Review of Australian Higher Education

ATN RESPONSE

Introduction

As a group of universities committed to the national and international agenda, the **Australian Technology Network of Universities (ATN**) welcomes this review and the opportunity to contribute to it.

Australian higher education brings significant economic, social and cultural benefits to the Australian community. With a commitment to providing high quality professional and vocational education, research oriented towards the needs of industry and the community and a genuine focus on international education, the ATN is a major partner in delivering those benefits.

A strong commitment for the next two decades and beyond is required from all stakeholders – government, industry, the professions and universities - to ensure we have a sustainable, world class university system.

This submission will address the key themes identified in the Discussion Paper and the current challenges that the ATN as a network would like to emphasise, noting that individual ATN members will make their own more detailed submissions to the Review.

Executive Summary

- Australia has committed to an education revolution as an investment in Australia's future. Attention to tertiary education is vital because of its role in development of new knowledge, encouragement of innovation and building the capabilities on which professions, services and industries depend.
- There are currently significant skills shortages in many fields, and demographic projections suggest that without major investment and new strategies those skill shortages will be more acute in the coming decade.
- The university sector, through its pivotal knowledge creation role, plays an important and unique role in Australia's innovation system. Not only does it educate the research workforce and produce skilled graduates, but it is also engaged in extensive knowledge transfer and research activity.
- There is a fundamental role for higher education institutions in building social, economic and cultural development in the community. Universities are an integral part of local, regional, national and international networks influencing the political, social, cultural and economic climate. They act as catalysts for positive change and development.
- A series of goals should be identified for the higher education sector that reflect aspirations for the sector and its contribution to national wealth and well being. These goals should be built around participation, both by domestic and international students; research expenditure and the quality of our national system in relation to international benchmarks:

- An increase of 10% (to 33%) of adult population with a higher education degree qualification (and within this research higher degree graduates) Participation for disadvantaged groups should be increased so that it is more in proportion to their representation in the population, specifically:
  - Low SES students to increase from 15% to 20% in the next five years, with further targets set for 25% participation
  - Indigenous students to increase from 1.25% to 2.4% in the next 10 years
  - A target of 17% for mature age students with no existing tertiary qualification to be set [1]
- 25% of our higher education students should be international and should also be reflected in the proportion of international students in research programs
- Gross domestic expenditure on research and development of *at least* 2.5%, including an aspiration to increase the proportion of research expenditure from industry
- Australia should aim to be in the top five among national university systems (as measured by the QS system ranking).

- Government should work with industry, the community and institutions in determining how these targets can be met. Partnering with industry to develop the necessary skilled graduates, and delivering research that enhances Australia's productivity is critical to ensuring a sustainable, world-class higher education sector.
- The achievement of these goals for the sector provides a framework for future directions for higher education institutions so specific institutional goals can be identified and agreed with government.

Recommendations

<u>The Strategic Context</u>

1. **A series of goals should be set for the higher education sector which reflects Australian aspirations for the sector and its contribution to national wealth.**
2. **These goals should be built around participation, both by domestic and international students; research expenditure and global positioning in terms of our national system**
3. **Suggested targets are:**
   - **33% of our adult population with a higher education qualification (and within this research higher degree graduates).**
   - **Participation for disadvantaged groups increased so that it is more in proportion to their representation in the population, specifically:**
     - ***Low SES students to increase from 15% to 20% in the next five years, with further targets set for 25% participation***
     - ***Indigenous students to increase from 1.25% to 2.4% in the next 10 years***
     - ***A target of 17 % for mature age students with no existing tertiary qualification to be set***
   - **25% of our higher education students should be international and should also be reflected in the proportion of international students in research programs.**

[1] 12% of Australians aged 25-64 participated in post secondary formal learning in 2005-2006 (ABS Adult Learning in Australia 2006-07 Cat 4229.0

- **Gross domestic expenditure on research and development of *at least* 2.5%, including an aspiration to increase the proportion of research expenditure from industry.**
- **Australia should aim to be in the top five in the upcoming QS measure of national university system strength.**

Meeting Labour Market and Industry Needs – Opportunities to Participate in Higher Education

4. **A national tertiary education agreement be adopted for the harmonisation of funding and regulatory arrangements across higher education and VET regarding the broad objectives of tertiary education provision.**
5. **Consultation with providers should take place to ensure that any increase in government-supported places consider methods to support using those places to attract students who are from low SES and non-traditional backgrounds.**
6. **The current scholarship scheme and income support system should be integrated.**
7. **The number of Commonwealth Learning Scholarships should continue to increase.**
8. **University-provided needs-based (low SES) scholarships should be exempt from the income test of the Social Securities Act and the Veteran's Affairs Act.**
9. **The Indigenous Access Scholarship (IAS) program should be expanded to ensure that Indigenous, low-SES students who enrol in University are eligible for the IAS.**
10. **The ITAS scheme should be expanded to support Indigenous students undertaking an enabling/foundation program in an approved higher education institution.**

Higher Education's Role in the National Innovation System

11. **The current assumed national investment in University research (i.e. three times the current grant amount) should be set as an initial ceiling to guide 2009 modeling and negotiations for the funding of research.**
12. **Potential contributions to public research overheads available via different funding mechanisms should be modeled, with policy then developed to deliver an increase in the quantum of national research investment.**
13. **Government investment in research and development should be increased to cover indirect research costs of competitive grants and implemented through an immediate increase to the RIBG.**

Australia's Higher Education Sector in the International Arena

14. **The Review recognise and affirm the importance of Australia's international higher education industry; not just to the quality, viability and reputation of the sector, but to the nation. From this should flow the following actions:**
    - **ESOS legislation and its accountability requirements should be reviewed with the specific intent of removing unnecessary impediments to Australia's recruitment and support for international students. In particular, Australian government preferred arrangements regarding use of education recruitment agents, visa requirements and institutional and student reporting requirements need to be re-examined in this light.**

- **There need to be greater sanctions for providers who breach the Act and the overall compliance mechanisms should be integrated with broader regulatory oversight of post-secondary education.**
- **Government should develop a `brand Australia' international education marketing strategy (perhaps through Australian Education International [AEI]) and establish closer links between AEI and other government departments to support the development and ensure the sustainability of international education.**
- **Government should set a goal for international students to comprise 25% of students in Australian higher education institutions, and explore and develop practical industry support schemes similar to those provided to other significant export industries.**

Resourcing the System

15. **The ATN recommends a funding model which is flexible and transparent and supports the full cost of teaching and research.**
16. **A fully funded government investment model be developed for public higher education providers or for student places that are identified as needing to attract government investment that caps and sets government investment at a competitive international level.**

Governance and Regulation

17. **The establishment of a national accreditation body that reviews all degree-offering institutions (including universities, TAFEs and private providers) to ensure consistency, remove duplication of effort and ensure a minimum standard of quality to all post-secondary students in Australia.**

1. The Strategic Context

In order to determine what role higher education institutions will play in Australia's future prosperity we should evaluate the current performance of our sector relative to those of comparable nations, and set meaningful targets for the future.

There is increasing recognition that, in a national context, individual university 'rankings' are not as important as the strength of a nation's university system as a *whole*. Quacquerelli Symons (QS) Ltd, the company responsible for producing the Times Higher Education Supplement World University Rankings, have acknowledged a need for a measure designed to assess the quality of higher education systems and are currently developing a methodology.[2] Under the current working model, which incorporates measures of average performance of universities across the system; access to higher education; performance of a 'flagship university' and quality of system in relation to economic strength, Australia ranks 4th (behind the U.S., U.K. and Germany).

The ATN has argued that Australia should focus on what it takes to produce a world-class university system. In a country as small as Australia we need more than one or two 'top 10' universities – we require a commitment to excellence across the entire university system. So Australia must ask itself what it takes to produce a world-class university system. What are the objectives or goals, how are they measured and how will we know we have achieved them? We believe there are some simple and broad objectives. Australia must have high quality graduates who will supply the abilities and skills the nation needs for its social and economic future, and internationally connected research that will foster innovation and a better future.[3]

Achieving this goal will require a focus on three elements: scale, quality and international education. Australia needs sufficient graduates and research output to provide the intellectual and technical input that drives a sophisticated economy.

OECD data shows Australia placed 8th in the OECD in terms of the proportion of graduates in the population, with 32% of its 25 to 64 year old population having degrees in 2005. This proportion has been increasing over time and whilst it is a strong performance, we remain behind a number of other high-skill nations and growth is less than has been calculated Australia needs for the future.The need for skilled graduates will only increase in the medium term. A recent study prepared for the Victorian Office of Training and Tertiary Education projected a shortfall of 49,000 people with higher education qualifications by 2022.[4] Given the three to four-year lag in providing these much-needed skills, making the right changes now becomes imperative.

[2] Sowter, B (2008) *World University Rankings: Beneath the Surface*, presentation to Fourth QS Asia Pacific Professional Leaders in Education Conference
[3] Gardner, M. (2008) *A Top 10 University System for Australia*, Paper presentation to 2008 AFR Higher Education Conference
[4] Burke, G., L. Cooper and C. Shah (2007) *Industry Demand for Higher Education Graduates in Victoria 2000-2022*, Report prepared for the Office of Training and Tertiary Education

OECD statistics also show that, whether measured by expenditure per capita or as a percentage of GDP, Australian research and development expenditure does not rank in the top 10, and is well below the OECD mean. Moreover investment by industry in Australian research and development is much less than in most of the top 10 nations.

So there is an urgent and large policy agenda for tertiary education to meet these short and medium-term challenges. There is also another significant reason for focusing on the system and this is the relatively small size of the Australian population. Australia must ensure its graduates and its research are connected to growing global education and research networks, and as a small nation its ability to do so requires some reasonable coverage of key fields in order to do so.

The ATN recommends:

1. ***A series of goals should be set for the higher education sector that reflects aspirations for the sector and its contribution to national wealth.***
2. ***These goals should be built around participation, both by domestic and international students; research expenditure and global positioning in terms of our national system***
3. ***Suggested targets are:***
    - ***33% of our adult population with a higher education qualification (and within this research higher degree graduates).***
    - ***Participation for disadvantaged groups increased so that their participation is more in proportion to their representation in the population, specifically:***
        - *Low SES students to increase from 15% to 20% in the next five years, with further targets set for 25% participation*
        - *Indigenous students to increase from 1.25% to 2.4% in the next 10 years*
        - *A target of 17% for mature age students with no existing tertiary qualification to be set*
    - ***25% of our higher education students should be international and should also be reflected in the proportion of international students in research programs.***
    - ***Gross domestic expenditure on research and development of at least 2.5%, including an aspiration to increase the proportion of research expenditure from industry.***
    - ***Australia should aim to be in the top five in the upcoming QS measure of national university system strength.***

Further, Government should work with industry, the community and institutions in determining how these goals can be met. The achievement of these goals can provide a framework for future funding compacts between higher education institutions and government within which specific institutional goals can be identified and agreed.

These goals underpin the ATN submission and will be elaborated on in further detail under the relevant themes.

2. Meeting Labour Market and Industry Needs

Australia needs sufficient graduates to provide the intellectual and technical input to drive a sophisticated economy. As outlined above, OECD data places Australia 8th in the OECD in terms of proportion of graduates in the population[5] . The current proportion is less than some other high skill developed economies, and this is something Australia should consider in setting its goals.

A relevant further question is whether we are improving or declining in terms of this proportion of graduates. Evidence suggests that the proportion of graduates in the population is increasing. The policy question is what proportion of graduates does Australia believe is needed?

In the context of meeting market needs, forecasting the demand for labour beyond a few years into the future, is extremely difficult. There are a variety of models available to economists, notably the Monash model[6] that attempt this task but as economies are affected by many forces that cannot be predicted with any certainty beyond a short timeframe, post secondary education policy is difficult.

At the same time, businesses are undergoing significant change responding to new technology, governmental policy, and consumer preferences and need a workforce that is equally responsive.

In an economy that is enjoying unprecedented low levels of unemployment, we are seeing high levels of mobility by workers. More than ever the environment is one that sees employees moving in and out of occupations, learning new skills and demanding greater flexibility in working conditions. There no longer exists a simple direct relationship between education and a single lifetime occupation. Many have qualifications that they do not utilise in their current job, hence the rise of the 'portfolio' worker.

Further, in predicting future educational requirements for a productive workforce the current environment allows the focus to turn to what people *want* to study, (rather than what future employers are anticipated to need) based on where the future job opportunities lie.

Estimates suggest that it is likely that there will be a need for some 30% of the working population to be graduates by 2016[7]. Such a goal would require increased numbers of Australian students graduating in the next five years or so.

Australia performs relatively well in terms of the proportion of adults with a degree qualification (Type A) as indicated in Table 1 – Appendix 1. Nearly one quarter or 23% of Australians holds a degree. This places Australia 7th out of OECD countries for this indicator.

[5] OECD (2007a) *OECD in Figures,* Paris

[6] Centre of Policy Studies (CoPS) has developed *MONASH*, a dynamic computable general equilibrium (CGE) model of the Australian economy designed for forecasting and for policy analysis. The initial applications of *MONASH* were made for State and Commonwealth government departments requiring detailed employment forecasts.

[7] Burke, G. and Shah, C (2006) *Qualifications And The Future Labour Market In Australia*, Report prepared for the National Training Reform Taskforce.

Where Australia needs to improve its performance is in the proportion of adults with a vocational qualification (Type B) and/or research qualifications (Advanced Research). An increasing number of Australians taking up these qualifications, in addition to undergraduate degrees, will help to shift the overall proportion of educated Australians to 33% of the population and beyond. (Table 2 – Appendix 1)

Australia is currently positioned 16th for tertiary participation and should aspire to top ten 10 ranking for this indicator to result in any significant shift in attainment rates (Table 3 – Appendix 1).

2.1 Meeting Labour Market and Industry Needs – Aligning the Systems

Currently the Commonwealth Government lacks the constitutional power to comprehensively legislate for the university sector unilaterally.[8] However it does, by a combination of centralising policy and desire to match regulatory power to financial commitment currently possess and exercise substantial control over the sector.

The Commonwealth regulates some aspects of universities (eg finances, fees) but does not directly regulate governance.

This current legislative system has ramifications for universities' capacity to adequately plan for and respond to the dynamics of labour requirements, and hence their capacity to contribute effectively to building the nation's capabilities.

To provide a means for more effective, consistent and streamlined oversight of higher education it would be desirable for a national tertiary education agreement between the State and Federal Governments, loosely based on the current Commonwealth-State Housing agreements model.

Such an agreement should seek to harmonise the funding and regulation of higher education, vocational education and training and adult education and remove the requirement for different reporting requirements at State and Federal levels. This would facilitate linkages between institutions across state and sectoral borders and provide a single authority for the accreditation of new providers. Any national tertiary agreement should represent co-operative action between the Commonwealth and the States.

Such an agreement would serve to develop and deliver a higher education sector that is flexible, responsive to labour market needs (while recognising national priorities) and importantly, unencumbered by too many different levels. Such agreements would ensure consistency with broader national objectives while at the same time effect balance between student demand and labour market needs that meet the circumstances of each State.

[8] Craven, G (2005) *Commonwealth initiative to take regulatory control of higher education*. Context notes for Western Australian universities

The ATN recommends:

4. A national tertiary education agreement be adopted for the harmonisation of funding and regulatory arrangements across higher education and VET regarding the broad objectives of tertiary education provision.

2.2 Meeting Labour Market and Industry Needs - Opportunities to Participate in Higher Education

ATN universities enrol 20% of the nation's students, 19% of low SES students, 14% of disabled students and 17% of indigenous students. Our retention rate across the ATN of disadvantaged students is above the national average. With more than 180,000 students studying at an ATN University across the nation, the ATN places a high priority on ensuring a university education is available to all whom seek it.

We believe Government should set targets for increased participation from disadvantaged groups so that participation rates are in proportion to their representation in the population, in the next decade. As outlined earlier, we believe that specific targets need to be set for these groups, including low SES students (from 15% to an eventual 25%) and indigenous students (from 1.25% to 2.4%). We also believe that it is important that a target be set to open opportunities for mature age students who have not previously undertaken tertiary study.

As large providers of education to mature age students, we also believe that there is a need to broaden the notion of participation beyond the current reference to indigenous and low SES and within the challenge of increasing the proportion of the population participating in higher education. It is not as straightforward as increasing places; it requires improving the access of disadvantaged groups and the re-training of those in the workforce. As previously mentioned, the current and (foreseeable) economic climate means that workers have increased choice over the type of work they do and how they want to be employed. This has consequences for the older learner, where their participation in work-related education varies according to their gender, educational attainment, non-work related responsibilities and their age. However it is crucially important that this cohort be encouraged to undertake post-secondary education. By 2016, over four million Australians will need to acquire qualifications in order to provide the labour needs of our future workforce. Of these, 1.78 million will need to be existing workers.[9]

Older workers face barriers to participation that include financial, access, employer attitudes and, significantly, doubts about their capacity to succeed, to name a few. Recent studies [10] show that while the number of workforce participants in the 45-64 year age group has grown, there is significant decline after age 55. There is therefore an important role for higher education to work in parallel with industry and government to provide pathways and opportunities for increasing participation of this important demographic.

[9] Burke, G. and Shah C (2006) *Qualifications And The Future Labour Market In Australia*, Report prepared for the National Training Reform Taskforce.
[10] Ferrier F, Burke G, Selby Smith, C (2008) *Skills development for a diverse older workforce*

The ATN would seek a national policy framework which puts the interests and needs of Australian students first and leads to reforms that will act as an incentive for the deterred or discouraged students, be they disadvantaged by income, age or background.

An element of this approach would be an expanded and more carefully targeted national tertiary scholarship scheme. This scheme, whilst maintaining a focus on increasing participation among key groups who are currently under-represented in terms of population share, should also recognise the disadvantage faced by older working Australians who are unemployed, under-employed and/or face significant financial barriers to participating in higher education because of their financial commitments. Such a national scholarship scheme would also reflect the relationship between school policy and tertiary education policy in achieving greater participation by groups currently under represented.

The ATN recommends:

5. ***Consultation with providers to ensure that any increase in government supported places consider structuring and targeting those places to attract students who are from low SES and non-traditional backgrounds.***
6. ***The current scholarship scheme and income support system should be integrated. Across the ATN, at least 81% of CLS recipients are also in receipt of Centrelink benefits.***
7. ***The number of Commonwealth Learning Scholarships should continue to increase to meet a greater percentage of students of low SES background in universities. Only 5% of students are receiving CLS and there is considerable unmet demand. The ATN recommends an increase to 10%.***

Student poverty is a significant barrier to participation and retention in higher education, and to the development of a skilled and flexible workforce. Adequate financial support, for a broad range of students, which enables them to study and apply themselves, is in the students' and in Australia's best interest. There needs to be a complete overhaul of the student income support system and this should include a rationalisation of Commonwealth Scholarship and income support mechanisms.

The ATN recommends:

8. ***University-provided needs-based (low SES) scholarships be exempt from the income test of the Social Securities Act and the Veteran's Affairs Act. About 15% of University–provided need-based scholarship recipients have their Centrelink benefits affected.***

Australia needs a national approach to equity which supports and rewards institutions implementing new models of recruitment and support. Whilst there are pockets of excellent practice – such as the University of South Australia's whole-of-institution long term effort in terms of outreach programs – there is little national co-ordinated effort. The recently established National Centre for Student Equity, which is based at the University of South Australia and involves the majority of ATN members is a vehicle which should advise on this coordinated effort as well as providing advice, monitoring and quality assurance of in this area.

With regard to indigenous students, any national program should allow for Indigenous Units to continue to play a key role in the recruitment and support of Indigenous students, within the context of the supported local area partnerships. Affordability is a key issue for prospective Indigenous students and the current Indigenous Access Scholarships (IAS) are a

significant way forward. The IAS is aimed particularly at Indigenous students who need to relocate from regional and remote areas to commence an undergraduate degree or enabling course. It is a once in a lifetime payment that requires an applicant to be in receipt of a Commonwealth income support payment or provide evidence of financial hardship.

The ATN would recommend that these be extended to ensure that indigenous, low-SES students who enrol in university are eligible for the IAS. This would allow students to have some certainty about their finances and would prevent the current clumsy institution-based allocative process.

There is also a need to ensure the ongoing success of Indigenous students once they have commenced in a higher education program. The Indigenous Tutorial Assistance Scheme (ITAS) provides intensive support to indigenous students from primary to tertiary education through extra tuition. However the current guidelines do not allow for the scheme to include those students undertaking an enabling or foundation program, programs that provide the critical means for student success at higher levels of learning. The ATN therefore further recommends the extension of the current ITAS to include those students who have commenced in an enabling program of study.

The ATN recommends:

9. The Indigenous Access Scholarship (IAS) program should be expanded to ensure that Indigenous, low-SES students who enrol in University are eligible for the IAS.

10. The ITAS scheme should be expanded to support Indigenous students undertaking an enabling/foundation program in an approved higher education institution.

3. The Student Experience of Higher Education

Learning outcomes vary across the Higher Education sector according to level of qualification, discipline and professional setting.

Current assessment of learning and teaching outcomes has been through the data available from national surveys of graduates. There are issues with the quality of collection given its variable and decentralised methods. There remain issues to be addressed about whether the current instrument is the most effective for measuring quality and outcomes. The currently-used questionnaire was constructed some decades ago and for different purposes. It is important that there is a mechanism for supporting and rewarding excellence in outcomes in learning and teaching. Recognition of improvement is also vital. It is clear, as with research, that results vary greatly by field of study, a feature recognised in the current LPTF methodology, albeit at an insufficiently fine-grained level.

Two matters need attention for the future:

1. Research to develop or validate a national instrument that will measure effectively excellence in learning and teaching must be undertaken.
2. Consideration of effective, valid and standardised methods of collection of national data on these matters.

Consideration also needs to be directed towards the actual processes and organisations involved in the collection of data. The various roles of the Commonwealth Government, universities and third-party organisations should be reviewed with consideration given to the following:

- The development of a national instrument to evaluate learning and/or teaching.
- The effectiveness of standardised (LTPF) versus tailored (portfolio) reporting/review.
- Appropriate sources of feedback (ie students, employers, universities, other stakeholders).
- Timing of feedback (eg during enrolment or after graduation).
- The relative prioritisation of performance monitoring and the improvement of outcomes within the quality cycle.
- Value adding for universities, employers, students and the wider community.

Tracking Outcomes and Global Competitiveness
Australia must develop a set of metrics that will appropriately measure the quality of our overall system while recognising the diversity of individual institutions. If done properly, this will enable evidence-based policy development as well as targeted investment, and reward meaningful efforts that are aligned with national targets.

In the absence of a system which adequately tracks the quality of universities in terms of teaching and learning quality and with only indirect measures of learning outcomes available *(employment rates, employer surveys etc)* commentary about the quality of Australia's higher education sector has been strongly influenced by international rankings. The two rankings which have been dominant in general commentary are the *Shanghai Jiao Tong* (SJT) which is focused exclusively on research quality, and the *Times Higher Education Supplement* (THES) rankings which covers a broader set of indicators. Neither ranking system captures all the elements that are critical to quality, particularly since there are no established international benchmarks for learning and teaching quality. This latter omission is a serious flaw of international ranking systems since education is a major function of universities.

It is for this reason that the ATN has argued that Australia should focus on what it takes to produce a "world-class" university system, not just a few top 10 universities. Recent work by QS has begun establishing measures for national university systems. As outlined, under the current working model, which incorporates measures of average performance of universities across the system; access to higher education; performance of a 'flagship university' and quality of system in relation to economic strength, Australia ranks 4th (behind the U.S., U.K. and Germany). This strengthens the case made by the ATN for considering Australia's overall goals.

The ATN recommends that Australia should aim to be in the top five among national university systems (as measured by the QS system ranking)

4. Higher Education's Role in the National Innovation System

The university sector, through its pivotal knowledge creation role, plays an important and unique role in Australia's innovation system. This sets it apart from other industry sectors. Not only does it educate the research workforce and produce skilled graduates, but it is also engaged in extensive knowledge transfer and research activity.

A national policy framework which underpins the significance of the national research agenda and recognises its role in the sustainability of our national university system is needed.

4.1 Funding

It is widely recognised that current research funding schemes to universities do not cover the full cost of activity[11]. Indeed, it is explicitly built in to research funding guidelines (eg ARC Discovery grants) that, as a condition of grant, universities are required to cover a large proportion of both operating and capital costs. However, no full-cost-of-research analysis has been undertaken across the sector and as a result the use of benchmarks and rules-of-thumb to estimate full costs predominate. The ATN has suggested a funding model which is outlined in Appendix 2.

The ATN is proposing using the well understood history of university research-related revenue and expenditure to give an effective starting point to determine the approximate current level of subsidy and hence the required increase in national investment. This would allow both a framework for identifying required increases to the overall funding pool and the establishment of negotiated cross subsidy benchmarks.

The key benefit of this approach is in effecting an immediate increase in funding to what is agreed by all parties to be vital but underfunded activity.

This has the following benefits:

- It provides a timely increase in funding to the sector and hence supports national innovation and competitiveness. This potentially includes increases to the quantum of Government support via the EIF without increasing Government expenditure in the short term.
- It avoids the inevitably complex, contested and ultimately inconclusive modelling processes suggested by current proposals.
- It is simple, transparent and light on `red tape'.

The ATN recommends:

11. The current assumed national investment in University research (i.e. three times the current grant amount) should be set as an initial ceiling to guide 2009 modeling and negotiations for the funding of research.

12. Potential contributions to public research overheads available via different funding mechanisms should be modeled, with policy then developed to deliver an increase in the quantum of national research investment.

13. Government investment in research and development should be increased to cover indirect research costs of competitive grants and implemented through an immediate increase to RIGB. Negotiation around compacts should reflect work with institutions to establish the annual gap between funded and unfunded expenditure based on individual ABS income and expenditure data (University of South Australia, a member of the ATN, has undertaken this exercise and may provide a model for application across the sector).

[11] AVCC 1996 *University research: Some issues*. 2) *Adding to Australia's Capacity – The role of Research Universities in Innovation*. Go8 April 2008. 3) The Australian Research Council's *Response to the Productivity Commission Draft Research Report into Public Support for Science and Innovation*. December 2006.

4.2 Workforce

The single biggest issue confronting the sector over the next decade will be the attraction and retention of quality staff. The issue will be exacerbated by an explosion in worldwide demand for English language academics, the retirement, worldwide, of a whole generation of academics, the low production of Australian postgraduate research students and higher investment by other countries into their tertiary sectors.

No higher education system can operate without the most critical element of all - a skilled workforce. Underpinning our research effort must be the capacity to build our skills base, both in terms of our graduate output and our research training.

A key issue for the future of Australia's innovation agenda is that of building academics and a research workforce to meet the challenges of the future. It is critical that workforce planning be taken into account when considering the future higher education landscape. While striving for innovation and investing significant funds into the tertiary and innovation system is a worthy goal, there begins to be diminishing returns if the researchers do not exist to drive that innovation.

Attention must be given to the expansion of our research base from undergraduate to trained researcher. There is currently a lack of interest in key disciplines for the innovation sector at a secondary school level. Physics, mathematics and chemistry, the traditional precursors for science and engineering studies at a university level, are suffering negative perceptions within schools and this affects their uptake by undergraduate students. Increasing the flow of students into SET courses within universities will be crucial if Australia is to build its research capacity for the future **as well as** its workforce for the future. We face sustained and significant competition from the emerging economies of India and China in this area.

In Australia, individual universities and networks are all struggling with these issues and attempting to address them. The ATN, for example, is currently trying to change the perception of careers in the sciences/engineering and examining alternate pathways into these degrees. We have also developed the ATN Graduate Certificate in Commercialisation to assist those who see research as a profession.

However major attention at a national level needs to be focused to address these issues, as they are systemic and can only be addressed in a relatively minor way by individual institutions. This current lack of demand, combined with the ageing workforce within universities, has the potential to create significant shortages in many fields.

4.3 Research Networks

The ATN recommends that the Higher Education Review consider the importance of a national funding system which supports an increased level of diversity in the higher education sector**.**

Some institutions may focus primarily on fundamental research and the academic quality of research outputs while others may focus predominantly on generating research outputs that will make a broader impact. A 'one size fits all' funding regime would not support the diverse range of research missions of different universities and would be detrimental to the development and growth of our innovation sector.

The ATN supports the principle of funding research networks that promote and ensure cross-disciplinary research in areas that will contribute to our national economic and innovation agenda. These networks, could work well in, for example, specialised discipline areas, equipment capacity constrained areas or where there is an identified research gap.

Different institutions also have very different research missions. The ATN, as previously articulated, is strongly focused on engineering and the applied sciences and on appliedresearch. Other institutions might have a strong focus on social science research, or medical research. All disciplines and types of research are important, and all have the capacity to bring asignificant 'net benefit'.

An argument could be made, for example, that a very strong funding focus for applied research would be more likely to produce measurable benefits, by its very nature. It would certainly not have a negative financial outcome for ATN universities. However a decline in basic research would decrease the stock of knowledge from which applied research builds. And distinguishing between basic and applied research is not a simple matter in most fields.

It is important that public funding continue to support a range of research disciplines and research at all stages of the continuum. The current funding regime has not advanced Australia's research efforts compared to international developments – indeed it has continued the downward trend in national investment in R&D. At the same time as Australia has been playing catch up, many of our major international trading partners, allies and competitors have made significant, increased and long-term commitments to R&D. We must do likewise. Government R&D budgets in OECD countries have increased annually by an average of 3.5% (in real terms) since 2000. Flowing from these commitments is the recognition of the importance of investment by governments in research carried out by publicly funded research agencies.

The ATN strongly believes that increasing the percentage of the nation's investment in R&D to a level comparable with our OECD counterparts is clearly required if we are to compete effectively. In terms of GDP, both the gross domestic expenditure on R&D (GERD) and expenditure on R&D in the business enterprise sector (BERD) in Australia are significantly below the OECD averages (Table 4 – Appendix 1).

Australia has to adjust to a globalising economy and the need for increased productivity for a host of reasons, not least that associated with an ageing demographic profile, and so there is a risk in taking a conservative viewpoint on the additional public benefit from increased public investment in R&D. It would be complacent and short-sighted to assume that, given the evidence of positive benefits and the large uncertainties in assessing these matters, our current below average BERD and our current level of public R&D investment will prepare us adequately for the future. Therefore, given the evidence provided, an increased investment in R&D to *at least* 2.5% of Australia's GDP is essential in order to ensure that the innovation system does not continue to lag behind current global trends in R&D investment.

4.4 Are there too many research active universities and academics in Australia?

It is often stated or inferred that the available research funding in Australia is currently spread too thinly across too many universities.

Interestingly the Barlow Report[12] provides evidence that:

- Australia has fewer universities per head of population than is true for the majority of other developed nations.
- Australia has, per capita, one of the largest academic research communities in the world, but research expenditures per researcher are at the lowest level in the developed world.
- At current growth rates it would take around 30 years before Australian R&D expenditure per researcher matched that of European countries.

The key issue in addressing how and where research activities should be concentrated is to recognise that when investment in research and research infrastructure in Australia is capped at levels below that of the OECD, any analysis of research 'strengths' will underestimate the capacity of the total pool of Australia's academic staff to deliver internationally research outcomes. While success in the Australian Competitive Grants (ACGs) scheme is a valid measure of research quality in many disciplines, the ACG success rate is capped by the availability of funds resulting in a success rate of approximately 20%. This means that any current analysis of research quality must significantly underestimate the capacity of the total pool of Australia's academic staff to deliver excellent research outcomes.

Australia is currently faced with two choices:

1. Increase research expenditure per academic staff member through greater investment in research from industry, business and government sources. Australia currently rankslast out of 26 countries in the OECD for research collaborations between industry and universities and second last for research collaboration between industry and public research organisations.
2. Increase the available R&D expenditure per researcher through a targeted reduction in research active academic positions in specific disciplinary areas within nominated institutions. This would inevitably occur against the background of an underestimation of the research capacity of Australia's newest universities and newest researchers. This could reduce the national pool of research trained academic staff, decrease the nexus between teaching and research in some institutions, limit recruitment of international students to Australia, reinforce the current hiring strategy of recruiting later rather than early career academic staff and likely limit the recruitment of academic staff to regional campuses across Australia with resulting economic consequences for those regions.

[12] *Barlow, T (2007) 'The State of Research in Australian Universities'*

Diversification of Australia's Research Activity

The Barlow Report highlights the importance of university R&D expenditure as a measure of research capacity and concentration. The Report highlights that there has been significant movement in the sector during the period 1998-2004, which indicates the dynamic responses of some of the newer universities to the challenge of building research capacity and signals that there is further likely 'market movement' in the sector. Barlow highlights five categories of university by scale of research activities with reference to the international sector.

Market Leaders (Top Four Universities by R&D Expenditure)

These four institutions each account for around 10% of Australia's university research expenditures. These institutions are the Universities of Sydney, Melbourne, Queensland and ANU.

Market Challengers (Ranked 5th to 8th by R&D Expenditure)

These institutions are sufficiently large enough to be able to compete with the market leaders. It is noted that the total R&D expenditure of the 8th ranked university was closer to that of the 9th ranked university than to the 7th ranked institution.

Market Movers (Ranked 9th to 16th by R&D Expenditure)

These universities individually spent between 2and 3% of total national university research expenditures. Barlow concludes that 'these institutions relatively modest scale should not prevent them from aspiring to be a national leader in one or two whole research fields'. These institutions include Curtin University of Technology, Queensland University of Technology, Griffith University, Newcastle University, Macquarie University, University of South Australia, University of Wollongong and the University of Tasmania.

Smaller Movers (Ranked 16th to 27th by R&D Expenditures)

Each institution in this group accounted for between 0.9 and 1.8% of total Australian university R&D expenditures. These institutions include La Trobe University, Flinders University, RMIT, Murdoch University, Deakin University, University of Western Sydney, UTS, James Cook, Swinburne University of Technology and UNE.

Niche Universities (accounting for less than 1% of national expenditures)

Outside the top 26 or so universities is a range of institutions, each of which accounts for <1% of national university R&D expenditures. Barlow highlights that the relatively low scale of R&D activities in these institutions is necessarily accompanied by relatively high levels of specialisation.

It is clear based on the above analysis that Australian research has benefitted from diversification of the higher education sector and that competitive market forces have resulted in the growth in research activity of newer institutions which have been successful through building scale and focus in particular areas.

4.5 Concentration of Australia's Research Effort

A number of measures have been proposed in the context of 'concentrating' Australia's investment in research. These include university R&D expenditure, total research income and measures of research quality of research outputs.

An interesting feature of an analysis of total research income earned in the six year period 2001-2006 *(separated into category 1 (ACG income), 2 (state and other commonwealth government income), 3 (industry and international income) and 4 (CRC income)* is the relative growth rates in each category of income across the entire sector (refer Table 5 – Appendix 1), the Go8 institutions (Table 6 – Appendix 1) and the group of newer institutions which comprise the **Australian Technology Network** (Table 7 – Appendix 1). The important feature of this analysis is that the growth in both ACG income and total research income in the newer institutions of the ATN has exceeded or matched that of the sector as a whole. This reflects the commitment to building scale and focus in these newer institutions and highlights the importance of using relative growth in research activity across a time period, rather than focussing on the static measure of research income in any one reference year.

5. Australia's Higher Education Sector in the International Arena

Australia is a leading nation in terms of building international education, onshore and offshore. It has been so successful that education is Australia's third largest foreign currency earner after coal and iron ore, and the country's largest services export delivering $12.9 billion to the economy[13]. As with all exports, success is a combination of price and quality. However it is noteworthy that Australia with 0.3% of the world's population has 6% of the international students[14] . Australia has a higher education system that attracts students from across the world. Clearly this has been built on the strength of the domestic system, but it is now of a scale that contributes to the overall development and quality of higher education in Australia and its outcomes.

International students made up 22% of total onshore Australian graduates from first degrees, some 53% of Australian second-degree graduates and around 19% of the higher degree research graduates from Australia in 2005 (OECD 2007:325).

Compared to the OECD, Australia has the highest proportion (17.3%) (see Table 8 – Appendix 1) of international students in higher education. This proportion well exceeds the OECD average of 6.7%. However, the proportion of international students in advanced research programs at 17.8% is behind five other OECD nations and only just above the OECD average, suggesting there is room for improvement to ensure that international research education is as strong as Australia's other performance[15].

International education is a key part of the Australian economy, not merely because of its contributions to skilled graduates and research, but through direct contribution to the demand for goods and services. International education is also critically important to higher education institutions; in terms of the contributions made by international students to campus life, to the education of their peers and to research. Their fees also contribute to ongoing institutional viability.

[13] ABS trade data, reproduced from Trade Topics: A quarterly review of Australia's international trade, Autumn 2008.

[14] It should be noted that Australia's share of international students has remained stable at 6% between 2000 and 2005.

[15] Gardner, M. (2008) *A Top 10 University System for Australia*, Paper presentation to 2008 AFR Higher Education Conference

However, for too long, international education has been treated as an ancillary funding stream for universities, when in fact it is what distinguishes the Australian higher education sector from other international systems. As other nations seek to emulate Australia's success, it is timely to question whether this industry is on a sustainable footing, and what needs to be done to maintain its success. As the Reserve Bank of Australia noted in its recent report on education exports, the combination of developing education capacity in countries which have historically imported Australian higher education and declining capacity of Australian universities to take more onshore students means that growth may slow in coming years.[16] If Australia wishes to remain a major provider of international higher education services, then we need to ensure that provision adapts to the changing needs of our own and other countries, that infrastructure is sufficient to support further growth on and offshore, and that the quality of provision is consistently maintained and improved.

In essence, Government needs to see international higher education as one of the key characteristics of a world class university system, and one which requires a whole-of-government approach to its support. This approach must extend to the raft of policy and funding regulation – in areas such as trade, immigration, foreign affairs and industry policy as well as in education – that affects this industry. This will require formal structures to ensure interdepartmental liaison and industry support from different levels of government. Such support can take different forms: for example, in seeking consistency in discussions around cross-border accreditation, and in providing diplomatic assistance when universities become the target of criticism or even boycott on the basis of a perceived slight to the policies of another nation Such a change requires an attitudinal shift on the part of governments. In the short term it would be helpful to have a specialised advice service located in DFAT to universities and other education and training institutions dealing directly withrepresentatives of a foreign government around sensitive diplomatic issues.

Government also needs to take a more proactive and effective approach to promoting the contribution of Australian higher education internationally: not just from the point of view of building international student numbers, but in terms of developing stronger awareness of the Australian higher education industry and encouraging international linkages in education and research.

Australian Education International (AEI) is the international arm of the Department of Employment, Education and Workplace Reform (DEEWR), and coordinates government-to-government relations, national quality systems and export marketing support. However, its focus is providers and government, and it does not actively promote Australian higher education to the world. This function is performed by IDP Education, a company owned by Australian universities and SEEK Ltd. Moreover IDP represents universities from countries beyond Australia for recruitment of students. The lack of engagement by the Australian Government with this project means that valuable opportunities to promote international education in the context of Australian exports more generally are not maximised. The UK, on the other hand, has the British Council, an executive non-departmental public body devoted to promoting internationalisation and the UK's contributions to the world. As such, it plays a strong and successful role in promoting UK international education and includes education leaders on its Board of Trustees.[17]

[16] RBA Assessment June 2008
[17] http://www.britishcouncil.org/

The ATN recommends:

14. The Review recognise and affirm the importance of Australia's international higher education industry; not just to the quality, viability and reputation of the sector, but to the nation. From this should flow the following actions:

- ***ESOS legislation and the accountability requirements which flow from it should be reviewed with the specific intent of removing unnecessary impediments to Australia's recruitment and support for international students. In particular, Australian government preferred arrangements regarding use of education recruitment agents, visa requirements and institutional and student reporting requirements need to be examined in this light.***
- ***There need to be greater sanctions for providers who breach the Act and overall compliance mechanisms should be integrated with broader regulatory oversight of post-secondary education]***
- ***Government should develop a `brand Australia' international education marketing strategy (perhaps through Australian Education International [AEI]) and establish closer links between AEI and other government departments, to support the development and ensure the sustainability of international education.***
- ***Government should set a goal for international students to comprise 25% of students in Australian higher education institutions, and explore and develop practical industry support schemes similar to those provided to other significant export industries.***

6. Resourcing the System

This paper refers to a number of targets that should be set to ensure world class status for Australia's university system. However there are fundamental barriers to achieving these targets. A greater level of flexibility in the current funding arrangements is needed. The Australian higher education sector needs a funding regime which is flexible and, importantly, transparent. The current system involves core operating grants overlaid with various special purpose programs. The principal unintended consequence of the current system is the steady erosion of the purchasing power of the operating grant, leading to imbalances between student load and staffing which are worse than many international comparators.

The ATN firmly supports the funding model as outlined by Professor Ross Milbourne in the UTS Submission to the Higher Education Review and discussed in part below.

There is a need to restructure the overall funding of higher education to support greater investment in education and research. The key areas that indicate a need to address the funding model are:

a. Increasing student-staff ratios, which are higher than many international comparators and are a clear indication of the inability of the sector to fund education adequately.

b. The unbalanced nature of pricing and funding for higher education places. Simply international student fees are providing 40% of the total funding for higher education despite making up less than one- quarter of the students.

6.1 Staff-student ratios

The quality of Australia's higher education experience is directly related to the quality of staff, student-staff ratios, and the resources available for educational support. For the last decade, public funding per student, in nominal dollars, has risen by between 1-2% p.a., whereas salaries to attract and retain staff, and costs of infrastructure have risen by 4-5% p.a. This means that, other things being equal, every year universities have had to say goodbye to 3% of their staff; a cumulative effect per student of over 30%. As a result, student-staff ratios have risen from 14:1 to 21:1, and the pipeline of graduate research students has fallen because of a lack of interest in an academic career given relative professional remuneration and workloads.

In some circles there is a view that Australia has found a way to deliver an education system as good as its international competitors at lower cost. Rising student-staff ratios are referred to as indicators of increased productivity. However, this view ignores the clear compromise in quality which has been required for the Australian higher education sector to survive when compared to our international competitors.

The financing problem for many Australian universities has been partially ameliorated by international full-fee students. The fees received from these students are substantially greater than those received for the same Australian students, by an average of 40%. This premium is used to subsidise the teaching of Australian students.This financing policy is not sustainable as a model for funding education: international students comprise 25% of non-research student load and almost 40% of student income.

Foreign student income as a source of cross-subsidy cannot be assumed: the Australian dollar has the effect of raising the price of Australian education relative to the US; major investment by other countries in the Asian regions reduces the demand for undergraduate education in Australia; and an increase in English language provision by our (much better resourced) competitors may further reduce the number of quality international students.

6.2 The indicators of basic funding models

The core outcome of the *Review* and its implementation revolves around the level of financing and the relative public and private contributions; and the student load allocation model which aligns student preferences, university capacity, and the skill needs of the nation.

The resources available to Australian universities for their teaching and learning programs are, both currently and in the foreseeable future, primarily from two sources: government investment, and student contributions through fees. International student fees are at full capacity for many universities, as well as making some very vulnerable to relatively small, and increasingly likely, variations in this one income source. Other sources of funding such as philanthropy and industry funding do not have capacity to build to a significant level within the next 20 years and are not likely to be a source of funding education.

Australia's current model for public higher education providers has significant constraints on both major funding sources. The current model is:

- a capped fee, capped-public investment model where the (capped) public investment level is low by international standards.

We have seen the effects of this: a growing quality gap with the rest of the world; an increasing inability to attract and retain staff; growing and a skills gap.

Accompanying this model for public higher education providers is a different model for private providers, which allows access to uncapped public support of fee-paying places[18].

The development of a range of different mechanisms for funding higher education has produced a complex and uneven set of supports, ranging from a requirement for some students to pay the full costs of their education, for some to gain access to a government 'loan' while paying the full costs and others having part of the cost of their education funded by government and part by a deferred 'loan', which together do not cover the full costs, and yet others principally higher degree research students being supported by government. Leaving aside the basis on which one set of pricing and funding mechanisms is put in place by category of student, it also varies by category of institution. Apart from the deficiency in funding for government places where the price is capped, there is an urgent need to set in place a simpler system.

The ATN recommends:

15. A funding model which is flexible and transparent and supports the full cost of teaching and research.

For Australia's public universities to obtain the resources necessary to attract and retain staff for the next decade and beyond in the face of increasing international competition, there is only one of two recommendations that can be made; either

- a student **fee deregulated model** in which the government sets the level of investment it is prepared to make and allows universities to set the fee gap to attract and retain staff; or
- A fully funded government investment model for public higher education providers or for student places that are identified as needing to attract government investment that caps and sets government investment at a competitive international level.

The ATN supports a fully funded government investment model.

No other model is sustainable in the long run.

The ATN recommends:

16. A fully funded government investment model for public higher education providers or for student places that are identified as needing to attract government investment that caps and sets government investment at a competitive international level.

[18] Some small number of private providers have also been allocated some capped fee public places.

6.3 Financing and load options

The key resource drivers for the achievement of the goals of the Australian higher education system are the financing and pricing arrangements and the student load model (how to align student preferences, institutional capacity, and Australia's skill needs).

Core funding must be available to support the achievement of core outcomes. It must be available to all public higher education providers or universities. Beyond funding for core university missions, there will need to be a set of additional or mitigating strategies to achieve specific policy objectives in each university's context. If the financing and student load models are simple and transparent, then any additional and/or mitigating strategies can be clear and transparent also. Figure 1 (Appendix 1) provides a conceptual framework.

The two possible financing models (a fee deregulated model, and a fully public sector funded model), may produce different demand patterns for universities. However, the outcomes will be strongly influenced by the method of determining the distribution of undergraduate student load between universities, campuses and disciplines.

Government determination of student load attempts to ensure: geographical accessibility to higher education, satisfaction of profession / industry / economy demand in specific discipline areas, and support for regional development.

There are at least 3 types of student load models:

1. centrally planned load;
2. student entitlement;
3. flexible student demand.

The current student load model can be thought of as a **centrally planned load** model. In this model each University is assigned a given load profile determined by discipline cluster. The advantages of this allocation model is that it ensures the survivability of particular campuses by driving student load to them which otherwise might not occur if it was simply left to student preferences. The disadvantages of this approach are:

- it frustrates student preferences for courses and campuses, which also contributes to a high dropout rate among first year students;
- by guaranteeing student load irrespective of performance it stifles innovation; and
- it makes adaptation of the system to shifting industry demand patterns very difficult to achieve through complex sets of negotiations which have no guarantee of achieving the desired aggregate load shifts.

At the other end is a completely deregulated student load model where instead of load entitlements being given to universities and campuses they are given directly to students and students decide which universities they attend.

This model can be thought of as a **student entitlement** model. Some commentators refer to this as a voucher model, however a voucher model is only a particular subset of this model (discussed below). This entitlement model allows policy makers to choose the allocation of student entitlements to meet national needs, by determining on an annual basis, the number of entitlements in each discipline area to be offered, without having to negotiate with each university. This model has the potential for load shifts between universities and

campuses, depending upon student preferences and the willingness of universities to increase load in particular areas. It will also more flexibly meet student preferences and can lead to a concentration of load in some disciplines in particular universities and promote economies of scale. The downside is that it is likely to make certain campuses unviable from a student load perspective. This will have major benefits in terms of economic efficiencies but it would require mitigating regional policy strategies.

There is also a third approach, a **flexible student demand** model. One version of this would give an indicative total load to each university/campus but allow in any given year under or over enrolment without penalty. In this model there would be no requirement to meet cluster targets, so that within campus load shifts are fully at the discretion of each university. Each year initial load would be redistributed according to student demand characteristics. This model sits between the inflexibility of the centrally planned model, and the student entitlement model. The disadvantage for the policy makers is that while load is matched to student demand it is not necessarily matched to skill shortages. However it would ensure that load is more closely matched to demand, potentially improving retention by reducing loss and completion times.

The combination of financing models and student load models gives nine potential models for Australian higher education. These are illustrated in Table 9 (Appendix 1).

Tables 10 and 11 (Appendix 1) list the likely outcomes from 6 of these models, concentrating on human capital acquisition, social inclusion, and regional development. Potential mitigating / additional strategies are also given. The commonly used "voucher" model is a combination of student entitlement **and** fee deregulation.

The model which leads to the highest levels of human capital acquisition is the fully funded / student entitlement model. It is also the model which is most costly to the government. The model which leads to lowest human capital acquisition is the fee deregulation / centrally planned load model. It is also likely to be the least costly for the government because the additional resources come from the private sector, and there is no load-shift compensation necessary. These are the extremes of policy choice.

6.4 Using Compacts for Mitigating Strategies

For any model chosen there are a set of mitigating strategies that ensure policy outcomes and manage transition. Any move from a centrally planned load model may involve load shifts that will make some campuses unviable in terms of student load. By itself, this is not a bad thing. By international comparisons, Australia does not have too many universities. At an average EFTSL of 15,000 it is roughly lineball with Canada and has far fewer universities per student population than most of Asia. However, Australia does have far too many campuses, some with student load as low as 25 EFTSL. While there needs to be a rationalisation, it is clear that some campuses in regional and outer metropolitan areas will need to be supported for regional development. Not all existing campuses can or should survive.

There should be a rationalisation of university campuses with clear criteria established and clear exit strategies.

7. Governance and regulation

As outlined earlier, a national tertiary education agreement would be invaluable to harmonise the funding and regulation of higher education, vocational education and training and adult education and remove the requirement for different reporting requirements at State and Federal levels.

There is a second regulatory issue that needs to be addressed in a national postsecondary education system that has a mix of institutions, including public, not-for-profit and for-profit providers. At present there are national systems for quality assurance, split between international and domestic issues and covering all post-secondary providers for international quality assurance and compliance and higher education providers only for other national quality assurance.

However the decision about whether an institution can offer certain types and levels of education is subject to State-based accreditation regimes, even if they are based on national protocols. For self-accrediting institutions, there is no accreditation of wholly owned subsidiaries that offer education in their name. Accreditation of other providers varies in its intensity and scrutiny by State.

Given the diversity in the sector and the scale of international higher education it is important that there is national certainty about the capacity and qualityof the sector in order to ensure a world-class system. To this end, an autonomous national accreditation authority that is able to provide oversight for all types of institution to validate capacity to offer particular levels of education, and that periodically assures the quality of offering.

The ATN recommends:

17. The establishment of a national accreditation body that reviews all degree-offering institutions (including universities, TAFEs and private providers) to ensure consistency, remove duplication of effort and ensure a minimum standard of quality to all post-secondary students in Australia.

References

ABS *A quarterly review of Australia's international trade, Autumn 2008,*trade data, reproduced from Trade Topics

ABS *Adult Learning in Australia 2006-07* Cat 4229.0

Australian Research Council's *Response to the Productivity Commission Draft Research Report into Public Support for Science and Innovation*. December 2006.

AVCC 1996 *University research: Some issues*

Barlow, T (2007)*The State of Research in Australian Universities*

Burke, G. and Shah, C (2006) *Qualifications And The Future Labour Market In Australia*, Report prepared for the National Training Reform Taskforce

Burke, G., Cooper, L and Shah, C (2007) *Industry Demand for Higher Education Graduates in Victoria 2000-2022*, Report prepared for the Office of Training and Tertiary Education

Craven, G (2005) *Commonwealth initiative to take regulatory control of higher education*. Context notes for Western Australian universities

Ferrier F, Burke, G, Selby-Smith, C (2008) *Skills development for a diverse older workforce*

Gardner M, (2008) *A Top 10 University System*, Paper for the AFR Higher Education Conference 2008

Go8*, Adding to Australia's Capacity – The role of Research Universities in Innovation*. Go8 April 2008

OECD (2007*) Education at a Glance: OECD Indicators*, Paris

OECD (2007a) *OECD in Figures,* Paris

Reserve Bank Australia, *RBA Assessment June 2008*,

Shanghai Jiao Tong (SJT)

Sowter, B (2008) *World University Rankings: Beneath the Surface*, presentation to Fourth QS Asia Pacific Professional Leaders in Education Conference

Times Higher Education Supplement (THES)

UK Department for Innovation, *Higher Education at Work – High Skills: High Value, Universities and Skills*, Consultation Paper April 2008

APPENDIX 1

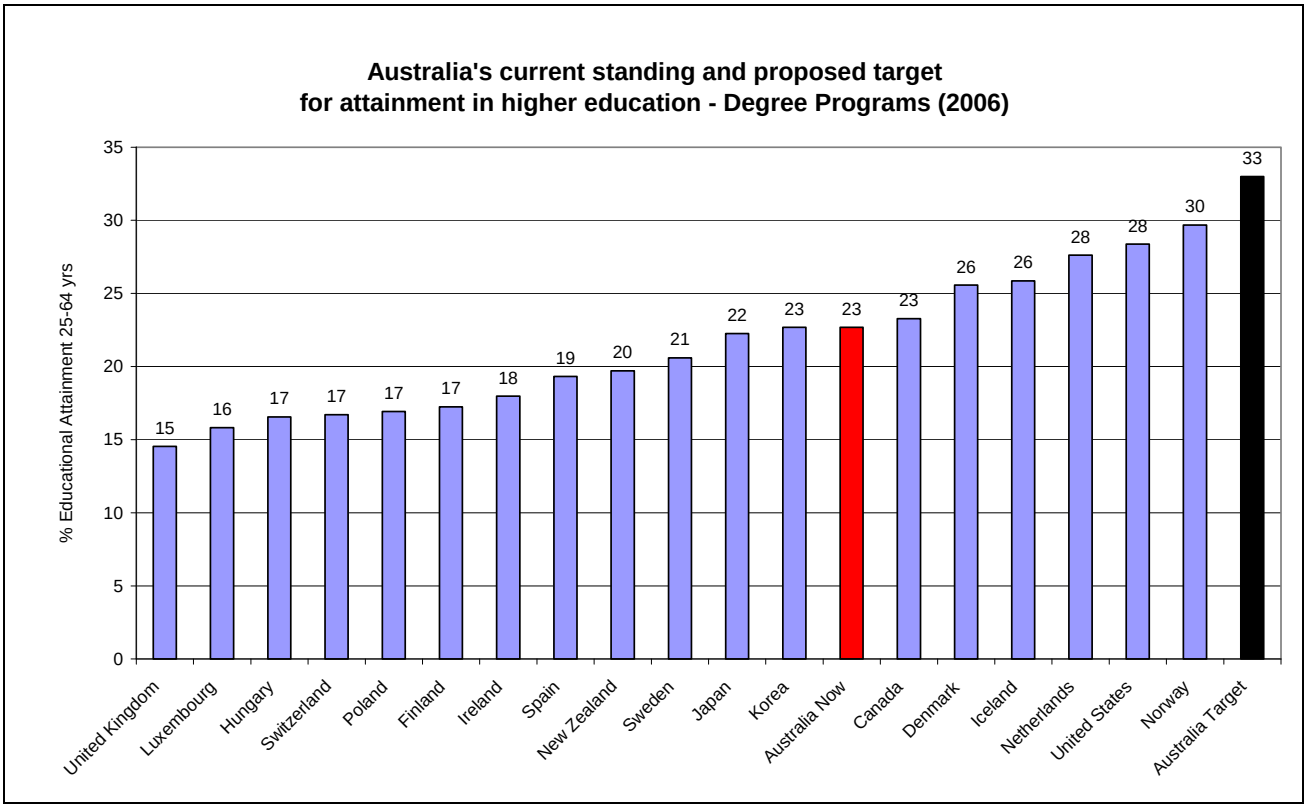

Table 1: Australia's current standing and proposed target for attainment in higher education – Degree programs 2006

Source: OECD Education at a glance 2007).

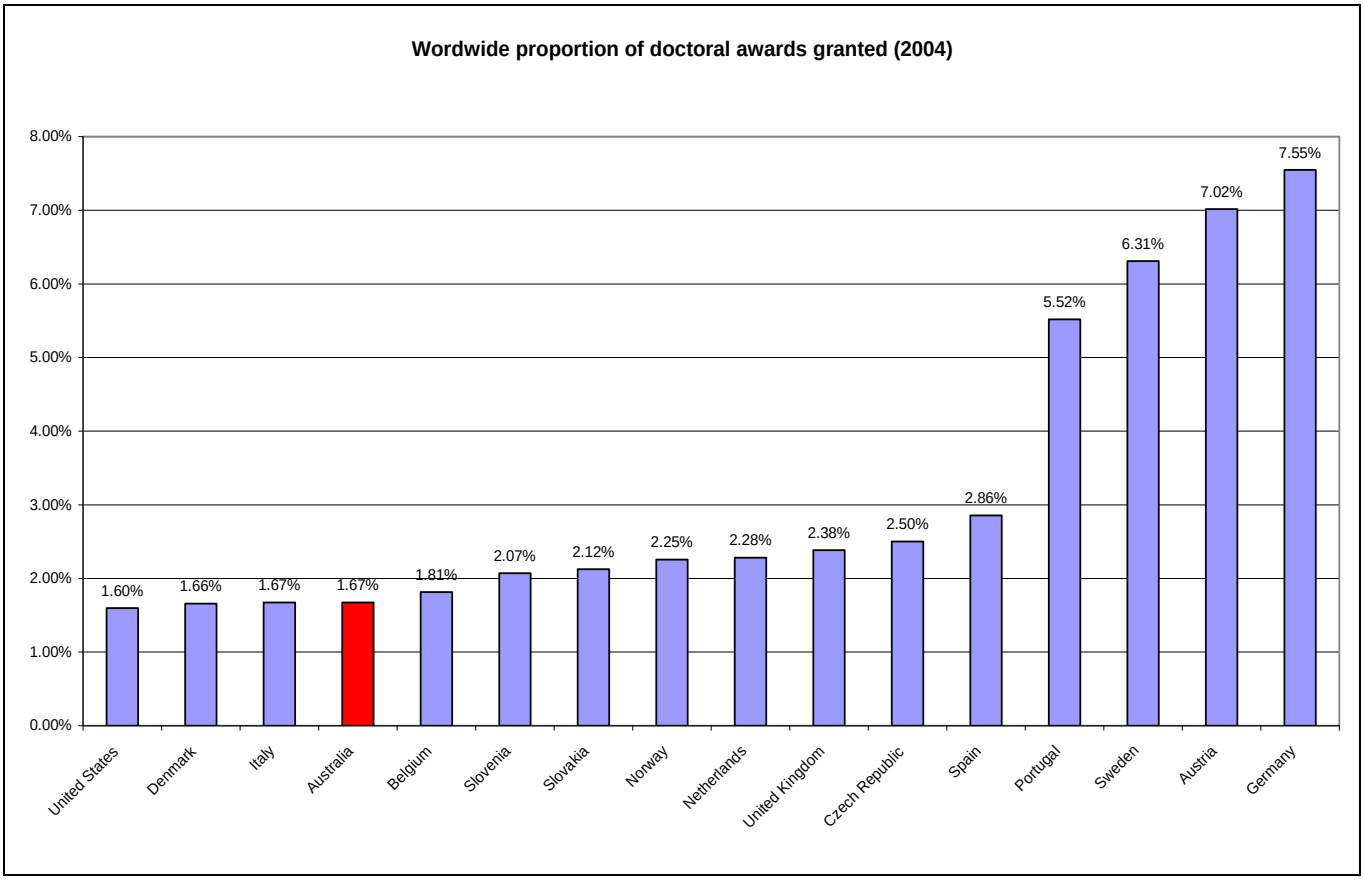

Table 2: Worldwide proportion of Doctoral awards granted (2004)
Sources: UIS UNESCO, Tertiary education database, Table 16; National Science Foundation, 2008.

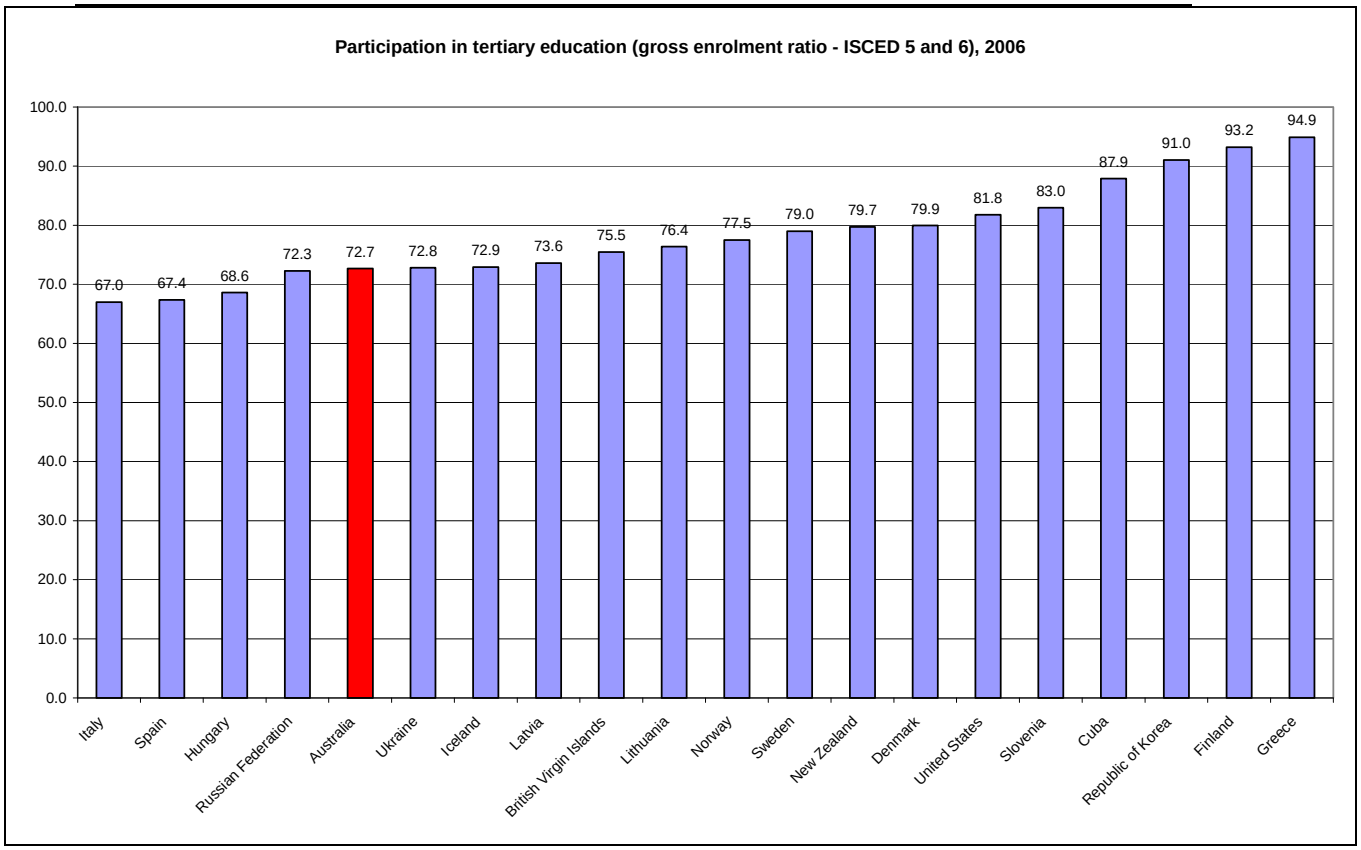

Table 3: Participation in tertiary education (gross enrolment ratio – ISCED 5 & 6, 2006)
Source: UNESCO, UIS Tertiary education database, Table 14, accessed June 2008.

OECD countries and non member countries	GERD PPP	GERD as a % GDP	BERD as a % of GDP	HERD as a % of GDP	GOVERD as a % of GDP	Basic research expenditure as a % of GDP	Average annual real growth rate of GERD in 1992-2002
	$b	%	%	%	%	%	%
Australia	9.6	1.69	0.87	0.45	0.33	0.42	4.50
China	71.3	1.22	0.75	0.12	0.35	0.07	14.95
India (2000)	20.7	0.85**	*	*	*	*	*
United States	276.3	2.65	1.86	0.36	0.32	0.49	3.33
EU-15	197.7	1.91	1.25	0.43	0.25	*	2.61
Japan	108.2	3.12	2.32	0.43	0.30	0.39	1.80
OECD Average	655.8	2.24	1.52	0.39	0.28	*	*

Table 4: Main Indicators of R&D Investment 2002**

Sources: OECD Main Science and Technology Indicators Database 2005/2, based on 2002 data
**UNESCO Institute of Statistics Database March 2005, based on 2000 data
*Denotes that no data was available
NOTES
GERD: Gross Domestic Expenditure on R&D
BERD: Expenditure on R&D in the Business Enterprise Sector
HERD: Expenditure on R&D in the Higher Education Sector
GOVERD: Expenditure on R&D in the Government Sector

National ($m)							Change	
Cat	2001	2002	2003	2004	2005	2006	05-06	01-06
1	490	525	650	734	847	957	13%	95%
2	200	228	268	299	359	493	37%	147%
3	393	427	454	457	490	627	28%	59%
4	80	93	112	113	130	131	1%	63%
Total	1,163	1,272	1,484	1,603	1,826	2,207	21%	90%

Table 5: National research income (category 1-4), 2001-2006.

Group of Eight ($m)							Change	
Cat	2001	2002	2003	2004	2005	2006	05-06	01-06
1	347	381	480	538	625	706	13%	103%
2	115	127	152	168	211	312	48%	171%
3	272	305	325	321	339	448	32%	65%
4	44	49	61	59	70	69	-1%	57%
Total	778	862	1,018	1,086	1,245	1,535	23%	98%

Table 6: Go8 research income (category 1-4), 2001-2006.

ATN ($m)							Change	
Cat	2001	2002	2003	2004	2005	2006	05-06	01-06
1	24	22	32	39	49	57	16%	140%
2	25	32	39	38	40	57	43%	133%
3	37	33	34	40	43	51	19%	37%
4	9	11	14	15	17	18	6%	108%
Total	94	98	118	131	149	184	23%	96%

Table 7: ATN research income (category 1-4), 2001-2006.

	International students as a percentage of all tertiary enrolments		
	Total tertiary	Tertiary Type A (degree programs)	Advanced research programs
Australia	**17.3**	**19.3**	**17.8**
New Zealand	17.0	16.8	16.6
United Kingdom	13.9	15.1	40.0
Switzerland	13.2	13.1	43.3
Austria	11.0	12.1	15.4
France	10.8	11.7	34.4
Ireland	6.9		
Belgium	6.5	7.7	19.9
Netherlands	4.7	4.7	
Sweden	4.4	4.8	
Denmark	4.4	4.6	6.9
Finland	3.6	3.3	7.3
United States	3.4	3.2	24.1
OECD average	*6.7*	*7.2*	*16.5*

Table 8: Foreign Students in Tertiary Education (2000, 2005)
Source: OECD 2007

1.1 Under-funded Public Sector + centrally Planned	1.2 Under-funded Public Sector + demand driven	1.3 Under-funded Public sector + student entitlement
2.1 Fully funded Public Sector + centrally planned	2.2 Fully funded Public Sector + demand driven	2.3 Fully funded Public Sector + student entitlement
3.1 Fee deregulated + centrally planned	3.2 Fee deregulated + demand driven	3.3 Fee deregulated + student entitlement

Table 9: Typology of Financing / Student Load Models

	Centrally Planned Load	**Flexible Load**	**Student entitlement**
Human capital acquisition	Frustrated student demand; high dropout rates	Load matched to student preferences but no link to aggregate skill needs	Highest human capital acquisition of all models (lower fees; entitlements matched to skill needs)
Social inclusion	No further impact on low SES	No further impact on low SES	No further impact on low SES
Regional Development	Equitable spread of resources; status quo for regional campuses	Equitable spread of resources; regional campuses lose load	Potentially large load shifts; some campuses become unviable
Mitigating / additional strategies	Few in relation to human capital	Business would have to sponsor / offer scholarships in skill shortage areas	Regional / small campus support through compacts
		Regional / small campus support through compacts	

Table 10: Public Sector Investment Model

Issues for compacts are highlighted in blue

	Centrally Planned Load	**Flexible Load**	**Student entitlement (Voucher Model)**
Human capital acquisition	Lowest of all models; higher fees; frustrated student demand; high dropout rates	Load matched to student preferences but no link to aggregate skill needs	Load matched to skill needs
Social inclusion	Adverse impact on low SES	Adverse impact on low SES	Adverse impact on low SES
Regional Development	Greater resources but not shared equally across sector – relative loss of competitiveness for regional campuses, but still viable and no loss of load	Moderate load shifts Regional campuses lose load; many become unviable without additional support	Potentially large load shifts. Some campuses become completely unviable; others need additional support; biggest effect on regional campuses
Mitigating / additional strategies	Few in relation to human capital	Business would have to sponsor / offer scholarships in skill shortage areas	
	Government fee scholarships for low SES, or 25% of fee increase set aside for low SES fee scholarships	Government fee scholarships for low SES, or 25% of fee increase set aside for low SES fee scholarships	Government fee scholarships for low SES, or 25% of fee increase set aside for low SES fee scholarships
		Regional / small campus support through compacts	Regional / small campus support through compacts

Table 11: Fee Deregulated Model

Issues for compacts are highlighted in blue

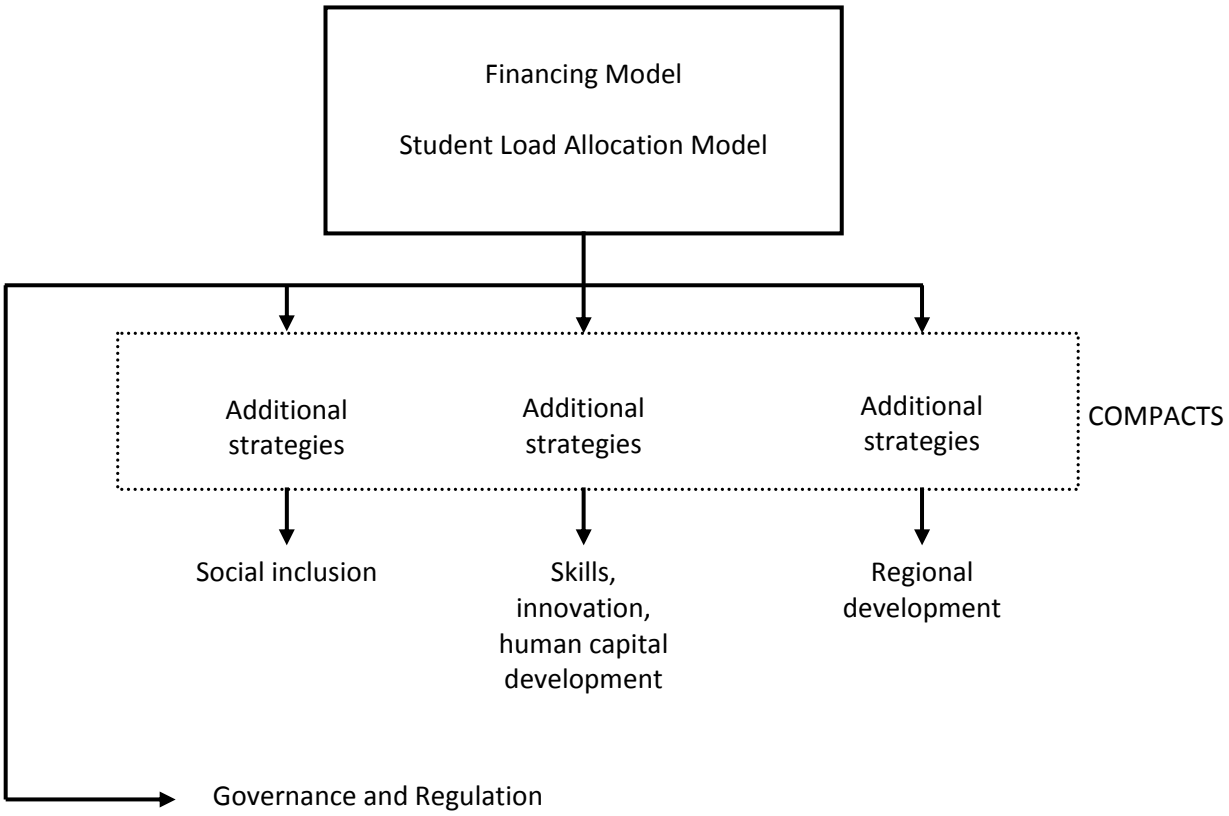

Figure 1: Conceptual Framework for Recommendations