extent is the research being put to good use is important, but what is more important is to what extent are universities being seen as more than just*

producers of smart people who then go in and apply their knowledge but are actually seen by their communities as theirs … It is partly why the university sector sometimes struggles to get traction. They are often seen as elite universities…. They are just training people, the rich people to be richer. So they have to say, 'we are making a contribution to broader social goals' if they are to get any sort of sympathy in the public debate around funding."

Infrastructure, human capital, resources and administration

Critical to successful research, education and outreach are the administration, infrastructure, human capital and resources of universities. Australian higher education leaders predicted several important developments over the next 25 years in these areas including:

- Greater higher education sector diversity with possibly fewer comprehensive doctoral-granting institutions, and some universities with primarily a teaching mission;

- Greater regional emphasis and leadership by Australian universities in Asia;

- Greater development and emphasis on philanthropy, development, and loans to fund universities;

- Increasing professionalization and expansion of administration utilising a corporate model and a market structure for commercializing higher education;

- Increasing reliance on part-time, temporary and contract staff;

- Declining federal support as a proportion of total university revenue;

- Increasing privatization of higher education in Australia;

- Continuing debate regarding the roles of state and federal government;

- Increasing attention to international university rankings.

The following were some specific comments and observations made by the respondents. A Pro Vice-Chancellor commented on the kinds of decisions that leadership needs to make: *"So, right now it would be really good to have some decisions made about the measures related from last year. The key ones are whether HECS-HELP is going to be available for people studying up to the bachelor level, including those programs provided by private providers, because that will open up a layer of non-prestigious private provision of some bachelor awards in Australia and that will be a game changer for all universities. Then the other one is the fee deregulation. If fee deregulation comes in, then I think we are on a course to Americanising the university system that would probably never be stopped. The Labor party stopped it once before but they might not be able to stop it again… So the end point results in… undergraduates no longer getting any value for what they are paying. They become the cash cows that run the university's research and graduate schools. With the greatest of respect to the US, we do not do that here."*

The issue of the increasing reliance on part-time, temporary, and contract instructors and researchers to staff the academic functions of the university was another issue identified by several leaders. One government research leader and scientist commented: *"I think a big issue is the casualisation of (university) work forces. This is an absolutely crucial international issue and just starting to cause enormous concern in Australian universities. I think that it is going to be increasing … When you have a tenured work force there is the commitment of your tenured staff for the betterment of the institution. When you casualise it you diminish the conditions for most."*

A senior person in one of the academies commented on the importance of strategic planning and the dangers of abdicating sound decision-making solely to the market: *"I don't think there is a lot of terribly strategic national-level decisions made about higher education in Australia. And I think individual institutions are left to do their thing and not often in the national interest. The issues of deregulation and the massification of education more broadly are left to student choice and so called markets, rather than the other important decisions and responsibility that governments have for the public good… What are we producing here? Are we prepared to let certain disciplines fade away? Who has responsibility for the national interest? And I think our systems are so competitive and factional in a lot of ways so I think responsible strategic planning is a huge issue."*

The professionalization of administration has been another key development that is likely to continue. Historically academic staff handled much of the administration with modest secretarial and management support. In recent years, with increasing complexity and a perceived need for greater efficiency in the sector, more reliance has been placed on professional management and a corporate model for administration. In some ways this has created two cultures for managing the university and a division of labour among the institutional functions. One regional university Vice-Chancellor characterized this in the following manner: *"My view is that there are two workforces in a university - the needs and the organisation of the academic structure is quite different from the professional structure. If you want to look at this in a very simple way, most professional endeavours respond to scale: if you keep pushing more work through, you will get efficiencies. Academic work does not respond to scale. You don't want bigger classes particularly. You are interested in quality. There is an incredibly important disciplinary context for the academic wellbeing. Physicists cannot easily work directly with your musicians or your obstetrics and gynaecologists. That is not true of the HR support and the financial support and those sorts of things. I found that you can divorce, to a gentle extent, your professional structures from your academic structures, thereby gaining efficiency."*

This administrative issue continues to be a subject of debate. The increasing reliance on a business model and the commercialisation of higher education has been characterized by many as a neoliberal orientation to running the university. A metropolitan technology university Vice-Chancellor viewed the issues as follows: *"I guess one of the most challenging or frustrating issues for me is how much effort it takes to create change in the sector. It is not anyone's fault. We have been a sector that has had very little change in many, many years. We attracted many people who came to university life because of its stability. They could teach what they had taught for many years. They had the opportunity to explore their curiosity. They had tenure and they were almost guardians of tradition. Now as we (the university) and many parts of society are going through disruptive change, trying to help people who are naturally*

resistant to change see the opportunity and come with me on the journey is the biggest challenge. It is not a choice. …Some people talk about students as customers and we talk about the university as a business and people talk about the corporatisation of universities and see that as all very evil. I do not. I think I used to, but I now understand that there are very good practices that come from running a good, well-run business. As a responsible public sector business, we ought to be using this business model as stewards of this sector to make sure we are handling public money well, students' money responsibly and that we are accountable. Any system that becomes closed is dangerous."

In sharp contrast, a senior government leader and elected official viewed several problems with this direction of administration and management of higher education. He cautioned: *"I think there are some issues around managerialism in universities. The approach needs to be examined. What is the history of privatisation in this country? I defy you to find an example where this hasn't happened. Prices go up, consumer ends up paying more for the product, and the numbers of managers and their rewards go up. They are the substantial differences. This is always done in the name of efficiency, and we have had a very great growth in the levels of managerial – to use a mining term – overburden in our system."*

The role of the state government was discussed by a number of leaders. Many suggested that state government leadership has declined over the years as the federal government and the Ministry of Education has come to play a more important role. The survey, reported later in this document, indicated that most leaders feel that the state will not be particularly important in the future. However, one Vice-Chancellor and national leader did see state lobbying activities at the federal level continuing to be valuable to the sector. He initially described the state governments as having "opted out" of higher education funding and as having almost no influence, but then observed: *"They do have an influence. If you are a state government, you obviously want the universities in your state to continue to flourish and to provide high quality education and research because they underpin both the social cohesion, but also the economy. They will continue to be lobbyists essentially on behalf of the universities to the federal government."*

An Australian Technology Network University Vice-Chancellor in a major city noted, however, that all states are not equal. It is true that some states provide very little financial support for their universities while others commit significant resources. He stated: *"we are going through a fundamental shift in the business model for universities. Strategic planning is critical. I would like to be less reliant on federal budgets. I come from a state of New South Wales who are being slightly helpful now. But to give you a sense of one of my colleague universities who we are quite close to, in the ten years from 2002 to 2012, my university had $500,000 of support from the state government while my colleague's university had $500 million of support from the state government. In my state they are entirely irrelevant."*

A Group of Eight Pro Vice-Chancellor for research summarized a number of the issues around government funding, deregulation, philanthropy and the goals of the university: *"the perception is that at the moment we are stuck on a little boat and we are being buffered around by declining taxation revenue. The revenue base in Australia is declining, the number of students going to universities has ballooned, the federal government can't service the cost of that, and everybody focuses in on that and says, 'Well, you know, we don't know how to fund you.' So, we have had 18 months of unsuccessful*

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attempts to allow universities to deregulate fees. The biggest thing that is really interesting is the assumption that our agency belongs to somebody else. The biggest challenge is reminding everybody that, actually, that is not true, regardless of whether they deregulate fees or not. There is a trajectory that says we have to be responsible for greater philanthropy, greater diversification of income, maintaining the standards, and fighting globally for the best talent."

A Group of Eight Vice-Chancellor noted that the issue of funding and resources is not unique to Australia and that institutions have used a variety of means to address shortfalls. As noted earlier in the report, he observed that in recent years Australian universities have relied heavily on international students to compensate for declining government support, but in the future they may need to increase reliance on borrowed funds. He stated: *"I think our trajectory is pretty similar to public universities in the United States and in the UK and Canada so I don't think there is anything special about us. Government is reluctant to pay the cost of massive expansion. They are happy to pay for expensive degrees where there are tiny numbers but less and less happy as those numbers grow. The constant funding crisis is the first immovable and we will solve that for the next five years by international student numbers but there is a limit to how many you can take … We will fund the system through international students and fee paying students because we won't be able to fund it through the government. We will run into capital limitations because you can fund operations in this manner but you can cannot fund capital that way … People will start borrowing at a rate they have never borrowed before. Most Australian universities have no debt or tiny debt. Suddenly we are all going to borrow hundreds of millions of dollars to maintain the growth and capital necessary to maintain the institution. That is taking us into a very different world: little government income, total reliance on fees, highly geared—so a really disruptive technology could be fantastically difficult to manage in those circumstances."*

Finally, an issue that surfaced in most interviews was the overall structure of the system: the number of institutions, their primary goals and functions and the lack of institutional diversity in the sector. A Group of Eight Pro Vice-Chancellor and institute director stated: *"The issue has to do with institutional diversity. Since we created the Unified National System, as it used to be called 25 years ago, in a sense, we have a flat system. All of our universities are expected to be research universities. They are typically comprehensive across their disciplines. They all operate by and large under the same policy settings … Our higher education sector has been a close-knit, somewhat unified, somewhat collaborative group of institutions because we have done so much focused international marketing of Australian higher education. So we have not had the diversity that you have in the US with your college model and the idea of liberal arts and research intensives. We basically have what I will call a flat system in the main part. Now, the problem with a flat system for Australia is that it does not offer the diversity that the nation needs. It is also really costly to run because, fundamentally, you have people on teaching-research academic appointments across the whole sector. Many of them are not research-active at all. My argument then is differentiation of the system in Australia is really important. We need teaching-only universities or colleges but it is extraordinarily difficult to imagine how we get to that point because at the moment, to have the title university, you have to be a research institute."*

These observations were often repeated by several leaders. One metropolitan Pro Vice-Chancellor for research amplified the above comments and noted that the issue of too many similarly oriented public

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universities is not unlike the situation in the United Kingdom. She stated: *"I think probably having a more realistic and less politically motivated conversation about the role of different types of universities is critical for the future. On the surface, we have too many universities for the size of the population. I mean, 39 universities with a population of 25 million … You see the same problem that has happened in the UK where all of those universities aspire to be full spectrum universities with research and all the rest of it. In reality, their great value to the nation is in doing what the polytechnics used to do really well, which is to provide education in more vocationally oriented programs in regions where people are not going to travel to metropolitan centres to get their tertiary education. To try to fund them all on the same model with the expectation that they will all have the same range and the same level of research is not sustainable. That is not to suggest that there are second tier universities. It is just to say that you need institutions for different purposes … So much status attaches to being a research university. There is always going to be some contest over this but I think we are spreading a not very big budget very thinly across institutions without really thinking very hard about the strategic value of that."*

Critical issues in next 5 years

The leaders were asked to identify any critical actions or decisions that need to be taken in the next five years to ensure the successful future of Australian higher education. Many issues that have been previously identified resurfaced in response to this question. Not surprisingly, one issue on the minds of most leaders continues to be sufficient and reliable funding. One Vice-Chancellor commented: *"The biggest issue of the next two years, let alone the next five years, is securing the funding base of higher education in Australia at least for the sort of near to medium term, and hopefully for the long term. Now I think that is going to emerge from some sensible public discussion around fee flexibility in this country and without it, we are going to be looking to the Commonwealth to increasingly open up the public purse to support universities. At times of challenge, unfortunately, Australian governments tend to pull back rather than invest and with that context it is a challenge to get them to find more money for higher education."*

A recently appointed Vice-Chancellor focused on an issue that has surfaced several times, funding of research and the heavy use of student fees particularly at the major research universities*: "There is no doubt that for a university like X or indeed any other research intensive university, the resource for research has to be increased to such an extent that the research need not be cross-subsidised from student fees. If Australia wants to still have universities being a primary research engine but is not prepared to fund that engine fully, universities will have to derive greater income from each student and the students at research-intensive universities will, therefore, disproportionally carry the burden of the national research effort. Everything else being equal, these students will work up a greater debt to be repaid. I believe it is unfair that the students, who are often best qualified to go to university and end up at a Group of Eight institution, should cross-subsidise research whereas somebody going to a less research-intensive university does not do that to the same extent. I think that is a critical issue."*

Several leaders identified federal policy as a key issue that has to be resolved soon. Some feel it is critical to arrive at a relatively stable policy context in the next five years, while others believe that the political

divide with strong ideologies on both sides makes policy stability unattainable. One Australian Technology Network Vice-Chancellor had some strong views about this topic and indicated he believes that stability in the policy arena is crucial: *"Having policies that chop and change and go backwards and forwards means we are all focusing on what the hell is happening with government, what the hell is happening with our sector rather than getting on with our primary mission. Most of us recognise that the business models are fundamentally changing. Most of us recognise the world is about to shift, a seismic shift underneath us. If we have some sort of broad policy stability, we can handle the changes. At times to me, policy stability is even more important than resources because I can work out the resource issues if I have stability."*

Views of structure of Australian universities in 20 years

Finally, the leaders were asked, given the issues and challenges, what they thought the Australian university sector would look like in 20 years. Many of their responses and perceptions were captured earlier in the section on "Major Developments – Next 15-30 Years". This section, not surprisingly, generated the greatest diversity of opinions and conflicting perceptions of the future from the very optimistic to the deeply pessimistic. Most envisioned significant change and organizational restructuring, while some felt the sector will remain relatively unchanged.

One regional university Vice-Chancellor was particularly optimistic about the ability of the sector to respond to the increasing challenges and adapt successfully. She also had confidence in the capabilities of the leadership. She noted: *"I think the sector is remarkably adaptive and resilient. It has navigated in the 25 years a political, theological jolt with governments deciding to remove significant funding from higher education and governments deciding to have policies and strategies which are short term… The sector's demise has been predicted many times and yet the universities appear to be well run. Organisations have been adaptive and the international education activity of Australia was certainly world leading in the 1990s and 2000s."* She also felt optimistic about the future of the sector, stating: *"I'm backing it. It is a clever system, run by clever people and by and large, they are pretty savvy. There will be perhaps fewer but larger institutions, much more connected to industries or precincts, joint university-industry business precincts participating in virtual, global consortia."*

A Group of Eight Pro Vice-Chancellor for international programs was equally optimistic and positive about the sector but cautioned that one's global reputation is fragile: *"I think uniformly the quality [of Australian universities] is reasonably high by international standards. Australia has an opportunity if it plays its cards right to make sure that education and research are identified as a characteristic of what Australia contributes to the international system. At the moment, I think Australia is more recently famous for contributing resources (minerals) and tourism, which are two of the biggest export industries in the country. Education has sort of quietly ticked along in the background. Research is also something which the country can be justifiably proud of. But, I am not sure that there is an understanding of how fragile that reputation is."*

An Innovative Research Universities Vice-Chancellor was equally strong in his support of the role of Australian universities in the broader global context. He noted: *"Education is becoming one of the major*

exports for Australia. And as I keep saying to governments here, investing in education, in international education, is what actually sets up the relationships to underpin trade. For a country like Australia that is looking to Asia, the Asian cultural paradigm is the need to have a relationship if we want to do business. Education is a great way to build a relationship and mutual understanding, and respect for cultural differences. I think Australia has to think very clearly and carefully about, and articulate, where these things fit into the national psyche and the strategy for financial development."

A senior government research administrator and former Vice-Chancellor provided a more sobering assessment through a fictitious scenario to describe his perception of the future needs*: "In a hypothetical scenario of being in an elevator and having to brief a senior government minister, I would say: 'you have to accept the fact that we are not as good as we are saying we are. The rest of the world is moving really fast and if we don't move with it, the gap will get so big that we will never be able to fill it. We have to focus more on the outcomes than process. We have to see ourselves as the three percent player in the world. And so, we have to link in with the other 97 percent. We have to establish international connections. Sooner or later, if we want to continue the level of public support that we have, we have to make sure that we produce people with the knowledge to work on issues that will produce solutions to meet society's needs.' That is what I would say, and I do think that part of that issue here is that we self-delude a bit. We do think that we are better than we are."*

An Innovative Research Universities Vice-Chancellor and national leader succinctly summarized where she thought the sector will be, defined in part, by funding and resources*: "I see a continuation of resource scarcity and therefore the need to drive solutions that are not totally reliant on public investment in the manner that we have been and as we have wanted to expect."*

Some respondents expressed that working together in both domestic and international partnerships is a key to the future success of Australian universities. A senior research administrator in the Ministry of Education observed: *"Partnerships, that is the only way that the system is going to survive. The only way we can have forty universities in this country is better collaboration."*

A recurring theme among many senior leaders and Vice-Chancellors, as noted earlier in this report, related to the appropriate number of institutions and their various potential roles in the future. Most leaders questioned whether the sector could continue to support all the institutions with similar functions and responsibilities, and stated they thought that there would be fewer institutions and more diversity in their activities in the future. However, few expressed how they thought that would occur. One senior regional university Vice-Chancellor stated explicitly: *"Australia has too many universities for its populations. It has too many campuses. It has too much duplication and too many trying to do the same thing. Something has to come and sort it out. It is either intervention by design or it is market forces, but if you ask me how it will be different, it is going to be restructured. It is going to be consolidated. Some will go to the wall, be consumed. No one can predict what the pattern will be, but it will be a different pattern than you see now. I am not saying it is going to happen much before ten years. If you had asked me about 15 years from now, I might have felt more comfortable with this prediction. … I think there will be a clearer delineation between a small number of research intensive universities funded for disciplinary and blue skies research and funded for big science, but on the condition that they*

collaborate with others that are funded for big science. I think there will be a stratum of universities, which are funded for some research but it is derivative from their teaching areas. It is of a more applied problem solving local nature, delivering professional kinds of courses. And I think by fifteen years, maybe I am being optimistic, someone will have sorted out vocational education in this country. And with a bit of luck we will have had a visionary person who comes along and says 'but actually even your dichotomy between vocational and academic education is all wrong'. Medicine, for example, is a highly vocational discipline, but for reasons of social class and elites, you regard as higher education and someone will come along and say 'what the world needs now is to rethink the importance of being able to do fantastic things with your hands as well as your brain, but preferably get the two to talk to each other'… If you can get right the blend of skilled hands and trained minds, you have yourself a good tertiary education system."

Another Vice-Chancellor from the Innovative Research Universities network expressed a similar prediction about the number of institutions and some indication of the division of responsibilities and functions that might occur over the next 20 years: *"We are not all going to get pushed out by the globalised educational framework. Education actually has to have a connection back to the grassroots of the society in which it is delivering. There is a place for localised institutions and research refinement. I would expect that there will be fewer institutions in 20 years' time."*

A large metropolitan university Vice-Chancellor noted that despite the likely restructuring of the sector in the future, with more diversity in function and potentially fewer institutions, universities will continue to bring important values and services to their regions.

A Group of Eight Vice-Chancellor envisaged a different trend for Australian universities over the next 20 years: *"Well, I think it has to look much more like the American system… We need a system where many different approaches to higher education can flourish and where students will have genuine choice."*

Finally, an Innovative Research Universities Vice-Chancellor did see major restructuring and potential mergers, but offered caution about how it might proceed. She rejected the Californian public higher education model because of the possible increase in bureaucracy: *"I think the ecology will be massively changed. I think that there will be a lot of providers. I think it will be a highly contestable market place for programs that are high margin, low cost, high volume. I think that there will be hollowing out of a number of universities in the country … The answer won't be simply on the money because there will be politics involved in supporting universities in particular places in the country. It may be that some universities that are hollowed out by virtue of not having any of those or much by way of those particular programs. They will be left with more expensive programs of one stripe or another and they will have to be sustained in some fashion if they are. Can I see mergers? Yes, I can imagine there could be mergers between institutions. Is it possible that you might develop a system sort of based like California? I don't see any real benefit in that. It may be because I don't understand it as well as I should, but I guess what I see from where I sit is simply another layer and really not much benefit to that. Every now and then this is raised, about having a systems approach and that would be more directed, and maybe there could be benefit in that, but at the moment I just see another layer of bureaucracy."*

An Australian Technology Network Vice-Chancellor was more concerned about sustainability under a new model for Australian universities and about how Australian universities would be competitive in this new environment. He stated*: "I think there needs to be a recognition by the government that universities are undergoing a big transformation. A lot of the debate at the moment is, how do we keep our universities sustainable? But part of it people are debating is how do we keep our universities sustainable in their current model. Actually, they should think through, how do we have a sustainable higher education, allow our universities to transform to the new model and then how do we keep them sustainable in that new model? Then in that new model our universities and basically our whole funding relies a lot on international students. Unless the government wants to pay basically one third more than they have been paying in the past, we have to be competitive all throughout Asia. That is the next challenge. How do we stay competitive?"*

Often not stated explicitly, but implied in a number of comments about the future of the sector, is the tension between the role of the state, labour politics and the common good on the one hand and the role of the market, neoliberal politics and commercialization of the universities on the other. One Vice-Chancellor characterized this debate in terms of the unions and the Australian marketisation of higher education*. "I think it (the unions) has a shaping influence still around the kinds of contracts and employment that we can offer, so it does inhibit our flexibility to respond to market forces. Market forces are being thrust upon us. I don't agree with it, but it is hard to be moving into markets when you have a background of industrial arrangements that have been shaped by unions that profoundly disagree with markets. We are in the transition phase and it is a cohort of Vice-Chancellors that are having to deal with things that I doubt any cohort of Vice-Chancellors had to deal with before. The Australian marketisation of higher education in some respects is more advanced than anywhere else in the world. … That means that the cohort of Vice-Chancellors are handling it all, trying to interpret it, think through its implications, deal with the sort of legacy traditions that are just not going to last. I am not complaining, but it has certainly added to the complexity of life."*

As this discussion indicates, many of the developments seen as possibilities in the next 25 years were viewed as a potential consequence of forces outside of the universities and government. One senior government leader observed: "*I think most of the things that are going to challenge universities over the next decade hopefully don't have anything to do with government at all. I suspect that most of the big challenges that are facing universities are things like new technology, new ways of delivery, new ways of packaging, learning, qualifications, workforce entry, and new players in the market and that I think is not something which is necessarily always set by government because there are a lot of international players who can step into the market… I suspect the forces that are really going to challenge universities are things in the global environment, not in the domestic environment.*"

A thoughtful and rather comprehensive response to the question of the vision of the future was presented by a new Vice-Chancellor and experienced administrator. She saw the future as follows: "*I think it (the university sector) will be a more diversified sector into the future. The unified sector has been – there is one size fits all in terms of the funding environment. In a deregulated environment, we will see more diversity and that is probably what the system needs to mature. But I think there are some tough issues that have to be addressed by government and by institutions. If we can get them right, the sector*

will continue to be positioned well. There are certainly some challenges around research infrastructure, around long-term research funding, and around the funding base of Australian higher education. We need strong policy support, since a 21st century country like Australia needs a very strong higher education sector. The challenges need to be understood and responded to… If that can be done then I think the sector's well positioned… We will see Australian universities, given a more flexible funding and policy environment, pursuing different missions and seeing themselves occupying different positions within a broad sector."

Finally, Australian universities have increasing opportunities to participate in the international policy arena. One example is the participation of Australian universities in the policy efforts of the Association of Pacific Rim Universities (APRU). The APRU is an association of 45 premier research universities in 16 countries around the Pacific Rim region including 4 Australian universities. It focuses new knowledge on the global challenges affecting the region including, but not limited to, economic development, science and technology, human resource development, education and environmental protection. Seeing the rapid economic integration of the region and the formation of the Asia-Pacific Economic Cooperation (APEC), the four California university founding presidents' vision was to establish a premier alliance of research universities as an advisory body to international organisations, governments and business on the development of science and innovation as well as on the broader development of higher education. APRU viewed APEC as one of the key senior governmental organisations. Founded as a forum for 21 Pacific Rim member economies that promote free trade throughout the region, APEC held its first meeting in Canberra, in November 1989. The APRU has worked on a number of activities with the APEC. For example, government chief science advisors from APEC member economies engaged with an APRU panel on "University Networks: A Resource for Chief Science Advisors". APRU was also among key organisations invited to the APEC High Level Policy Dialogue on Science and Technology on Higher Education. APRU was among the international university networks represented at the APEC University Associations Cross-Border Education Cooperation Workshop, organised by the Australian Government's Department of Education. Finally, APRU has also begun discussions with the United Nations over modalities of collaboration in areas such as disaster risk reduction, social development and the environment. This is just one example of emerging international partnership opportunities for universities to play an increasingly important role in the international policy arena.

Survey of Specific Issues Facing Universities

Following the open-ended questions and within the interview, the leaders were given a survey of 32 issues or components of the higher education system organized into five categories: the three major university functions of knowledge generation through research and scholarship (7 issues); knowledge dissemination or teaching and learning (8 issues); knowledge application or outreach and engagement (4 issues); issues that cut across all three functions (5 issues); and key administrative issues and challenges facing the Australian universities (8 issues). Interviewees were asked to rate each item from 1-5 (1=not important to 5=extremely important) regarding how critical they were for the future of Australian universities.

On the topic of knowledge generation through research and scholarship, leaders were asked about: grand challenges such as energy, climate change and food security; research infrastructure; interdisciplinary centres; big data/computer infrastructure; start-up packages for new professors; basic/applied/development balance; and, university/industry research partnerships. Items regarding knowledge dissemination, or teaching and learning through undergraduate, graduate, post-doctoral and continuing education, included: student accessibility; student learning outcomes; life-long learning/continuing education; educational technology/on-line learning; student financial aid and student debt; deregulation of fees; competition for students with non-university and international institutions; and, general education and professional education balance. The third primary mission or goal of the university, applying knowledge to address the needs and preferences of particular stakeholders, the broader society and world was evaluated through leaders' perceptions of the importance of addressing the needs of various organizations and sectors of society including: addressing the needs of the society in general; promoting partnerships with industry to include technology transfer, licensing and patenting knowledge and engaging in start-up enterprises; addressing government agendas; and, international development and other identified constituents.

Subsequent items sought leaders' perceptions of several issues that cut across all three university functions: internationalization; diversity; accountability; partnerships; and international rankings. Finally the leaders were asked to assess key administrative issues and challenges facing Australian universities (the infrastructure, human capital, resources and administration that support the three primary missions and goals of higher education), which include: strategic planning; federal budget support; the role of state governments; academic staff/faculty (tenured professors, part-time or short term contract lecturers and researchers, adjunct professors, etc.); shared governance between administers and academic staff; philanthropy/development/fund raising; health/pension costs; and, government regulations/standards.

General trends

In examining the survey responses as a whole, most of the 32 higher education issues were viewed as very important or extremely important (27 of the 32 received mean scores between moderately important to extremely important). Four issues: *Internalisation*, *Student learning outcomes*, *Address the*

needs of the society, and *Strategic planning,* were rated the most important for the future of the system. All four items had both a median and modal score of 5 (extremely important). In addition, eight other issues were generally rated as very important, with modal scores of 5 (extremely important). These issues, which cut across all functions, were: *University-industry research partners; General partnerships; Grand challenges; Research infrastructure; Faculty-tenured, part time, & contract; Federal budget support; Student accessibility;* and *Educational technology/on-line learning.* Given the diversity of respondents, the data was also examined within three main leadership groups: university personnel; academic organization leaders; and government respondents, as well as other subgroups. Before turning attention to group differences, the next section examines in greater detail the 32 issues within the five categories of knowledge generation, knowledge dissemination, knowledge application, infrastructure and administration, and general issues.

Research/generation of knowledge

All of the issues associated with the generation of knowledge were considered at least very important by half of the respondents (see Table 1, Median=4). The *Grand challenges,* as well as *University/ industry as research partnerships,* were considered most frequently as extremely important issues (Mode=5). On average, *University/industry research partnerships, Grand challenges, Research infrastructure, and big data* were considered very important (Mean>4.0). [8]

Table 1. Australian Higher Education Leaders' Perceptions of Important Issues in Research & Generation of Knowledge for the Future of Australian Higher Education in the Next 20 years

Item	Median	Mode	Mean
Grand challenges	4	5	4.26
Research infrastructure	4	4	4.25
Interdisciplinary centres	4	4	3.78
Big data/computer infrastructure	4	4	4.08
Start-up research packages	4	4	3.52
Basic/applied/develop balance	4	4	3.82
University/industry research partners	4.50	5	4.36

N=114

1=not important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important

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[8] Statements that refer to 50 percent or more of the sample indicate the median, statements that refer to the most frequent value indicate the mode and statements that refer to the average indicate the mean for each item. The values were rounded down.

Education/dissemination of knowledge

Student accessibility and *Student learning outcomes* were most frequently considered extremely important. These two issues together with *Educational technology/on-line learning* were considered on average very important. All of the issues, except *General education and professional education balance,* were considered at least very important by half of the respondents (see Table 2).

Table 2. Australian Higher Education Leaders' Perceptions of Important Issues in Education & Dissemination of Knowledge for the Future of Australian Higher Education in the Next 20 years

Item	Median	Mode	Mean
Student accessibility	4	5	4.14
Student learning outcomes	5	5	4.54
Lifelong learning/continuing education	4	4	3.80
Educational tech/online learning	4	4	4.10
Student financial aid/student debt	4	4	3.82
Deregulation of fees	4	4	3.45
Competition for students	4	4	3.87
General & professional educational balance	3	3	3.34

N=114
1=not important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important

Outreach and engagement/application of knowledge

Regarding the application of knowledge, *Address the needs of the society* was considered most frequently to be extremely important. Both *Promote technology transfer* and *International development* were seen as very important.

All of the issues except *Address government agendas we*re considered at least very important by the majority of the respondents (see Table 3).

Table 3. Australian Higher Education Leaders' Perceptions of Important Issues in Extension & Application of Knowledge for the Future of Australian Higher Education in the Next 20 years

Item	Median	Mode	Mean
Address the needs of society	5	5	4.48
Promote technology transfer	4	4	3.94
Address government agendas	3	3	3.38
International development	4	4	3.81
N=114 1=not important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important			

Infrastructure, human capital, resources and administration

Strategic planning, *Federal budget support* and *Faculty (tenured, part-time, contract)* were the issues most frequently considered to be extremely important and were on average considered to be very important. All of the issues, except *Role of state governments, Shared governance,* and *Health/pension costs,* were considered at least very important by half of the respondents (see Table 4).

Table 4. Australian Higher Education Leaders' Perceptions of Important Issues in Resources & Administration for the Future of Australian Higher Education in the Next 20 years

Item	Median	Mode	Mean
Strategic planning	5	5	4.38
Federal budget support	4	5	4.22
Role of state governments	3	2	2.89
Faculty (tenured, part-time, contract)	4	5	4.23
Shared governance (admin/academic)	3	3	3.39
Philanthropy/fund raising	4	4	3.77
Health/pension costs	3	3	2.62
Government regulations/standards	4	4	3.64
N=114 1=not important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important			

General issues encompassing all functions

All of the general issues encompassing all functions were considered at least very important by half of the respondents (see Table 5*). Internalisation* and *Partnerships* were considered most frequently as extremely important. On average, all issues except *International rankings* were considered very important.

Table 5. Australian Higher Education Leaders' Perceptions of Important General Issues for the Future of Australian Higher Education in the Next 20 years

Item	Median	Mode	Mean
Internalization	5	5	4.60
Diversity	4	4	4.10
Accountability	4	4	4.11
Partnerships	4	5	4.32
International rankings	4	4	3.82

N=114
1=not important, 2=slightly important, 3=moderately important, 4=very important, 5=extremely important

Group differences

University leaders, academic organizations, senior government officials

The value of examining differences in perceptions among the three main groups of respondents (university leaders, academic organizational leaders, and senior government officials) became obvious in viewing the diversity of responses. The university group consisted of university Chancellors, Presidents/Vice-Chancellors, Deputy and Pro Vice-Chancellors, Deans, Directors, and Senior Policy Analysts. University academic organizational leaders included humanities, social science, science, and engineering academic association Presidents and Executive Officers; and Executive Directors of five university associations (Universities Australia, Group of Eight, Australian Technology Network, Regional University Network, Innovative Research Universities), Australian Fulbright Foundation, NAVITAS, the National Tertiary Educational Union and the International Education Association of Australia. The government respondents included leaders in the Parliament, the Australian Research Council, Office of the Chief Scientist, the Commonwealth Science and Industrial Research Organisation (CSIRO), the Department of the Prime Minister and Cabinet, Department of Education, Department of Industry, Innovation and Science, and the Tertiary Education Quality and Standards Agency (TEQSA).

Comparison of the perceptions of the three groups on issues facing the future of the Australian higher education system revealed substantial agreement on most of the issues. However, significant differences on several issues among the university, academic organizations and government respondents also existed. The three groups differed on their assessment of the issues of **Shared Governance** (see Table 6). This issue was considered the most important by the academic organization leaders and the least important by the government respondents. For academic staff, greater involvement in the administrative and academic decisions shaping the goals and mission of the institution has been an important issue in higher education for decades. When governance is not shared it generally means academic staff are not a meaningful partner in many academic, administrative, resource and budgetary decisions. Embedded in this issue is the concern of many academic staff of the increasing managerialism in administration and a loss of collegiality. Our study confirms that shared governance continues to be an important issue in Australia for faculty and academic staff. Significant differences also existed among the three groups regarding the issue of **Competition for students** (among Australian universities, non-university higher educational institutions and higher education institutions outside Australia). This issue was considered the most important by the university leaders and the least important by the leaders of the academic organizations. Not surprisingly, competition for students is seen as more important for university leaders as they have primary responsibility for with resource and student quality issues and increasingly are dependent on students for support of the institution.

Other less significant differences existed on several issues. Table 6 reflects some additional group differences with university leaders seeing *Composition of the faculty* in terms of tenured, part-time, and contract educators as more important than the other two groups. The academic organization leaders viewed *Start-up packages, Health and pension costs,* and *Internationalization* as more important than the other two groups. Government leaders saw the issues of *Big data, General education,* and *University/industry research* partnerships as more important than the other groups. Both university and government leaders identified *Strategic planning* as more important than leaders of academic organizations. Finally, both university and academic organization leaders saw the deregulation of fees as more important than government leaders.

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Table 6. University, Academic Organizations & Govt. Leaders Different Perceptions of Important Issues for the Future of Australian Higher Education in the Next 20 years

Issue	University	Academic organizations	Government
*Shared governance**	~	↑	↓
*Competition for students**	↑	↓	~
Big data	~	↓	↑
Start-up packages	~	↑	~
University/industry research	~	↓	↑
Deregulation of fees	↑	↑	↓
General education	↓	↓	↑
Strategic planning	↑	↓	↑
Faculty	↑	~	↓
Health/pension costs	↓	↑	↓
Internalization	~	↑	↓

Legend: ↑ = issue considered more important, ~ = in between the two other groups and ↓ = issue considered less important
*ANOVA p<.05

University networks

University membership in various higher education networks (e.g. Group of Eight, the Australian Technology Network, Innovative Research Universities, and the Regional University Network) also revealed significant differences on the issues facing higher education (see Table 7). Leaders in the Group of Eight saw *International rankings* as more important than the other university groups. This group generally ranks high on these international rankings and probably views them as important in their international student recruitment and research collaborations. The Australian Technology Network leaders viewed *Promotion of technology transfer* and *Student accessibility* as more important than other groups. This is compatible given this groups historic interest in applied sciences and technology. Interestingly the non-affiliated universities noted that *Federal budget support, Role of state government,* and *Student financial aid* were more important to them than to other university leaders. This suggests their high dependence on government support and potential increased vulnerability from loss of that support. Additional moderate differences (p<.10) existed for the issue of *Life-long learning and continuing education* (considered least important by Group of Eight respondents).

When comparing only the Vice-Chancellors, Presidents and other senior university management staff among each other according to the network membership of their university, some differences existed, but these differences were only significant for *Life-long learning and continuing education.* This was considered to be the most important by the members of the non-affiliated universities and the least important by the members of the Group of Eight. This may reflect the strong interest in a number of non-affiliated universities in meeting the needs of adult learners and those interested in continuing education. Considerable differences also existed regarding international rankings which were considered the most important by the Group of Eight and the least important by the other universities respondents.

Table 7. University Network Leaders Different Perceptions of Important Issues for the Future of Australian Higher Education in the Next 20 years

Issue	Go8*	ATN*	IRU*	Other
Student accessibility**	↓	↑	~	↑
Student financial aid+	↓	~	↓	↑
Technology transfer+	~	↑	↓	~
Fed. budget support+	~	↓	~	↑
Role state govt.+	~	↓	~	↑
International rankings+	↑	~	↓	~

Legend: ↑= issue considered more important, ~ = in between the other groups and ↓ = issue considered less important
*Group of Eight: Australian National University, Monash University, University of Adelaide, University of Melbourne, University of New South Wales, University of Queensland, University of Sydney, University of Western Australia
*Australian Technology Network: Curtin University, Queensland University of Technology, Royal Melbourne Institute of Technology, University of South Australia, University of Technology Sydney)
*Innovative Research Universities: Charles Darwin University, Finders University, Griffith University, James Cook University, LaTrobe University, Murdoch University
*There were an insufficient number of the Regional University Network universities in the sample of leaders to conduct a separate analysis with them. The non-affiliated or other institutions included all universities not in the four Australian university networks.
** ANOVA p<.01 + ANOVA p<.05

University Leadership

When comparing the Vice-Chancellors/Presidents to all other university respondents, there were significant differences for **Research infrastructure, Interdisciplinary research centres** and **Life-long learning** which were rated more important by the Vice-Chancellors/Presidents. In contrast, senior university leaders were significantly more likely to identify as important **Deregulation of fees, Educational technology, Health/pension costs** and **Technology transfer** (see Table 8). It is not clear why these particular differences surfaced. Vice-Chancellors/Presidents do have campus wide responsibilities for the infrastructure and enhancing interdisciplinary research and education but they also have interests and a stake in the other issues identified as important to senior university leaders.

Table 8. VCs/Presidents & Senior University Leaders Different Perceptions of Important Issues for the Future of Australian Higher Education in the Next 20 years

Issue	VC/President*	Senior University Leaders*
Research infrastructure+	↑	↓
Interdisciplinary centres+	↑	↓
Life-long learning+	↑	↓
Deregulation of fees+	↓	↑
Health/pension costs+	↓	↑

*N=70 university leaders at 22 universities
Legend: ↑= issue considered more important, and ↓ = issue considered less important
+ t-test p<.05

Government Departments

When comparing responses of the members of the Department for Education and Training (DET) with those of other government respondents (e.g. the Department of the Prime Minister and Cabinet, Department of Industry, Innovation, and Science, two Chief Scientists, the Executive Officer of the Australian Research Council, the Chairs of the Tertiary Quality and Standards Agency and the Higher Education Standards Panel, and managers in the Commonwealth Scientific and Industrial Organization), there were some notable differences. Given the diversity of the non-DET group, it may be inappropriate to compare the two groups. Nonetheless some interesting differences did exist on four issues: **Interdisciplinary centres** (more important to other government staff); **Student learning outcomes** (more important to DET); **Role of state governments** (more important to DET); and **Faculty** (more important to other government staff).

Academic organizations

Finally, we examined perceptions of higher education leaders in academic organizations who do not hold administrative positions in universities or in government. To do a comparative analysis, two groupings were created. One group consisted of academic leaders of the four higher education academies (Australian Academy of Science, Australian Academy of Humanities, Academy of the Social Sciences, and Australian Academy of Technological Sciences). The second very diverse group consisted of the university network professionals. Several differences between academy and non-academy higher education leaders' responses were revealed. The academy leaders were more likely to identify *Interdisciplinary centres, General education and professional education balance, Student financial aid, Strategic planning*, and *Composition of faculty* (tenured, part-time, contract, etc.) as very important issues. In contrast the diverse group of university network professionals viewed *Student accessibility, Student learning outcomes* and *Deregulation of fees* as more important issues.

Summary of Group Differences

The Australian higher education leaders have a wide range of backgrounds and experiences. They also provide leadership in a variety of very different organizational roles and responsibilities in a diverse group of institutions. As a consequence, they sometimes have difference perceptions of the most important issues facing Australian universities. The following summary highlights a few of the most significant differences.

While comparison of the perceptions of three key groups (university, academic organizations and government leaders) on issues facing the future of the Australian higher education system revealed substantial agreement, significant differences on several issues among respondents did exist. The issue of ***Shared Governance*** was considered the most important by the academic organization leaders and the least important by the government respondents. The issue of ***Competition for students*** was considered the most important by the university leaders and the least important by the leaders of the academic organizations.

University membership in various higher education networks (e.g. Group of Eight, the Australian Technology Network, Innovative Research Universities, and the Regional University Network) also revealed significant differences on the issues facing higher education. Leaders in the Group of Eight saw ***International rankings*** as more important than the other university groups. The Australian Technology Network leaders viewed ***Promotion of technology transfer*** and ***Student accessibility*** as more important than other groups. Interestingly the non-affiliated universities noted that ***Federal budget support, Role of state government***, and ***Student financial aid*** were more important to them than to other university leaders.

Despite the diversity in experience and roles, in this study of a representative group of Australian leaders of higher education, most of the surveyed issues were viewed similarly by all groups.

Conclusions

The insights, observations, and recommendations of more than 100 leaders of Australian higher education interviewed in 2015-2016 provided the foundation for this analysis of the Australian university sector at a critical crossroads. The focus was on the leaders' experiences, their understanding of the past 15-30 years, their predictions for the next 25 years and their assessments of the key components that will shape the future of the sector. A guiding question was "Can Australian Universities Continue to Punch Above Their Weight?" or continue to perform above expectations in their primary functions. Most of the leaders interviewed believed that the sector has historically performed well in research and education, has pursued key roles in Australian society, and has often served as a model internationally. They also agreed Australian universities are likely to continue to provide important service and leadership both domestically and internationally. As one regional university Vice-Chancellor stated: *"I think the sector is remarkably adaptive and resilient. The international education activity of Australia was certainly world leading in the 1990s and 2000s. It is a clever system, run by clever people and by in large, they are pretty savvy."*

However, nearly all the leaders felt there are significant issues facing the sector as it has become more diverse, increasingly complex, financially challenged, and internationally dependent. At the same time the broad domestic and international context in which the sector functions has also experienced major changes. There were important differences between how issues were viewed by the different groups of leaders interviewed- university leaders, senior managers and analysts, government leaders and other sector leaders. All, however, agreed major changes are coming.

Major findings

Despite some diversity of opinion on several topics, the leaders generally shared similar perceptions of the major issues facing the future of Australian universities and higher education. In the previous section a detailed analysis was provided of the 114 leaders' responses to a survey of 32 issues facing the future of Australian universities entitled "Australian Higher Education: Opportunities, Issues and Challenges". The following is a brief summary of the major findings and results of that analysis. Most of the 32 issues were viewed as very important or important (27 of the 32 received mean scores between moderately important to extremely important). Four issues, ***Internationalisation, Student learning outcomes, Address the needs of the society,*** and ***Strategic planning***, were rated most important for the future of the system. These are issues that have emerged globally in higher education in many countries. Perceptions of the leaders in this study reflect the increasing recognition of the importance of internationalization for all university functions and particularly undergraduate education and research. The leaders also note the need to be more accountable in serving both students (e.g. learning outcomes) and the broader society (e.g. address the needs of society). This broadening of the university agenda and increasing complexity of higher education and the global environment requires more thoughtful and informed strategic planning which the leaders identified as most important for the future.

Relative to the three primary academic functions of the system: research and discovery; teaching and learning; outreach and engagement, as well as the cross-cutting issues of internationalisation, diversity, partnerships, and accountability, the leaders identified as the most important: ***Internationalisation of the universities; Student learning outcomes; Addressing the needs of society, including the Grand Challenges; University/industry partnerships; General partnerships;*** and ***Research infrastructure***. In addition, they saw as very important the following areas: *Big data and computer infrastructure; Student accessibility; and Life-long/continuing education.* Relative to the administrative support for the three academic functions, they also generally agreed on the most important issues. These issues were: ***Strategic planning; Composition of the faculty in terms of tenured, contract, and part time staff;*** and ***Federal budget support.*** Topics in this area viewed as very important included: *Accountability*; and *Diversity*.

Group differences

While a high level of consensus existed among all leaders, important differences by subgroups among university, academic organization and government leaders surfaced. ***Shared governance*** was considered the most important by the academic organization leaders and the least important by the government respondents. For academic staff, greater involvement in the administrative and academic decisions shaping the goals and mission of the institution has been an important issue in higher education for decades. This study confirms that shared governance continues to be an important issue in Australia. Significant differences also existed regarding the issue of ***Competition for students,*** with university leaders considering this most important and leaders of academic organizations viewing it as least important. Not surprisingly, competition for students is seen as more important for university leaders as they deal with resource and quality issues and increasing dependence on students for support of the institution.

Vice chancellors/presidents indicated different priorities than all other university respondents, rating ***Research infrastructure, Interdisciplinary research centres*** and ***Life-long learning*** as more important than others. Their deputies and other senior leaders were significantly more likely to identify as more important ***Deregulation of fees, Educational technology, Health/pension costs*** and ***Technology transfer.***

Issues viewed as important for the future also varied among leaders from the Group of Eight, the Australian Technology Network, Innovative Research Universities, and the non-affiliated universities. Leaders in the Group of Eight saw ***International rankings*** as more important than the other university groups. This is not surprising given their heavy dependence on international students for funding and the presence of several Group of Eight institutions in the top echelon of those international rankings. On the other hand, the Australian Technology Network leaders viewed ***Promotion of technology transfer*** and ***Student accessibility*** as more important than other groups. Given the history and heavy emphasis on engineering and the development of technology in these institutions, their positive view of the importance of technology transfer is consistent. Finally and interestingly, the non-affiliated universities noted that ***Federal budget support, Role of state government,*** and ***Student financial aid*** were more

important to them than to other university leaders. These institutions may be far more dependent on both state and federal support and student financial aid for their continuing viability and sustainability.

University organization and structure

In response to the open-ended questions and complementing the statistical analysis of the survey responses, the leaders provided detailed and complex insights into the issues facing the future sustainability of the sector. Some of the responses were multi-level with interrelated issues and sometime nuanced observations. Other responses were succinct, straightforward, and occasionally strongly direct. This brief summary cannot capture the richness and thoughtful analysis of the interviews nor the more detailed quotations of the previous section but should provide a synopsis of leaders perceptions and observations of the most important issues facing the sector. While many of their responses identified the same issues appearing in the survey, several additional issues, factors and components were seen as very important or critical for the future of Australian universities. These diverse responses were more difficult to quantify.

In open discussion with the leaders, the most frequently identified issues and factors complemented the survey results. Numerous leaders stated the need to review and **restructure the sector;** to **diversify** institutional goals and functions; and to seriously consider **merging and/or reducing the number of institutions**.   Several leaders strongly felt there were simply too many public universities with overlapping and duplicative responsibilities, functions and missions. One vice chancellor commented: *"We need a system where many different approaches to higher education can flourish and where students will have genuine choice."* A pro vice chancellor for academic programs observed: *"The problem with a flat system (a single model for all institutions) for Australia is that it does not offer the diversity that the nation needs. It is also really costly to run."*

Universities were also seen as needing to rethink and enhance their **outreach and engagement** efforts to address societal needs. This issue complemented the survey where leaders identified among the four most important factors, the issue of ***Addressing the needs of the society.*** Universities worldwide are spending greater efforts to strategically rethink their roles and responsibilities to put their knowledge and expertise to work engaging with societal needs. This important function was identified by several leaders as increasingly important for their institution. However, as many leaders observed, without strengthening or introducing new incentives at the individual, unit and institution level, addressing the needs of society is going to be a secondary priority.

In both the open-ended interview and the survey, leaders viewed **partnerships, particularly international partnerships**, as very high importance. Many leaders commented that given the size and the geographic location of Australia as well as the increasing need to share resources, strategic partnerships will be even more important in the future. This will require careful analysis of the nature and types, the appropriate partners and topics, the goals, and the potential issues and challenges.

Academic staffing and technology

Complementing the survey results, the interviews revealed a concern about the changing nature of academic staffing and the *Composition of the faculty in terms of tenured, contract, and part time staff.* In part, as cost saving strategies, universities are increasingly relying on temporary and part time staff to meet their teaching and research needs but creating a potentially unstable environment and job insecurity. These qualified and experienced individuals also often have low commitment to institutions, sometimes working at more than one higher education institution or not participating in department administration and less structured academic responsibilities (e.g. student advising, academic recruitment). They often receive lower income and have poorer working conditions than other staff members. Another educational and research development has been the increasing presence of technology both for formal and informal education programs and in the conduct of research. Numerous leaders commented on the dynamic impact **technology** will have on education and the broader society. A senior research administrator, scientist and government official commented on the future role of technology: *"I don't think anyone in the universities quite understands the tsunami that is going to hit with our new students. The next generation will be completely different in the way they are accessing information, and they will be much better at harvesting and synthesising an output from that harvesting than they are at thinking through problems."* This will require significant rethinking of the roles and goals of higher education and the ways in which university knowledge is generated, disseminated and applied.

Funding and public policy

Some of the strongest statements among many leaders focused on the process of **funding**. Funding has become particularly important in light of the uncertainty of continuing strong federal financial support, growing reliance in international student fees as a source of cross subsidy funds and the potential effects of a downturn in international student enrolments. One metropolitan vice chancellor noted: *"The biggest issue of the next two years let alone the next five years is securing the funding base of higher education in Australia at least for the near to medium term, and hopefully for the long term."*

A significant and critical part of the government support for universities has been the student financial aid program. This program continues to be a world leader and a creative and equitable model. However, many leaders expressed concern about the accumulated debt for both the government and the students in the HECS-HELP. In viewing the multiple billion dollar government debt in this program, some leaders warned that the volume of HECS-HELP debt could become politically unsustainable and potentially lead to the collapse of the HECS-HELP scheme and program.

Related to the issues of government general funding and student financial aid funding is the issue of **funding for research**. In recent years, university research has been funded increasingly with domestic and international student fees. Moreover, an aging research infrastructure, the increasing cost of research, and the failure of the federal government to provide adequate support for the indirect costs of research have further compromised university research. A regional Vice-Chancellor commented

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strongly: *"The systematic refusal to fund the indirect costs of research, in even a vaguely sensible way, utterly bedevils everything."* Some leaders went further and stated they believed the current process of financing research through significant funds from student fees is both unsustainable and immoral.

The lack of development of stable and informed government **public policy** for education, particularly higher education was a frequently stated frustration. A metropolitan vice chancellor amplified this view stating: *"One of the greatest frustrations undoubtedly has been the incredible volatility of public policy around universities. Universities work in very, very long timeframes, or they should, and if you have constant changes in public policy then your ability to plan effectively is quite weak and incredibly nerve-wracking."* An Australian Technology Network vice chancellor noted: *"If we have some sort of broad policy stability, we can handle the changes. At times to me, policy stability is even more important than resources because I can work out the resource issues if I have stability*

In addition, there were several more specific issues identified by a small group of leaders: new means and mediums for disseminating research results (open access journals, web based conferencing, etc.); more international university branches/campuses in Australia, especially in the event that the government makes them eligible for some public subsidy; more non-degree public and private providers (e.g. associate degrees, English as a Second Language (ESL) gateway programs, NAVITAS); greater diversity in the types of degrees and time-lines to complete degrees; expanded types of learning settings with decreasing numbers of large lecture halls/theatres; greater undergraduate student interest in internships and service learning opportunities, and; development of general education programs and liberal arts colleges for undergraduates.

Strategic planning, leadership and the global context

This report examined a number of key issues facing the Australian university system and explored the insightful perceptions of a diverse group of experienced leaders within both the system and the Australian government. Clearly Australian universities have a rich history and foundation, and the capacity to remain highly successful nationally and internationally. However, the system is at a critical crossroads. Unless successfully addressed, several significant local, national and international developments and challenges may inhibit Australian universities from continuing to perform above expectations and as global leaders.

Many of these issues and changes are not unique to Australian universities. In a 2010 UNESCO Press book entitled *Trends in Global Higher Education: Tracking an Academic Revolution*, the authors highlighted some of their perceptions of the most significant forces shaping higher education worldwide. They concluded that the key engines of change consisted of "the massification of higher education in almost every country, the impact of information and communication technology and its impact on higher education, the 'public good/private good' debate, and the rise of the global knowledge economy and other manifestations of globalization."

Similarly, US universities are experiencing several of these same issues and developments. In a 2016 Chronicle of Higher Education article on the most critical developments in US higher education in the

last fifty years, several national leaders shared their views. Their perceptions of the most important developments included: the broadening of student access; online learning and digital resources; and the increasing role of contingent workers particularly in teaching students. Perhaps the most frequently and strongly identified change was expressed by Brian Rosenberg, President of Macalester College in Minnesota and a key leader on national and international councils, who observed: *"The single most consequential change has been the steady erosion of the notion that it is both good public policy and a wise investment for the country to spend dollars on the education of its citizens. Fifty years ago, there seemed to be something approaching consensus around this issue. That consensus no longer exists, and this is reflected in both the decline in state funding and the rhetoric that we hear from many politicians and many in the media."*

Cathy Davidson, Distinguished Professor and Founding Director of the Futures Initiative at the Graduate Center of the City University of New York, former Vice Provost at Duke University and author or editor of 18 books, also observed the negative consequences of failing to ensure that public funding for higher education is strong and viable. She forcefully stated*: "If you believe in democracy, if you believe in a strong middle class, if you believe in giving immigrants and working-class Americans the chance to rise above poverty in American society, then you absolutely must have a publicly funded educational system. We rob all of our futures by making public education unaffordable."*

The issues and developments facing Australian universities and universities worldwide provide both opportunities and challenges. We agree with the general consensus expressed by Australian leaders regarding critical needs and actions for a sustainable future. Two frequently identified are thoughtful, comprehensive long term **strategic planning** at multiple levels and stable and long term **public policy** at the national government level and potentially at the international level. This planning should include assessment of the opportunities and challenges to the individual university, the region, the Australian system of both public and private, as well as domestic and international institutions, and the broader international higher education context. This strategic planning and public policy may be even more important for Australian universities given their key position in the broader society and the challenged resource-based Australian economy.

Addressing the issues facing the future of Australian universities will require **strong leadership** throughout the system and country. One of the strengths of the system is the senior leadership itself which was revealed in this study by their thoughtful and insightful analyses of the issues facing the sector. They will be called upon increasingly to seek additional expertise, build new partnerships both within and outside the system and to respond to these challenges in new and creative ways. In this rapidly changing and dynamic environment, leaders must be informed, collaborative, proactive, and strategic. With Australian universities at a crossroads, it is timely to recall Winston Churchill's advice to leadership, "We must take change by the hand or rest assuredly, change will take us by the throat".

Appendices

Appendix A - Leaders Interviewed

Surname	Role category at time of interview	Institution at time of interview
Allison	University senior executive	University of Tasmania
Anderson, I.	University senior executive	University of Melbourne
Anderson, K.	University senior executive	UWA
Baker	University senior executive	ANU
Baly	Public sector executive	Dept. of Ed.-Intern.
Barlow	Policy analyst	Barlow Advisory
Bazzacco	Public sector executive	CSIRO
Bebbington	Vice-Chancellor/President	University of Adelaide
Bell	University senior executive	Charles Darwin University
Black	Senior management	University of Melbourne
Borthwick	Public sector executive	Dept of Ed.
Brand	University senior executive	James Cook University
Brass	Policy analyst	AU Acad. Of Humanities
Brett	Policy analyst	La Trobe University
Brungs	Vice-Chancellor/President	University of Technology Sydney
Byrne	CEO	ARC
Calford	University senior executive	University of Tasmania
Carr	Senator	Parliament
Carvalho	Public sector executive	Dept. PM & Cabinet
Carroll	University senior executive	Charles Darwin University
Chapman	Professor/policy advisor	ANU
Chubb	Chief Scientist	Fed. Govt.
Clerk	University senior executive	University of Tasmania
Coaldrake	Vice-Chancellor/President	Queensland University of Technology
Cocklin	University senior executive	James Cook University
Cooke	Public sector executive	Dept. Ind. Innov. & Sci.
Colbert	University senior executive	ANU
Cram	University senior executive	Charles Darwin University

Craven	Vice-Chancellor/President	Australian Catholic University
Croucher	Policy analyst	University of Melbourne
Darby	Policy analyst	Dept. of Ed./AU-US Emb.
Davis	Vice-Chancellor/President	University of Melbourne
Decker	Policy Analyst	Business Council of Australia
Dempster	Policy Analyst	Swinburne University
Dewar	Vice-Chancellor/President	La Trobe University
Dickenson	University senior executive	Queensland University of Technology
Docherty	University senior executive	UNSW
Duncan	Vice-Chancellor/President	University of New England
Elliott	University senior executive	University of Melbourne
Evans, A.	University senior executive	University of South Australia
Evans, S.	University senior executive	University of Melbourne
Fahey	Senior management	Ersnt & Young
Fields	University senior executive	UNSW
Finkel	Chancellor	Monash /Acad. Tech Sci & Eng.
Freshwater	University senior executive	UWA
Gardner	Vice-Chancellor/President	Monash
Garton	University senior executive	University of Sydney
Glover	Vice-Chancellor/President	Western Sydney University
Goedegebuure	Professor/senior manager	University of Melbourne
Gonski	Chancellor	UNSW
Grange	University senior executive	ANU
Harding, M.	University senior executive	ANU
Harding, S.	Vice-Chancellor/President	James Cook University
Hart	Public sector executive	Dept. of Ed.-International
Hazlehurst	Public sector executive	Dept. Ind., Innov. & Science
Hearn	CEO	WUN-Worldwide Uni Network
Heywood	University senior executive	University of Tasmania
Hilmer	Professor/former Vice-Chancellor/President	UNSW
Høj	Vice-Chancellor/President	University of Queensland
Holmes	President	AU Acad. Of Science
Holt	CEO	Fulbright Comm.
Honeywood	CEO	Int. Ed. Assoc. of AU

Hourigan	University senior executive	University of Queensland
Hughes-Warrington	University senior executive	ANU
Ireland	Public sector executive	CSIRO
Ivison	University senior executive	University of Sydney
Jacobs	Vice-Chancellor/President	UNSW
James	University senior executive	University of Melbourne
Johnson	Vice-Chancellor/President	University of Western Australia
Kift	University senior executive	James Cook University
King	CEO	Innovative Res. Unis.
Kristjanson	Vice-Chancellor/President	Swinburne University
Lang	University senior executive	UNSW
Larkins	Former University senior executive	University of Melbourne
Leeser	Policy Analyst	Australian Catholic University
Lithander	University senior executive	ANU
Maddocks	Vice-Chancellor/President	Charles Darwin University
Makkai	University senior executive	ANU
Markwell	Policy analyst	Advisor, Education Minister
Marshman	University senior executive	University of Melbourne
Martin, I.	University senior executive	UNSW
Martin, L.	Senior management	TEQSA
Massaro	Policy analyst	University of Melbourne
McCulloch	Senior management	National Tertiary Ed. Union
McMillen	Vice-Chancellor/President	Newcastle University
McPhee	Former University senior executive	University of Melbourne
Meek	CEO	AU Acad. Of Sci.
Nerlich	Public sector executive	Dept of Ed.
Norton	Policy analyst	Grattan Institute
Parker	Vice-Chancellor/President	University of Canberra
Parolin	CEO	AU Acad. Of Humanities
Perkins	CEO	Reg. Uni Network
Quester	University senior executive	University of Adelaide
Rathjen	Vice-Chancellor/President	University of Tasmania
Robinson	CEO	Universities Australia
Sadler	University senior executive	University of Tasmania

Saha	Professor/former university senior executive	ANU
Saunders	Chief Commissioner	TEQSA
Schmidt	Vice-Chancellor/President	ANU
Schultheis	Policy Analyst	Curtin University
Sharma	University senior executive	Queensland University of Technology
Shergold	Chancellor	Western Sydney University
Sheil	University senior executive	University of Melbourne
Terry	Vice-Chancellor/Vice President	Curtin University
Teece	Deputy. Chief Exec.	Group of Eight
Trinadad	University senior executive	Curtin University
Urquhart	Public sector executive	Dept. Ind.,Innov.& Sci.
Venville	University senior executive	University of Western Australia
Vickers	Public sector executive	Dept. of Ed.
Watt	University senior executive	University of Western Australia
Wells	University senior executive	University of Melbourne
Withers	Senior management	Academy of Social Sciences
Wood	Senior management	NAVITAS-University Prog.
Wright	University senior executive	University of Queensland
Young	Vice-Chancellor/President	ANU
Zimmerman	Senior management	NAVITAS-Govt. & Stakeholder

Appendix B - Interview Schedule

University Interview Schedule

Interview Number _____ Date _____ Institution _____

Thank you for agreeing to participate in this study of the opportunities, issues and challenges facing Australian higher education in the 21st century as seen by several of its key leaders. Earlier I sent you an introductory letter and description of the project. Before we begin do you have any questions? To facilitate the interview I would like to tape our discussion. No personal references will be made or attributed to any individual.

1. a. First let me begin by asking you to briefly summarize your current and past leadership roles in Australian higher education.

       b. What has been your most satisfying or major accomplishment?

       b.   What has been your most frustrating aspect or greatest disappointment?

2. What do you consider to be the major forces and developments in the last 15-30 years that have shaped Australian higher education?

3. What do you see as the major developments or forces shaping Australian higher education in the next 15-30 years?

4. What do you see as the major opportunities to strengthen and enhance Australian higher education?

5. What do you see as the major issues and challenges facing Australian higher education?

6. Here is a list of several opportunities, issues and challenges that have been identified. Please take a few minutes to assess how critical each of these issues is for the future of Australian higher education in the next 15 to 30 years. Then review your evaluations and identify 3 or 4 that you consider most important. (Hand a one page sheet to the leader).

7. Are there any other issues that we have not identified or discussed?

8. In the next five years what do you think are the critical actions or decisions that need to be taken to ensure the successful future of Australian higher ed.?

9. Given these issues and challenges what do you think the Australian higher education system will look like in 20 years.

10. Is there anyone else I should consider interviewing?

11. I am planning to produce a report of my observations and findings from these interviews of key leaders and a review of previous reports. Would you like a copy?

Yes _____   No _____

Thank you once again.   Oct. 1, 2015

Appendix C - Survey Questionnaire

Australian Higher Education

Opportunities, Issues & Challenges

Below are several issues in higher education that have been identified. How critical are these issues for the future of Australian higher education in the next 10 to 20 years? Please rank from 1=not important, 2=slightly important, 3=moderately important, 4=very important, and 5=extremely important.

Generation of Knowledge	Not Important			Extremely	
1. Grand challenges (e.g. energy, climate change, food security)	1	2	3	4	5
2. Research infrastructure	1	2	3	4	5
3. Interdisciplinary centers	1	2	3	4	5
4. Big data/computer infrastructure	1	2	3	4	5
5. Start-up research packages	1	2	3	4	5
6. Basic/applied/develop balance	1	2	3	4	5
7. University/industry research partners	1	2	3	4	5
8. Other (specify) _____	1	2	3	4	5

Dissemination of Knowledge					
1. Student accessibility	1	2	3	4	5
2. Student learning outcomes	1	2	3	4	5
3. Life-long learning/continuing ed.	1	2	3	4	5
4. Educational tech/on-line learning	1	2	3	4	5
5. Student financial aid/student debt	1	2	3	4	5
6. Deregulation of fees	1	2	3	4	5
7. Competition (non-university/interntl)	1	2	3	4	5

8. General ed. & profession ed. balance	1	2	3	4	5
9. Other (specify) _____	1	2	3	4	5

Application of Knowledge

1. Address the needs of society	1	2	3	4	5
2. Promote technology transfer	1	2	3	4	5
(patents, start-up co., licensing)					
3. Address government agendas	1	2	3	4	5
4. International development	1	2	3	4	5
5. Other (specify) _____	1	2	3	4	5

Infrastructure, Human Capital, Resources & Administration

1. Strategic planning	1	2	3	4	5
2. Federal budget support	1	2	3	4	5
3. Role of state governments	1	2	3	4	5
4. Faculty (tenured, part-time, etc.)	1	2	3	4	5
5. Shared governance					
(admin/academic staff)	1	2	3	4	5
6. Philanthropy/fund raising	1	2	3	4	5
7. Health/Pension costs	1	2	3	4	5
8. Govt. regulations/standards	1	2	3	4	5
9. Other (specify)_____	1	2	3	4	5

General Issues Encompassing all Functions

1. Internationalization	1	2	3	4	5
2. Diversity	1	2	3	4	5

3.	Accountability	1	2	3	4	5
4.	Partnerships	1	2	3	4	5
5.	International rankings	1	2	3	4	5
6.	Other (specify)_____	1	2	3	4	5

Appendix D - List of Acronyms

AAH   Australian Academy of the Humanities

AAS   Australian Academy of Science

ABS   Australian Bureau of Statistics

ACG   Australian Competitive Grants

ALP   Australian Labor Party

APRU   Association of Pacific Rim Universities

AQF   Australian Qualifications Framework

ARC   Australian Research Council

ARWU Academic Ranking of World Universities

ASSA   Academy of the Social Sciences in Australia

ATN   Australian Technology Network

ATSE   Australian Academy of Technological Sciences and Engineering

BCA   Business Council of Australia

CAE   Colleges of Advanced Education

CEQ   Course Experience Questionnaire

CSIRO Commonwealth Science and Industrial Research Organisation

CSP   Commonwealth-Supported Places

DET   Department of Education and Training

EFTSL   Equivalent full-time student load

ERA   Excellence in Research for Australia

FTE   full-time equivalent basis

GCA   Graduate Careers Australia

Go8   Group of Eight

HDR   higher degree research

HECS   Higher Education Contribution Scheme

HELP   Higher Education Loan Program

HEPPP Higher Education Participation and Partnerships Program

HERD   Higher Education Expenditure on Research and Development

HESP   Higher Education Standards Panel

IEAA   International Education Association of Australia

IRU   Innovative Research Universities

NHMRC National Health and Medical Research Council

NTEU   National Tertiary Education Union

NUS   National Union of Students

OECD   Organisation for Economic Co-operation and Development

RFM   Relative Funding Model

RTS   Research Training Scheme

RUN   Regional Universities Network

TEQSA Tertiary Education Quality and Standards Agency

UNS   Unified National System

UA   Universities Australia

VET   Vocational Education and Training

WUN   World Universities Network

Appendix E - Authors' Brief Biography

Andre Brett is a Vice Chancellor's Postdoctoral Fellow at the University of Wollongong. He researches widely in political, economic, environmental, and transport history and takes a particular interest in the formation, modification, and demise of institutions. He is the author of *Acknowledge No Frontier: The Creation and Demise of New Zealand's Provinces* (2016).

Gwilym Croucher is Senior Lecturer in the Melbourne Centre for the Study of Higher Education, as well as Principal Policy Adviser in the University of Melbourne's Chancellery. He is a 2017-18 Fulbright Scholar and visiting research fellow at the University of California, Berkeley. He has published several books on higher education policy and is currently a Chief Investigator on an Australian Research Council Discovery Project.

William B. Lacy is Professor of Sociology in the Department of Human Ecology at the University of California, Davis and Affiliated Professor at the Center for Studies in Higher Education at the University of California, Berkeley. Previously he served as senior administrator and professor at the University of Kentucky, Penn State University, Cornell University and the University of California, Davis and president of three international professional organizations. He has had Fulbright Fellowships in Brazil and Japan and is a Fellow in the American Association for the Advancement of Science.

Romina Mueller is a doctoral candidate in higher education at the Leuphana University of Lueneburg, Germany. Her research focuses on exploring how universities respond to the challenges of catering for non-traditional students.

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