



Vice-Chancellor
The Grange Chancellery
Panorama Avenue
Bathurst NSW 2795

Tel: +61 2 6338 4209
Email: vc@csu.edu.au
www.csu.edu.au

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Mr Robert Little
House of Representatives Standing Committee on Education and Employment
Parliament House
CANBERRA ACT 2600

Dear Mr Little

On behalf of Charles Sturt University (CSU) I am delighted to respond to the House of Representatives Standing Committee on Education and Employment Inquiry into innovation and creativity: workforce for the new economy.

Thank you for the opportunity to provide information and comment on how universities are responding to the evolving challenges placed on our graduates in a changing economy, and in joining with industry to secure the strongest possible outcomes.

Charles Sturt University strongly believes that universities have a strong track record of producing graduates with the necessary skills experience to make meaningful contributions to industry and the broader labour market.

However, it is critical that current barriers between greater university and industry linkage and cooperation are acknowledged, assessed, and that policymakers work with stakeholders to establish a framework to overcome these.

It is also vital that the unique opportunities and challenges faced in rural and regional Australia are taken into account when considering these issues.

Rural and regional Australia is home to a significant volume of cutting edge, industry-focused and collaborative research and innovation, born from a position of working with the private sector, and other stakeholders, to best position graduates and research knowledge as a tool to boost economic activity.

In fields from agriculture and agrisciences, to engineering and health, rural and regional universities are at the forefront of developing strongly skilled graduates, and cutting edge research-level industry participation. Across all Australia, each region has a different experience, and a one-size-fits-all model will never be appropriate.

I would be delighted to provide the Committee with further information and evidence that will assist its work in examining the questions regarding the future workforce of the new economy.

Yours sincerely

Professor Andrew Vann
Vice-Chancellor and President

www.csu.edu.au

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March 2016

**SUBMISSION TO HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON EDUCATION AND
EMPLOYMENT**

**INQUIRY INTO INNOVATION AND CREATIVITY:
WORKFORCE FOR THE NEW ECONOMY**

Charles Sturt University



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Terms of Reference

On 3 February 2016 the Committee adopted an inquiry referred by the Minister for Education and Training, Senator the Hon Simon Birmingham, asking the Committee to inquire into and report on matters that ensure Australia's tertiary system can meet the needs of a future labour force focused on innovation and creativity.

The following Terms of Reference (ToR) have been established by the committee:

- 1 The extent to which students are graduating with the skills needed for the jobs of today and of the future;
- 2 Matters relating to laws and regulations that may act as a barrier to education providers being able to offer qualifications that meet the needs of the new economy and fastest growing sectors;
- 3 Factors that discourage closer partnerships between industry; in particular small and medium enterprises, the research sector and education providers; including but not limited to: intellectual property; technology transfer; and rapid commercialisation.
- 4 Relationships between tertiary education entrepreneurship programs and private incubator and accelerators.
- 5 Other related matters that the Committee considers relevant.

Key Recommendations

This inquiry addresses a number of critical questions regarding the Australian higher education sector, the graduates we are producing, and the ability of two major drivers of innovation and economic activity, universities which produce the intellectual capital and private industry which relies on it, to work in a collaborative manner.

At a time of significant economic change and evolution throughout Australia, where technological advances and changes to Australia's fundamental industries are testing the readiness of graduates, it is vital a strong synthesis is fostered between universities and the private sector to ensure the strongest possible economic outcomes, securing the workforce into the future and fostering harmonious communities.

Corresponding to our contribution to this inquiry, and the information contained in our detailed responses to the various Terms of Reference (ToR), CSU has made the following recommendations to this inquiry and the Federal Parliament regarding the issues raised and addressed below.

ToR 1:

1. That assessment by government of skill requirements for current and future workforce participation takes into account differences between metropolitan, regional and rural Australia, and the varied employment market changes experienced.

ToR 2:

1. That the Federal Government continue to examine the postgraduate funding regimes to remove barriers to industry background candidates to up skill, and drive greater engagement between academia and industry
2. That the Federal Government take specific action to address the significant equity of access issues both for regional students to access medical degrees, and for regional residents to access appropriate medical care, through the funding of regional-specific medical school proposals such as the Murray Darling Medical School (MDMS), which are backed by proven experience addressing rural and regional health workforce issues.

ToR 3:

1. That universities work with industry and government to develop new structures and practices to recognise the value of different types of research outcomes, ensuring traditional academic motivations, at both an institutional and individual academic level, can be more easily correlated with industry aims.
2. Government consider potential avenues to reward institutions with strong performance and track records in collaborating with industry, success in accessing industry funding, and working with industry on adoption and extension of research.

ToR 4:

1. Policy proposals to encourage such collaboration must take into account the local experience and industry strengths, and be flexible enough to foster and take advantage of local settings and potential.

Charles Sturt University

Charles Sturt University (CSU) is Australia's largest regional university, with more than 39,000 students and approximately 2100 FTE staff. Established in 1989, the University traces its roots to the formation of the Bathurst Experimental Farm and Wagga Wagga Experimental Farm in the 1890s. In one form or another, research, innovation and education has been integral to the University's character and mission for more than a century.

CSU is a unique multi-campus institution with campuses at Albury-Wodonga, Bathurst, Canberra, Dubbo, Goulburn, Manly, Orange, Parramatta, Port Macquarie and Wagga Wagga, as well as various study centres.

The University's commitment to the development and sustainability of rural and regional Australia is informed by the unique research focus undertaken, and the partnerships it has formed with each of its campus' local communities, local industry, and with the broader regions it serves.

CSU offers a comprehensive suite of research and academic training programs that focus on addressing rural and regional labour market needs, growing regional economies, and preparing students for the jobs of the new economy through rural and regional Australia.

As one of Australia's largest online and distance education providers, CSU has been able to leverage its course profile and special expertise in professional education to deliver nationally available study programs supporting labour market skills development regardless of student location.

The success of the University is demonstrated by its sector-leading performance in work-integrated learning, graduate employment and graduate incomes. Underpinning this success is the close links that the University has forged with industry, both regionally and nationally.

For example, the University is internationally recognised as a leader in work-integrated learning with students spending extended periods in employment with our industry partners as part of their degree learning and applying their knowledge in practice.

Research excellence, with a strong commitment to addressing the complex regional needs through innovation, has long been at the centre of CSU's mission.

As evidenced by the recent Excellence in Research for Australia results (ERA 2015), Charles Sturt University is recognised internationally for competitive research strengths in agricultural science, horticultural production, food and wine sciences, crop and pasture production, veterinary science, animal production, education, curriculum and pedagogy, environmental science, applied ethics, philosophy, religious studies, criminology, nursing and marketing.

The University's researchers work in consultation and collaboration with end-users, industry, the professions and communities for the public good.



CSU has a proud tradition of delivering high-quality research that creates new knowledge, benefits people's lives, enhances the profitability of regional industries and helps communities grow and flourish. Through its Higher Degree by Research programs, CSU is training the next generation of researchers and professionals who use critical thinking and seek to influence the world for the better.

The recently announced AgriSciences Research and Business Park, to be located on the Wagga Wagga campus exemplifies our industry focus. The AgriSciences Research and Business Park will facilitate industry engagement and collaboration, economic growth, wealth creation, employment and skills development. Success will be evidenced by the recognition of Wagga Wagga as a world-standard centre for agricultural innovation, research and development, extension, education and training.

Today, CSU continues a 100-year tradition of engagement and leadership with our local communities, of research and innovation in collaboration with industry, expansion in the educational opportunities offered to our diverse student body, and preparing students for employment markets emerging with the evolution of regional and the national economy.

Term of Reference 1: The extent to which students are graduating with the skills needed for the jobs of today and of the future

As a rural and regional university that prides itself as being part of its communities and a sector leader in graduate employment outcomes, CSU strongly argues that it is critical that a distinction between difference communities, areas and regions be made to ensure economic growth at both a national and local level.

What is required in metropolitan Melbourne and Sydney is not necessarily where the skills deficits and growth requirements sit for regional and rural communities.

While we note and endorse the figures contained in the Universities Australia submission to this inquiry regarding future graduate requirements and employment growth, like much other off-cited data, this presents only an overarching view, in contrast to our experience engaging with local communities and business regarding their needs moving forward.

According to Quality Indicators in Learning and Teaching (QILT) data, CSU has historically been in the top 2 of universities for graduate employment. Our efforts and lead indicators suggest that we expect this to continue, if not improve to be the best graduate employment rates of all Australian universities when 2015 results are released.

CSU's success in this regard is built on a strong engagement with our local communities and local industry to carefully target course selection and offering at the needs of the local area. This can be seen through our previous success with Dentistry and Pharmacy, as well as our new Engineering program (discussed more at length later in this submission).

Our range of short-courses and professionally focussed development courses and credentials also play a large role in our success in producing graduates with the necessary employment market skills. Such short courses and related programs provided industry-targeted education specifically designed to equip students with additional skills required in various fields of employment.

As noted in the Deloitte Access Economics 2015 paper *The Importance of Universities to Australia's Prosperity*, both health care and education will require a steady increase in graduates across the forthcoming decade. This is most apparent in CSU's Central Western and Central NSW locales.

At present, metropolitan areas enjoy an average of 452.6 doctors per 100,000 population. In contrast, outer regional areas such as CSU's communities have 258 doctors per 100,000, while rural and remote areas just 256.7 doctors per 100,000. Further, maintenance of even these figures requires extensive use of overseas trained professionals, with more than half outer regional GPs trained overseas and arrived in the last five years.

Our proposal for the MDMS, in combination with LaTrobe University, is designed to address these very inequalities in access; ensuring graduates possess the skills required for the growth employment markets of health in rural and regional Australia.

Similarly, where metropolitan areas currently experience a full supply of nurses and social assistance professionals, rural and regional communities continue to experience shortages. As CSU noted in its submission to the Senate Inquiry into the Future of Regional Capitals, demographic trends in rural and regional Australia, particularly increases in the average age of regional inhabitants and sharp growth in number of elderly and retired residents, will continue to pressure

existing nursing and social assistance infrastructure, and drive the need for new graduates in these fields.

Similar differences in graduate requirements and employability, including what skills graduates need for the current and future employment markets, between metropolitan and rural and regional areas can be seen in the teaching profession.

While significant public discussion has occurred regarding an apparent oversupply of teaching graduates, this view is metropolitan specific. Rural and regional areas continue to struggle to attract sufficient teachers, with jobs available. This is apparent by CSU's teaching graduates employment outcomes, where more than 76 per cent of our teacher graduates are employed within four months, a figure significantly better than most metropolitan alternatives.

Requirement of Work-Integrated Learning

CSU also strongly argues that the university sector needs to continue to move towards a work-integrated model of education providing graduates with actual work related skills, in addition to conceptual knowledge.

From our outset, CSU has forged close links with local industry, employer groups and private-sector stakeholders, which have allowed us to craft our academic offerings and programs to the needs of real world employers. We continue to be a leader in this regard, and place a priority on work-integrated learning.

A prime example is CSU's new engineering program. With our first student cohort beginning in the 2016 academic year, our combined Bachelor and Masters of Engineering utilises a unique work-integrated approach. Students spend the first 18 months of the program learning on campus, with the subsequent period revolving around a series of six-month work placements and on-line continued education.

This structure allows CSU Engineering graduates to enter the workforce having already built-up more than four years practical experience as an engineer with multiple public and private sector employers.

While the degree to which such work-integrated learning is possible varies between degrees, CSU views this approach as the future direction for university education.

Recommendations

1. That assessment by government of skill requirements for current and future workforce participation takes into account differences between metropolitan, regional and rural Australia, and the varied employment market changes experienced.

Term of Reference 2: Matters relating to laws and regulations that may act as a barrier to education providers being able to offer qualifications that meet the needs of the new economy and fastest growing sectors

Though changes to higher education regulations over the last decade have resulted in significant reductions in the level of regulations governing enrolments and other aspects of ensuring the necessary qualification for growing industries and changing employment markets, there remains a number of barriers in place.

PhD Barriers

As outlined in CSU's submission to the *Watt Review of Research Policy and Funding Arrangements*, there remain a number of aspects and regulations resulting in barriers to PhD education of various types, and which serve as a disincentive to ensuring the necessary qualifications for the evolving economy.

For prospective PhD candidates coming from an industry setting, and who are already working, the old training and funding regime did not have the flexibility required to meet their circumstances.

Currently, most universities continue to award scholarships and various stipends, as well as fee-free PhD places to students undertaking full-time study. In addition, such stipends are largely not of the value required to replace forgone income even in a part-time setting.

This is despite the value-add that putting in place a setting and funding regime to encourage individuals from an industry background to return to study and up-skill to a PhD would achieve. Following completion of the degree it is likely that many will continue working within their industry and apply their research skills and possess strong links with the research sector.

Additionally, those who choose to move to the university or government sector will possess strong links with industry and knowledge of industry needs which would contribute to the sector more broadly, and by extension influence teaching.

Finally, such students would also provide valuable skills and insight, drawn from their industry experience, during the undertaking of their PhD program to other candidates who do not possess such experience. This would then further increase knowledge links between industry and academia, and potentially drive greater collaboration between the two.

CSU notes that the Federal Government's National Innovation and Science Agenda (NISA) Statement, and the contained new funding scheme through the current Research Block Grant scheme, will go some way towards addressing these barriers. However, following a period of evaluation of the impact of such changes, it would be worth continuing to examine the issue, and determine other potential changes.

Health and Medical Education

As mentioned above, health and medicine will continue to require growing number of graduates to meet employer demand into the future, especially in rural and regional areas where demographic change, in addition to population increases, adds further pressure to already stretched health infrastructure.

CSU is a leading regional educator of health and social support graduates, from nurses to social workers to dentists. And while these CSU graduates will continue to enjoy strong employment prospects, as a university it is more difficult to properly plan for such future requirements when the core supporting policy structures that underpin funding and service provision change with little to no consultation. This was the case with the cuts to the Clinical Training Fund, announced the same day as MYEFO 2015, and subsequent Health Workforce for Rural Australia Policy.

Further, as CSU Vice-Chancellor Professor Andrew Vann noted in his evidence before the Senate Inquiry into Higher Education Reform in 2014, commonly known as the Pyne Package, medicine remains the only degree not uncapped and deregulated. Where the Federal Government has instituted a demand-driven system to allow universities to widen access to programs, this has not been instituted in medicine.

The result of this policy and continued barriers has been a sharp inequality of access to doctors and health professionals between metropolitan residents, and those in rural and regional areas.

Moreover, where rural and regional residents can access doctors, the reliance on overseas trained professionals means a sharp decrease in continuity of doctor compared to metropolitan areas. Further, the length of service in rural and regional areas is drastically lower than metropolitan areas.

This is the result of the inability of rural and regional prospective students to access medical degrees in their regions and communities, instead being forced to move to metropolitan areas to complete such an education. Such relocation itself places numerous financial and other barriers to achievement.

While the MDMS would address these issues, current Federal Government regulation prevents this unless granted specific approval and funding. The net result being continued barriers towards ensuring rural and regional graduates can access the skills and educational foundation necessary for growing employment markets in rural and regional areas.

Recommendations

1. That the Federal Government continue to examine the postgraduate funding regimes to remove barriers to industry background candidates to up skill, and drive greater engagement between academia and industry
2. That the Federal Government take specific action to address the significant equity of access issues both for regional students to access medical degrees and for regional residents to access appropriate medical care, through the funding of regional-specific medical school proposals such as the MDMS, which are backed by proven experience addressing rural and regional health workforce issues.

Term of Reference 3: Factors that discourage closer partnerships between industry; in particular small and medium enterprises, the research sector and education providers; including but not limited to: intellectual property; technology transfer; and rapid commercialization

CSU as an institution continues to enjoy close relationships and partnerships with the private sector and industry. The share of CSU research income that comes from direct partnerships with industry and Rural Research and Development Corporations (RDCs) is nearly two and a half times the sector average. However, the current Australian environment poses a myriad of factors discouraging and preventing closer engagement between higher education institution and private industry.

A key barrier is the incentive structures facing universities both at an institutional level and at the individual academic level.

At the institutional level, most universities are working to improve their position in national and international rankings and gaining the associated prestige that comes with these rankings.

However, these rankings are often based on narrow research metrics and have limited regard for teaching quality or university collaboration with industry. Similarly, the Excellence in Research for Australia exercise largely focuses on research publications and research income. Assessment panels are comprised solely of university academics and researchers and there is debate about the importance placed on the broader impact of research and the value it delivers to industry.

At the individual academic level, career progression is built upon publications, research grant success and contribution towards building institutional profile. This is producing a research drive (and diversion of funds) toward novel discovery in order to publish in highly prestigious journals, while the imperative of applied research can be less attractive.

The incentive for a staff member engaged in discovery is to go back and discover more, rather than passing the discovery to partners who can understand/interpret an application and build on this for wealth creation and broader societal impact.

This contrasts with the focus of private industry, which focuses on potential near to market outcomes that can be commercialised and monetised, and places less importance on academic publications and other metrics commonly used in the academic domain.

Such differences in approach present barriers to closer engagement, but also provide the necessary clues to changing the status quo.

As Australia's national and regional economies evolve, it is vital universities change to take a more holistic view of research, rather than the self-reinforcing indicators mentioned above. Were universities to increase the value they place on the proven impacts of research including the ability to commercialise outcomes of research while in parallel private industry recognise the value of ongoing discovery research cultural barriers could at least be partially overcome.

CSU is supportive of Commonwealth Government initiatives to better measure university performance such as the forthcoming national research impact and engagement assessment. This will go some way to addressing the perverse incentives in place.

Regional Innovation Paradox

From a rural and regional perspective, the Regional Innovation Paradox is of particular concern. As outlined in CSU's *Inquiry into Australia's Innovation System* submission, this is the apparent contradiction between the comparatively greater need for innovation investment in lagging regions and their relatively lower capacity to absorb public funds. Such funds, earmarked for the promotion of innovation and to invest in innovation related activities, are more readily and easily absorbed in more advanced regions.

For rural and regional Australia, the more innovation and university-industry linkage is needed to increase competitiveness and economic growth, the more difficult it is to absorb public funds for the promotion of innovation in these regions. Such regions also tend to have few large multinational firms undertaking research and development.

However, CSU notes the various measures contained in the Federal Government's NISA policy, which take this into account. Particularly, the *Incubator Support Program*, which specifically focuses on regional areas and sector high strong innovation potential.

Public Good Research

CSU is supportive of measures to ensure greater collaboration between the higher education sector and industry, and therefore ensure Australia benefits from the commercialisation drive this brings. However, it is also important that public good research, that with no commercial application, continue to be valued and recognised.

Some research has no commercial applications, but nonetheless is of vital importance in understanding the world, society etc. For example, CSU is part of the LIGO Scientific Collaboration that used detectors from the Laser Interferometer Gravitational-Wave Observatory (LIGO) in Louisiana to observe ripples in the fabric of spacetime, known as gravitational waves, arriving at earth from a collision of two black holes in a distant universe. The discovery provided significant amounts of data concerning the origin and nature of gravity.

Similarly, applied research that leads to advances in practice (such as the new approaches to teaching children mathematics developed by CSU's Research Institute for Professional Practice, Learning and Education) may result in widespread economic returns to the community, however it is almost impossible to charge the beneficiaries of this research and yield a commercial return.

Industry collaboration, though important, cannot be at the expense of all else.

It is critical that the Australian Government continue to fund these types of public good research and in parallel not lose sight of the value of blue-sky research on balance. It is critical that 'end-users' are recognised across all research disciplines and that the most appropriate end-users can benefit from the advances research provides.

The return on investment needs to be evaluated in a non-commercial manner for some end-users and the upcoming pilot on research impact and engagement might try to address this alongside measurement of IP and other more tangible benefits.

Undertaking this sort of research is central to CSU's mission, as encapsulated by the motto taken from the writings of Charles Sturt, "for the public good".

Research adoption and extension

CSU considers that it is also important to encourage universities to work to ensure that research findings are adopted and extended into industry practice. There are currently no direct financial incentives for universities to reward this type of activity. It is acknowledged however, that measurement of such extension can be difficult to quantify.

One straightforward approach, which could be explored, would be to reward universities for funding they receive from industry to specifically undertake research extension and adoption activities. The fact that industry is willing to pay for this adoption and extension demonstrates that it is delivering commercial value to the industry.

Recommendations

1. That universities work with industry and government to develop new structures and practices to recognise the value of different types of research outcomes, ensuring traditional academic motivations, at both an institutional and individual academic level can be more easily correlated with industry aims.
2. Federal Government consider potential avenues to reward institutions with strong performance and track records in collaborating with industry, success in accessing industry funding and working with industry on adoption and extension of research.

Term of Reference 4: Relationships between tertiary education entrepreneurship programs and private incubator and accelerators

Regional Experience

One of the most appealing features of a university from a local perspective, unlike many other regional participants, is that they are generally immobile and here to stay. Institutions such as CSU are committed to their regions for the long term, and are major local contributors, both as direct employers, but also through the additional revenue streams that subsequently flow to local businesses.

However, the opportunities for universities to act as agents of economic development are often missed. To succeed, universities must be, and be seen as, an essential part of the two-way communication and clustering required as part of the economic ecosystem with incubators and accelerators.

Successful regions with a strong entrepreneurial economy will work with universities to develop and expand local business opportunities adapted to new market developments. Most often, this will be through the introduction of new, commercially successful product or service innovations, repeatedly over time.

Such an entrepreneurial economy is reliant on the interplay between higher education institutions and the private sector. However, industry tends to view universities as highly variable in terms of ability to innovate, to speak the same language, and most importantly deliver. To realise the current opportunities, universities need to improve reliability to industry, as well as increase their understanding of how to successfully nurture private sector relationships.

Through training, as well as providing opportunity and incentives, such private sector relationships will form the basis for both students and staff to develop their knowledge base and ideas into realised entrepreneurial endeavours.

Furthermore, the way universities teach and inculcate entrepreneurial skills must be examined. How such teaching relates to real-world business experience must be part of such consideration, and whether how success in the academic world is measured altered to allow for celebration of entrepreneurial outcomes.

Agribusiness and Health

The above is especially true in the case of both Agribusiness and health within regional settings, both core points of focus of CSU.

Over the forthcoming years, aspects of agribusiness and health will change dramatically as innovations enter the market and provide ever more effective and efficient food and health security.

Universities of Regional Australia will be at the centre of these changes where the limited opportunity brought about to overcome distance will be met through ingenuity that needs to be captured, recognised and exploited.

The foundations of such change, including improved telecommunications technology allowing for improved e-commerce and telehealth services to overcome the tyranny of distance, as well as



changing supply chain logistics and ever-increasing global partnerships, will all require a strong foundation in entrepreneurial skills developed during university education, as well as healthy relationships between universities and private-sector incubators to best nurture young ideas and opportunities.

CSU Experience

The relationship between private incubator and accelerator programs and the university is an area where CSU is actively developing capacity. For example, as highlighted at the recent CSU-hosted SEGRA Conference in Wagga Wagga, the winning proposal at the conference SEGRA Challenge was on developing regional entrepreneurship ecosystems.

Following on from this, CSU is currently developing a research proposal to investigate regional challenges in the development of entrepreneurship ecosystems, which includes the use of business accelerators.

Similarly at the undergraduate level of education is the new CSU Engineering program, which has an emphasis on entrepreneurship. As part of their academic program, engineering students develop new businesses proposals, and take part in practice pitches to assist students in developing the necessary entrepreneurial skills necessary for later private-sector activity.

The CSU CM3 Research Unit, focussed on Machine Learning and Innovation, has a core focus on developing new technologies to increase the competitiveness of businesses, especially regional businesses. Given the substantial interest in developing incubators and entrepreneurship ecosystems in Central West NSW, this work has been met with a strong reception.

CSU researchers working in entrepreneurship have provided advice on developing these programs, having been involved in similar and related activities elsewhere, including various business incubators. The university is keen to support these initiatives. While these initiatives remain in development, it would be expected that existing entrepreneurship teaching programs at CSU (including engineering) and the CM3 Research Unit would work in a complementary way as the various programs evolve.

Recommendations

1. Policy proposals to encourage such collaboration must take into account the local experience and industry strengths, and be flexible enough to foster and take advantage of local settings and potential.

Term of Reference 5: Other related matters that the Committee considers relevant

In terms of innovation, it is important to stress not only the role that academics play in undertaking research, but also the role that university graduates play in the creation, application and diffusion of knowledge. Mowrey and Sampat argue that the:

“... joint production of trained personnel and advanced research may be more effective than specialization in one or the other activity. For example, the movement of trained personnel into industrial or other occupations can be a powerful mechanism for diffusion of scientific research, and demands from students and their prospective employers for ‘relevance’ in the curriculum can strengthen links between the academic research agenda and the needs of society.”¹

The extension of knowledge to undergraduate and postgraduate students by universities, and knowledge transfers between universities and private collaborators, create and sustain the knowledge workforce that supports continuous micro-innovations in the workplace environment. For example, Charles Sturt University was a pioneer in the use of screwcaps for wine in the 1970s, and successive graduates from CSU have promoted the use of screwcaps when they took up employment in the industry. It is now common practice across the industry.

Equipping graduates with the necessary innovation skills through exposure to different teaching experience and research environments at university is essential to addressing critical innovations in health delivery and promotion, export expansion and agricultural extension on the ground.

Regional universities play a particularly important role in this regard in providing skilled and innovative graduates who then apply their talents in regional areas. For instance, over 70 per cent of CSU on-campus graduates from regional and remote areas then go onto work in regional or remote areas.

¹ Mowrey, D., & Sampat, B. (2003) Universities in national innovation systems, Presentation to the Globelics Academy. Downloaded from http://www.globelicsacademy.net/pdf/DavidMowery_1.pdf

Summation

CSU is delighted to respond to the House of Representatives Standing Committee on Education and Employment Inquiry.

CSU welcomes the opportunity to put forth our views regarding these important questions. The changing nature of the economy and workforce, and the challenges to the employment market raised by technological advances pose difficult questions for both universities and industry.

In such an environment, it is vital universities and industry find new ways to collaborate, and ensure the best outcomes both for the wider economy, but also for graduates moving into the workforce.

At a time of slow economic growth, increasing pressures on traditional industries and the risk of automation, through collaboration, incubating entrepreneurship, and a strong focus on innovation in research, universities and industry may work together to deliver hard won results and both economic and social benefits for the nation, both metropolitan areas, and Australia's vast and varied rural and regional communities.

CSU would welcome the opportunity to expand on any of the above if required by the Committee.