

Swinburne in 2015

Introduction

Swinburne has achieved much over the past century. The University has articulated a vision as a dual-sector institution which is well recognized within Australia and, increasingly, internationally. It has developed an enviable reputation for the quality of its teaching and learning and has a growing research reputation. Swinburne is widely seen within the sector as a progressive institution and a growing force within the Australian tertiary education sector.

Although there is much of which the University should be proud, we exist within an increasingly competitive international education environment. Therefore, it is important that the University not rest on its achievements but strive to further develop its position. We should be bold in our desires. What we need to do is well summarised by Pierre Trudeau: *“The past is to be respected and acknowledge, but not worshipped. It is our future in which we will find greatness”*.

This paper outlines some goals which Swinburne may strive to achieve and the means by which these goals could be achieved. It is intended to engage stakeholders in a debate as to the future of the University. In engaging in this discussion it is important that we “think big” but that we also articulate how expansive goals may be achieved.

This paper outlines a vision for Swinburne in 2015 (the timeline for our current Statement of Direction). If this vision is achieved, Swinburne will be clearly recognized as one of Australia’s leading research Universities. In addition, our education and training missions would be explicitly articulated and recognized. We would provide an educational experience built on our technology and business base and vocational in its outcomes. Quality education and quality research, however, must complement each other in this future vision. To achieve such a goal will require an uncompromising attitude across the institution. Excellence will be encouraged and rewarded and, at the same time, underperformance will be addressed.

Although Swinburne is a single institution, the policy drivers, political realities, industrial relations and measures of success within the Higher Education and TAFE sectors are different. For this reason, the two sectors are considered separately. In each case, however, our desire to achieve excellence is the same. The intersectoral nature of the University will continue to be important for the future of both sectors. It will be a key attribute in Swinburne’s relationship with industry and in the acquisition of commercial income.

In parts of this paper, the Corporate areas of the University have been grouped with Higher Education, as the industrial relations frameworks for these two groups are similar.

The Present Situation

In recent times, a number of initiatives have been implemented to position the University for future achievements. These include:

- Major redevelopments of our Hawthorn, Prahran, Sarawak and Wantirna campuses. These developments make the University far more attractive to staff and students. We are already seeing new staff and students choosing Swinburne because of its built environment. The Hawthorn campus, in particular, is much more active than in the past, with many more students electing to stay “on campus” during the day.

- The University has been rewarded for high quality learning and teaching outcomes. In Higher Education, this has been through the Learning & Teaching Performance Fund. Although these rewards are pleasing, most educational experts have doubts about the validity of many of the quantitative measures used. Nevertheless, consistent good results in Course Experience Questionnaires, particularly in the Student Satisfaction indicator, and Graduate Destination Surveys are an indication of quality educational outcomes. Within TAFE, recognition has been through the Victorian Training Awards, which while qualitative, lack the quantitative measures.
- The University has commenced the process of becoming a truly international university. Our Sarawak campus is expanding rapidly and is financially sound, we have strengthened our offshore pathway programs, we have developed the partnership with Northeastern University and we have developed a highly professional and nationally admired International Division. Our percentage of Australian students who have an international experience is one of the highest in the country and Swinburne College is developing attractive pathway programs and is growing rapidly.
- Swinburne has positioned itself well for the Research Quality Framework (RQF) by defining a range of Research Centres and aggressively recruiting high quality staff into these Centres. Even if the RQF does not proceed in the manner proposed by the Commonwealth Government, this approach will significantly enhance the quality of our research outcomes.
- Swinburne TAFE has positioned itself to be one of the largest TAFE institutions in Victoria. In recent years, TAFE has expanded its workplace delivery and consistently met all its State Government load targets. After a number of years of declining international enrolments, international student numbers are now growing strongly, both in pathway programs and Diploma programs. Whilst differentiation between institutions within the TAFE sector is more difficult, there are returns both for students and for the institution in striving for excellence. Fee for service income, industry delivery and international student enrolments can all be enhanced by improved educational outcomes.
- Swinburne has developed a sound and sustainable budget. This has been achieved through a transparent and formula-driven revenue distribution process, strong student growth, growing commercial income and the achievement of significant efficiencies across administrative activities of the University.

The points above have effectively put in place many of the ingredients required to position the University for future development. We have developed our built infrastructure, enhanced our staff resource and put in place the required administrative and financial structures.

Higher Education and Corporate @ Swinburne

1. A Future Vision

Noting the present position and stage of development of the University, the vision and measures outlined below summarise a possible vision/position in 7 years (2015). It is important to note that, although the University must excel in both teaching and research, it is research which is the internationally recognized measure of success for a University.

1.1 National Research Position

There are three broad measures of research success which are commonly used within Australia. These are research income, publications and research student numbers. Although all three are important measures, the only one which is a clear measure of research quality is research income. The other indicators may measure quality but are more clearly associated with the quantity of research performed. This distinction will be strengthened by the RQF where all discipline groupings have agreed that research income should be the major metric to be used. A reasonable measure which considers all indicators but weights the outcome in favour of research income is the total research block grant received per member of staff [i.e. Institutional Grants Scheme (IGS) +Research Training Scheme (RTS)+ Research Infrastructure Block Grants Scheme /Full time equivalent (FTE) staff].

Figure 1 shows Swinburne's relative performance on this measure.

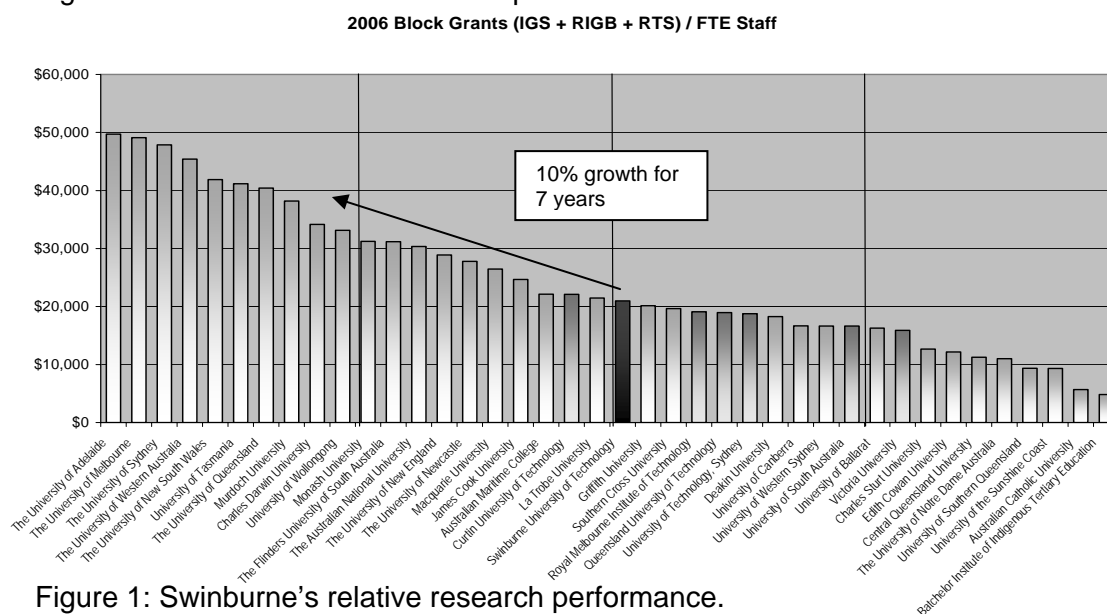


Figure 1: Swinburne's relative research performance.

Swinburne has progressed reasonably well against other institutions and has slowly improved its position. It is presently ranked around the middle of Australia's institutions on this and other similar measures. If Swinburne could increase its performance by 10% per year (above the base for other institutions), it could be clearly placed in the top quartile by 2015. Moving beyond this point would be a challenge without the significant research income which comes from a medical school, which is not being considered.

In order to avoid sudden changes in institutional funding, the Commonwealth Government averages results over 2 years and also places a 5% growth cap on the

IGS/RTS. Therefore, changes in these results are heavily damped. For these reasons, the growth indicated above should be in the actual metrics used to calculate the above quantities (i.e. unsmoothed and uncapped), rather than the actual RTS, IGS and RIBG quantities.

Aim 1: Increase, performance in the indicators used to calculate the research block grant per FTE, staff members by 10% per annum relative to the national average for 7 years.

1.2 International Rankings

In recent years, the importance of international university rankings has grown significantly. Although all such rankings have limitations, the reality is that they are the currency by which institutions are compared. Although most rankings are generally based on research performance (as it is the only easily compared criterion internationally), they are increasingly the measures used by students to determine the University they wish to attend. As such, performance in research, essentially “future proofs” the University, ensuring high international student demand.

Of the various ranking systems which have been proposed, the Shanghai Jiao Tong Ranking Index (SHJT) is widely regarded as the most authoritative. The index is based on the following 5 indicators (plus a size correction).

Criteria	Indicator	Code	Weighting
Quality of Education	Alumni of an institution winning Nobel Prizes or Fields Medals	Alumni	10%
Quality of Faculty (staff)	Staff of an institution winning Nobel Prizes or Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research Output	Articles published in Nature or Science	N&S	20%
	Articles Indexed in Science Citation Index – Expanded and Social Science Citation Index	SCI	20%
Size of Institution	Academic performance with respect to the size of the institution	Size	10%
Total			100%

The SHJT ranks the top 500 institutions on these indicators. Australia presently has 14 institutions in the top 500, with 2 in the top 100. Swinburne is presently not ranked. The average scores in each of the criteria for institutions ranked 400-500 are:

Number of Alumni	0.0
Number of Award	0.0
Number of HiCi	0.8
Number of N&S	0.4
Number of SCI	572

Swinburne presently does not score against either of the first two criteria and is unlikely to do so in the foreseeable future. We presently have 2.0 HiCi staff, average between 0.2 and 0.4 for the numbers of papers in Science and Nature and score approximately 350 in the number of SCI papers.

Based on these numbers, it could be assumed that if we achieve the growth targets for block grants indicated above, we will also achieve a SHJT ranking between 400 and 500. To achieve this will, however, require a focus on the quality of our research outputs.

Aim 2: Achieve a Shanghai Jiao Tong (SHJT) index ranking of between 400 and 500 within 7 years.

1.3 Staff Qualifications

In recent years, Swinburne has had a policy of only appointing academic staff who have PhD qualifications. This has resulted in an improvement in the percentage of staff with a higher degree, as shown in Figure 2.

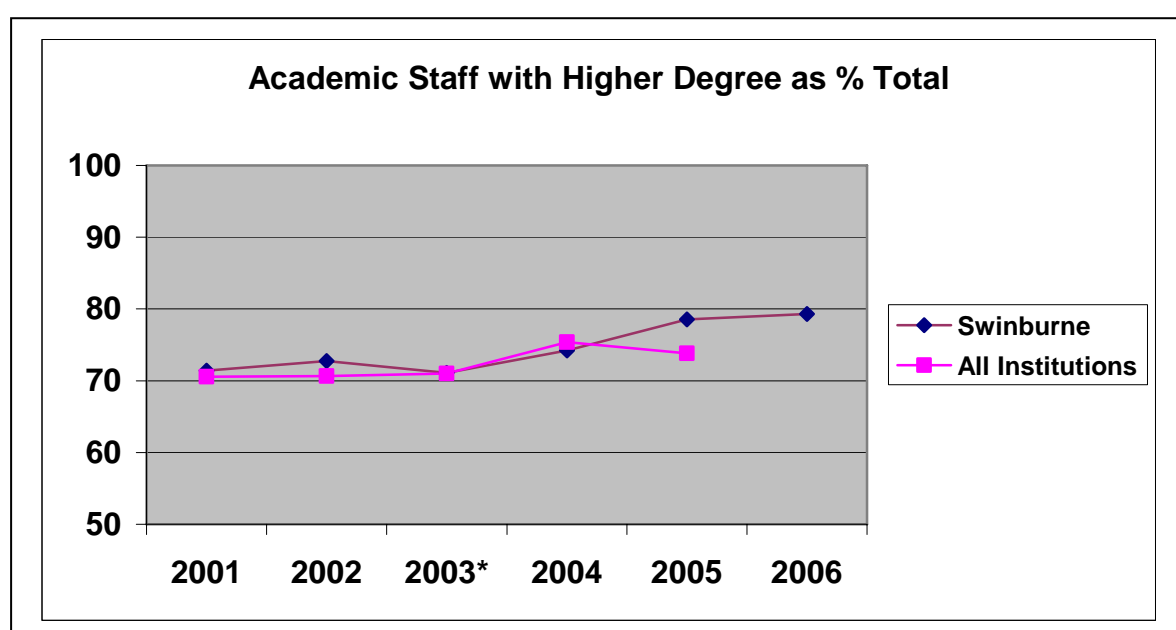


Figure 2: Percentage of staff with a higher degree. Swinburne compared to the national average.

The Group of Eight Universities typically have more than 90% of their academic staff with a higher degree. This is one of the reasons that they are capable of achieving both high student satisfaction (eg. LTPF results) and high research outputs. If Swinburne is to achieve the research outcomes proposed above and maintain its strong teaching performance, it must emulate these figures. An increase of 2% per annum in the percentage of academic staff with a higher degree would achieve a figure of more than 90% in 7 years.

Aim 3: Swinburne should increase the percentage of academic staff with a higher degree by 2% per annum to achieve a figure of more than 90% in 7 years.

1.4 Institutional Infrastructure

Over the last 4 years, Swinburne has commenced the redevelopment of its built infrastructure. This has resulted in a remarkable transformation of some of our campuses, and Hawthorn in particular. We have also commenced investing in our

teaching infrastructure through funds earned through the LTPF. If we are to achieve the outcomes outlined above, this process must continue and, in addition, we need to develop research facilities which will attract the best researchers in the world and secure Swinburne as a research leader.

The next element of the Campus Master Plan envisages a major building on Burwood Road – the Advanced Technologies Building. At present, this is budgeted at approximately \$40M. If we are to develop a truly iconic building and equip it with research equipment that will clearly signify a research institution, this figure needs to be substantially increased. It is believed that a figure of approximately \$80M will be required to construct and equip the type of building required. The remarkable growth of the University in recent years and its sound financial position means that this is achievable without the requirement to borrow funds.

The full range of equipment to be housed within this building is still being determined. An example of what is envisaged would include:

Engineering Structures Laboratory



Figure 3: Major international structures laboratories.



As a University of Technology, Swinburne must be a leader in Engineering research. It is proposed that we develop a major structural research laboratory. This laboratory must be on a scale that would clearly rate it as number one in Australia and one of the major facilities in the world. The cost of such a facility would be approximately \$10M.

Neuroscience Research Facility

During 2006/2007 we have significantly increased our staffing in the area of neuroscience imaging. This has been achieved through a major expansion of the Tier 1 Research Centre – The Brain Sciences Institute. As part of this expansion, Telstra Research Laboratories are in the process of relocating their laboratory that studies the impact of Radio Frequency emissions on humans to Swinburne. This has been achieved at minimal cost to Swinburne (approx. \$200K). Neuroscience is a rapidly expanding research field and one in which Swinburne is well placed to perform at a

high level. In order to achieve this, it will be necessary to develop a unique neuroscience imaging capability.



Figure 4: A magnetic Resonance Imaging (MRI) System (left) and a Magnetoencephalography Machine (MEG) (right).

In order to develop a major research facility in this field it is proposed to develop a laboratory that includes our existing imaging capabilities plus develops a Magnetic Resonance Imaging (MRI) system and a Magnetoencephalography Machine (MEG), as shown in Figure 4. Although such systems exist at other research institutes in Australia, the grouping of all the facilities together will enable Swinburne to carry out unique research not possible at other institutes. The cost of this facility is estimated at approximately \$5M.

Supercomputing

Swinburne has recently upgraded its supercomputer cluster. The total cost of this upgrade was approximately \$1.5M. The upgrade has, for a short time, given us the fastest machine in Australia. It is proposed to significantly expand our supercomputing capability at a cost of approximately \$4M. Such an upgrade would clearly place Swinburne in the Number 1 position in Australia.



Figure 5: A typical supercomputer cluster.

The supercomputer cluster represents a highly cost effective investment. With such a facility, it would be possible to support world class research efforts across a range of disciplines including: astrophysics, atom optics, computational chemistry, mathematical modelling, climate research and oceanography etc..

The three examples above give an idea of the scale of what is proposed. In each case, the full cost would not be borne entirely by Swinburne and matching funding would be sought from Commonwealth and State Government. Other projects will also be developed over the next year. The aim is to position Swinburne as a major research provider with unique facilities.

Aim 4: Within 4 years, Swinburne will develop a suite of world class research facilities which will underpin our research growth.

1.5 Teaching Excellence

The Learning & Teaching Performance Fund (LTPF) has attempted to use Course Experience Questionnaire (CEQ) and Graduate Destination Survey (GDS) data to compare the excellence of learning and teaching between institutions. Most educators agree that such measures have little validity for such comparisons. This data is, however, very valuable within an institution and a continual improvement in such measures within an institution indicates improved learning and teaching outcomes. When the LTPF was originally developed, the then Minister assumed that institutions which performed well in research would not perform well in the LTPF. For those experienced in the sector, it has come as no surprise that excellent research universities such as Melbourne, Queensland, ANU and UWA have all performed at a high level in the LTPF. Excellence in research can (and does) translate into excellence in teaching.

Swinburne regularly achieves good results in the CEQ and GDS surveys. However, these results have been static for many years. As an institution, we must continually strive for excellence in both our teaching and research. Therefore, we should aim for continual improvement in these measures. It is reasonable to aim for an increase of 1% per annum in each of the LTPF indicators over the next 7 years.

Importantly, initiatives such as the Swinburne Professional Learning Model, enhanced teaching infrastructure, a more flexible academic calendar and enhanced academic staff qualifications should all drive improved educational outcomes. It is also important to send a message to all staff that Swinburne values and rewards excellence in both teaching and research.

Aim 5: Enhance CEQ and GDS performance at a rate of 1% per annum in each of the indicators over the next 7 years.

1.6 Educational Experience

In moving forward, it will be critical that research excellence and teaching excellence go hand in hand. Many great research universities are also engaging learning environments. Good examples are Stanford and Massachusetts Institute of Technology (MIT), which are both research leaders and also innovative educational institutions. Stanford has been a leader in digital learning through its iTunes U partnership with Apple Inc.. MIT has been a curriculum leader by making all of its courseware and curriculum freely available on its web site.

Swinburne needs to be highly engaged with its students, value the learning experience and continue to innovate. The University has already started to develop

such a vision with the Swinburne Model of Professional Learning. Through this initiative, the Swinburne Experience will be characterized by:

- *Experiential learning.* Students 'learn by doing' by a major emphasis throughout their study on industry-based, problem-based and project-based learning, intended to engage and excite the new generation of students that are increasingly disengaged and disenchanted with conventional education. Online delivery of appropriate learning resources are available to support the students' need for just-in-time learning.
- *Flexible timing.* The six week term model that both enables acceleration (completion of a three-year degree in two years intensive study) and a new part-time paradigm that supports full-time employment while completing a three-year degree in four years, or a typical Masters in two years.
- *Hybrid study.* Students can take all units in remote mode through online delivery or in hybrid mode that combines on-campus study supported by online learning resources. We would expand our involvement with Open Universities Australia.
- *Pathways.* Swinburne leads the way with flexible entry into a range of programs, thus building stronger links between Higher Education and TAFE.
- *Tailored degrees.* Across all three-year degrees, students can elect to combine their study major with an unprecedented broad range of cross-disciplinary co-major and minor studies.
- *International study.* Students can undertake part of their degree studies at our Malaysian campus or the first year at any of our 2+2 partners, or via Study Abroad with any of our 80+ international partner universities.

Excellence in teaching needs to be highly valued and rewarded, both financially and in the status of outstanding teachers.

Aim 6: Swinburne will enhance innovation and excellence in the provision of a quality educational experience.

Within the academic discipline of Business, the measure of international quality has increasingly been international accreditation. The nature of such accreditation ensures both educational and research performance at a high level. The University is presently preparing the process of applying for accreditation through both the US (AACSB) and European (EQUIS) bodies. Such accreditation is very demanding but an important measure of excellence. Accreditation must, however, be consistent with Swinburne's mission as both an international university and a multi-campus institution.

Aim 7: By 2012 the University will have obtained both AACSB and EQUIS accreditation whilst maintaining the University's mission as an international university and a multi-campus institution.

2. Achieving Excellence

The aims outlined above are ambitious. It is, however, believed that they are achievable. Success, however, will require more than simply a desire to achieve the outcomes. Two major ingredients are required:

- Highly motivated and highly performing staff
- The necessary resources to achieve the outcomes

2.1 Performance Management and Reward

In order to achieve the aims set out above, Swinburne requires highly motivated, and highly performing, staff. The personal aims of staff need to be closely aligned with institutional aims and a culture of excellence needs to be encouraged institution-wide. Swinburne presently has a Performance Planning Review and Development (PPRD) system. As there are no tangible rewards associated with this system, its application across the University is "patchy". In some areas of the University managers either do not apply the system or do so in a superficial manner. In order to achieve the ambitious outcomes outlined above, this system alone will not be sufficient.

It is proposed to develop and introduce a Performance, Development and Reward (PDR) system. This system will apply to academic, corporate and administrative staff. The system will include the following attributes:

- Each member of staff will negotiate with their manager quantitative aims to be achieved each year. In the case of academic staff, these outcomes will be in the form of Student Evaluations of Teaching, Research metrics (research income, publications, research student supervision) and assigned administrative duties. For administrative and corporate staff the criteria will vary by position.
- The PDR system will involve regular meetings between staff and their supervisors to monitor progress and address issues.
- The quantitative measures used for academic staff will be discipline specific, recognizing different norms in each discipline.
- Based on the quantitative measures, the most highly performing staff will receive an annual bonus. For example, the top 20% of all staff might receive a 10% of salary bonus for the particular year. (Note that this would correspond to a 2% increase in the University's salary costs).
- As the measures would be quantitative and auditable, all subjective assessments would be removed in the determination of the salary bonus.

Not all staff are motivated by financial rewards. In such cases, staff could elect to have the bonus paid to a University account to be used to support their research, teaching or development activities.

The details of such a system will be developed in consultation with staff.

Aim 8: Develop a Performance, Development and Reward (PDR) system for implementation in 2008.

2.2 Institutional Resources

In order to be able to fund the developments outlined above, Swinburne must be able to continue to develop its revenue streams. At present, the University has a budget of approximately \$300M per annum. It is believed that in order to achieve the sort of developments outlined above, the University budget will need to grow at 4%-5% per annum above CPI (or 9%-10%) in dollar terms. If this was achieved, the University budget would be approximately \$550M in 7 year time.

Although the research growth outlined above will bring with it added research income, the major source of such an expansion will need to be from fee-paying student income. Government supported student revenue will likely grow at CPI (at best). Therefore, the University will need to continue to grow its international student numbers and start to significantly grow its postgraduate coursework student numbers. These are ambitious growth targets. However, it should be remembered that the University has, in fact, exceeded this growth rate over the last two years.

Aim 9: The University should grow its budget from \$300M to \$550M over 7 years (a growth rate of 9% per annum).

3. Conclusions

The aims outlined above are intended to create a strong culture of excellence at Swinburne. Highly achieving staff will be rewarded for their achievements whether they be in research, teaching or administration (or a combination of these). The reward process will be transparent and it is hoped that a culture of celebration of such achievement will also develop. The proposed outcomes are ambitious but achievable. They will, however, bring with them challenges which we must address. In the words of Steve Jobs: *“Be a yardstick of quality. Some people aren’t used to an environment where excellence is expected”*.

TAFE @ Swinburne

1. A Future Vision

As for Higher Education, a number of key goals are outlined below which will characterize Swinburne TAFE in 2015 (7 years time). To meet Government requirements and to have a sustainable organization that is resilient to fluctuations in demand, Swinburne TAFE will need to develop a portfolio of services and products spread over many areas. The dependence on Government income will need to be reduced to the stage where this is a part, but not the majority, of income.

Swinburne TAFE must be able to continue to develop its revenue streams. It will need to significantly grow its fee for service and industry delivery, as well as its international student numbers. These areas provide significant opportunities to grow and to differentiate Swinburne TAFE as a dynamic and responsive training provider. The University budget will need to grow at 4%-5% per annum above CPI (or 9%-10%) in dollar terms per annum and the TAFE growth in commercial income will need to be significant.

Aim 1: That the TAFE Division grows its commercial income to become 50% of all TAFE income by the year 2010.

1.1 Commercial Delivery

One of the most important issues for the future development of TAFE is that all staff develop a shared understanding of the importance of developing programs and services that are directly funded by sources other than the State Government's Office of Training and Tertiary Education (OTTE). The development of a much stronger commercial focus on such programs and services across TAFE has the potential to significantly enhance both the financial position of TAFE and the quality of education and training. The University is structurally well positioned to address such issues through the recently developed Swinburne Industry Solutions (SIS), Specialist Centres and Swinburne College. In coming years it will be important, not only that all these areas succeed, but that all staff within TAFE see such success as important. The significant enhancement of direct delivery for industry will provide financial returns to TAFE and enhance the reputation of Swinburne TAFE with industry.

Aim 2: That the profit (revenue less costs) from TAFE commercial programs increase by 15% per annum over the next 7 years. That all senior management staff within TAFE have this as a significant performance goal.

1.2 Student Outcomes

Strong student satisfaction and good employment outcomes are critical measures of the quality of educational delivery. Surveys conducted by the National Centre for Vocational Educational Research (NCVER) are a valuable performance measure, although these surveys are only conducted once every two years. Therefore, such results will need to be augmented with internal survey data. Results in such surveys should become an important element in determining the success of TAFE in achieving its mission and in the development of each member of staff, both within the TAFE Division and within the Corporate Sector.

Aim3: That Swinburne TAFE will achieve an increase of at least 1 percentage point per year in each of the NCVER categories over the next 7 years.

Aim 4: That, by 2008, Swinburne TAFE will have implemented a Student Feedback Survey which will measure student satisfaction for each subject delivered and this will be used as part of the performance development of teaching staff.

1.3 Teaching Excellence in TAFE

While the drive to commercialism is strong, teaching excellence is essential for all students. Student focussed learning within a pedagogy that determines the best mode, style and pathway for each student is essential. The student satisfaction indicators above provide one method of measuring the quality of teaching. It is also important to send a message to all staff that Swinburne values and rewards excellence in both teaching and commercial activity.

Aim 5: That Swinburne TAFE continues to build a Performance Based Culture (as per Aim 4).

1.4 Staff Qualifications in TAFE

Vocational Education relies on a workforce that has up-to-date relevant vocational competence and strong adult and vocational pedagogy. In line with the requirements of the Australian Quality Training Framework, teaching staff are required to have an initial qualification in their industry area as well as at least a Certificate IV in Training and Assessment. To improve opportunities for promotion, the TAFE Division must encourage and support the acquisition of higher level qualifications in Vocational Education and Training (VET) Practice.

Aim 6: That Swinburne TAFE will increase the percentage of teaching staff with a higher qualification in VET Practice by 2% per annum.

Aim 7: That Swinburne is rated in the top third for Professional Development expenditure on staff in OTTE benchmarking by 2009.

1.5 Developing Commercialism

Achieving the excellence outlined above and the commitment to commercial activity will require highly focussed and motivated staff. In order to differentiate Swinburne, two strategies need to be introduced.

1.5a A reward and recognition system needs to be implemented that encourages individuals and teams to expand their commercial activity and to make it more profitable.

Aim 8: Swinburne TAFE develops a reward system for individuals and teams that relates directly to the profitability of their commercial activity. These rewards can be used by the Teams to seed new programs and services.

1.5b As well as a financial dividend to the teams, it will be important that the next Enterprise Agreement negotiated with staff can provide the necessary framework to develop and expand flexibility, individualized learning for all clients including international and industry groups. Such a framework would provide appropriate financial rewards to staff and efficiency outcomes for the University.

Aim 9: As part of the next Enterprise Agreement ensure that Swinburne negotiates a distinctive agreement which rewards staff for their direct contribution to the achievement of the University's vision.

2. Conclusions

If Swinburne can achieve the aims set out above, it will have a TAFE which will be recognized by both students and industry for its innovation and quality of delivery. As such, it will have successfully differentiated itself from other TAFE institutes. Importantly, it will also have staff who share this vision of excellence and are rewarded appropriately for this excellence.