



**ENGINEERS AUSTRALIA**  
**STRATEGIC PLAN**  
**2005 - 2010**  
**FEBRUARY 2005**

**The trusted voice of the engineering profession in Australia**



**ENGINEERS  
AUSTRALIA**

# ENGINEERS AUSTRALIA

## STRATEGIC PLAN 2005-2010

Issued for the information and guidance of all members, office-bearers and staff of Engineers Australia, following endorsement by Council and National Congress in November 2004.

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A .pdf version may be accessed and downloaded from

**[www.engineersaustralia.org.au](http://www.engineersaustralia.org.au)**

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The strategies set out in this Plan are implemented through action items in an Operational Plan and Budget each financial year, in accordance with the consultation and governance processes of Engineers Australia applying at the time.

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# Why is this PLAN important for us?

Engineers Australia is the largest and most diverse association for engineers in Australia, and is one of the world's most respected engineering associations.

Under our Royal Charter, our principal objects and purposes are to promote and advance the science and practice of engineering. We do this through the efforts of our constituent Colleges, and a wide range of associated Technical Societies and other interest groups.

Council, as the principal governing body of Engineers Australia, acting with the advice of the National Congress, has a responsibility to ensure that we continue to deliver maximum value and results in pursuing our Charter.

Our greatest enduring strength is our ability to engage the diversity of knowledge, experience and interests of our volunteer members and staff working across the country, and also internationally. It would be too easy to rest on our past successes and present reputation. This Strategic Plan is intended to provide guidance for our many office-bearers and staff, and to ensure we don't

lose sight of those actions which will sustain our relevance and achievements well into the future.

This plan is the outcome of collaboration among some 50 senior office-bearers and staff executives at a strategic planning day in Canberra in July 2004. An environmental scan, outlining some of the issues likely to have a bearing on the future directions of Engineers Australia was prepared to facilitate discussions. A summary of that environmental scan is included as the Appendix to this document.

We are grateful to all those members and others who responded to the invitation to provide comments on the resulting draft. In the end, it has been the collective wisdom of our senior office-bearers and staff, supported by members' comments, which has decided the eight key objectives and strategies which will be the framework and the focus for our efforts each year.

● This is our members' Strategic Plan.



A handwritten signature in black ink that reads "Andrew Downing".

Andrew Downing  
National President



A handwritten signature in black ink that reads "Peter Taylor".

Peter Taylor  
Chief Executive

## STRATEGIC PLAN 2005-2010

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# What sort of ORGANISATION are we?

## How we see ourselves

We will be the trusted voice of the engineering profession in Australia.

Respected by governments and admired by our community, we will be known worldwide for expanding the horizons of engineering and advancing the interests of our members.

## What is our core purpose?

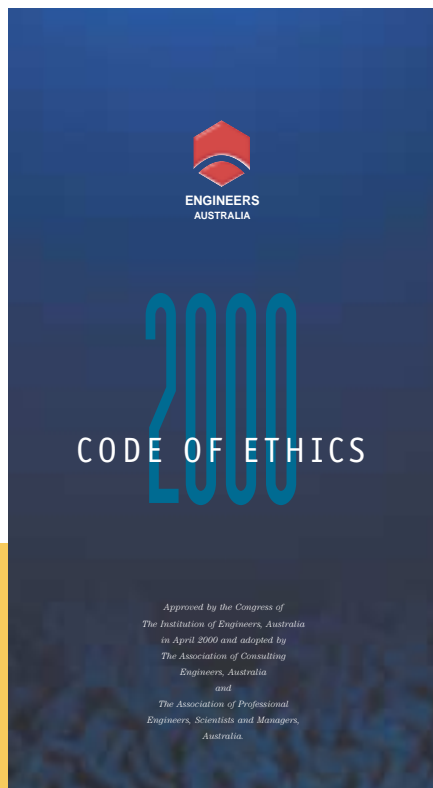
Engineers Australia is the national forum for the advancement of engineering and the professional development of our members.

### As professionals, we value:

- the pursuit of knowledge
- the exchange of ideas
- the commitment to professional and ethical standards
- the contributions of our members and staff
- the successes of our members
- the sustainability of engineering outcomes, and
- our leading place in the community

### ... and our intentions are to:

- advance the science and practice of engineering
- cultivate lifelong learning by our members
- promote the contribution of the profession as widely as possible
- champion professional and ethical conduct
- welcome all who wish to practise engineering
- allow our members' aspirations to flourish
- stimulate, and learn from, the creativity and innovation of our members
- celebrate excellence in engineering outcomes
- drive adherence to economic, social, and environmental values
- draw inspiration and knowledge from our engineering heritage
- sustain the integrity of the profession, and
- take the lead in advocacy for the profession





# What are our key OBJECTIVES?

1. To achieve increased recognition of the professional and leadership contribution we make to public policy and national wellbeing.
2. To create an ethos where each current and potential member, and each member of staff, feels that their contribution will be valued on its merits, and their needs understood, regardless of their professional or personal background.
3. To increase the number of young Australians developing careers in engineering and technology.
4. To increase acceptance that the award of Chartered status to our members for their competency is the assured measure of continuing professionalism in engineering.
5. To expand the avenues available to our members for education and learning through their careers, so they may equip themselves better for professional success and strengthen national engineering capabilities.
6. To extend and strengthen our achievements and esteem around the globe, in the interests of our members and the profession.
7. To build stronger relationships and shared sense of purpose among all our members and staff through more effective communications.
8. To harness our complex structures and systems into a more coherent and transparent enterprise for both members and staff.

*The strategies we will adopt in working to achieve these objectives are set out in the following pages.*



# How will we MANAGE our affairs to better effect?

Engineers Australia is changing its corporate governance practices to ensure better integration of its planning, budgeting, performance management and reporting functions.

Not all the desired improvements will be achievable in the timeframe of a single annual cycle – in the first year, key elements of the framework will be implemented, with refinement an ongoing objective.

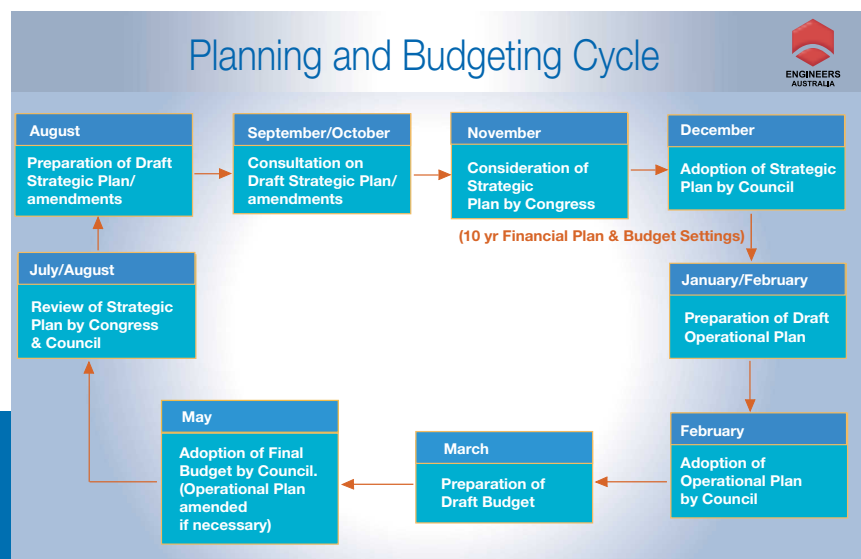
This plan represents the first major step in the changes to come. It will be reviewed at least annually when preliminary performance outcomes are available at the end of each financial year.

So that the Strategic Plan can drive our annual budgets, an Operational Plan will be prepared by January/February each year by the national and divisional executive staff of Engineers Australia. This will be done in consultation with

senior office-bearers of the Colleges, Technical Societies and our other special interest groups. Specific actions will be identified so that we can implement our agreed strategies. Responsible managers will be nominated and, later, budget needs will be identified for each action.

The Operational Plan will be amended for affordability if necessary, and the final version presented to Council in May each year as part of the process of settling each annual Budget.

Performance measures will be introduced so that progress in implementing the strategic priorities can be monitored and reported to the Council and members on a regular basis through the year. Formal budget reviews will be undertaken at the six and nine month points. The Annual Report to Congress and members will reflect the performance outcomes achieved through each year.



# What STRATEGIES will we use for each of our eight key objectives?

## I Public role and professional standing

*To achieve increased recognition of the professional and leadership contribution we make to public policy and national wellbeing.*

1. Ensure Engineers Australia maintains its focus on emerging public issues, and develops timely policy responses with appropriate input from members.
2. Pursue enhanced mutual benefits from building relationships to identify and advance our common interests with kindred bodies in science, engineering and technology fields, while recognising the value of the separate contributions provided by each discipline.
3. In our dealings with other disciplines and professions, ensure a strong focus on the achievement of enhanced community and environmental benefits.
4. Adopt a communications strategy for the whole organisation as a way of sustaining better performance in media, public and political forums.
5. Take greater advantage of opportunities in public and private events to promote the professionalism, leadership and community contributions made by engineers and the profession.
6. Work to assure the integrity of the profession through the promulgation of practice standards, and the timely and considered handling of practice-based and other disputes and complaints against members.
7. Ensure that robust standards and audit processes apply to the demonstration of competencies required to practise independently, and work towards a more unified and co-regulatory national registration system.



## 2 An inclusive professional team

*To create an ethos where each current and potential member, and each member of staff, feels that their contribution will be valued on its merits, and their needs understood, regardless of their professional or personal background.*

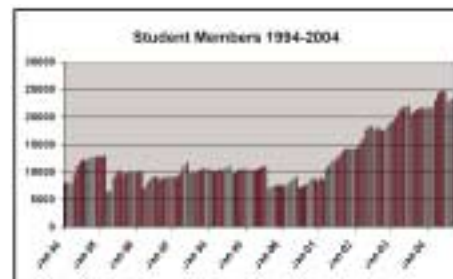
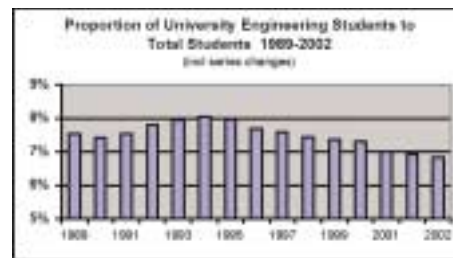
1. Inform members, potential members and staff in clear terms about the diversity of interest groups available to them, and the ethical standards to which Engineers Australia members are committed.
2. Establish guidelines for the activities of all Engineers Australia units towards maximising high quality outcomes and the diversity of contributions.
3. Find ways for more members to contribute back to the profession through such avenues as service on committees and mentoring.
4. Encourage intergenerational exchanges in Engineers Australia activities.
5. Introduce and explain more effective arrangements for the support of groups such as young engineers, women in engineering, technologists and associates, and members located outside metropolitan centres.
6. In engaging with employers, Engineers Australia will demonstrate and promote the ethical, equitable and inclusive behaviour expected of all members of the engineering team, and the consequential benefits for success in the workplace.



### 3 Youth appeal

*To increase the number of young Australians developing careers in engineering and technology.*

1. With the help of our many supporters in government and industry, develop a national strategy to promote the opportunities for young Australians in engineering and enabling fields.
2. Work with Young Engineers on core activities to help attract even greater interest in youth-oriented special programs and events promoting engineering across the country.
3. Encourage more members to engage directly with local school students through activities such as vocational counselling, and provide them with the necessary guidance and tools.
4. Encourage the media to portray diverse role models involved in engineering in ways designed to enthuse young audiences.
5. Confirm with educational agencies the national priority to expand engineering and enabling fields of study.
6. Keep our education accreditation system responsive to changing expectations of the profession, employers, and students.



## 4 Chartered status

*To increase acceptance that the award of Chartered status to our members for their competence is the assured measure of continuing professionalism in engineering.*

1. Make governments and engineering employers more aware that Chartered status is awarded by Engineers Australia to our members based on assessment of competencies demonstrated in the workplace.
2. Ensure that Engineers Australia's network of industry consultants is well-placed to promote the advantages for members and employers of Chartered status.
3. Put special emphasis on supporting graduates to attain Chartered status, including through our Professional Development Program strategies.
4. Continually look for ways to simplify and strengthen the assessment and retention requirements for Chartered status, at the same time maintaining their currency and rigour.
5. Link Chartered status with emerging issues in public policy development with governments and other bodies – including its value in regard to registration.
6. Make Chartered status a key plank of Engineers Australia's ongoing ROPS campaign - 'Raising Our Professional Standing' – with our members as a particular target.

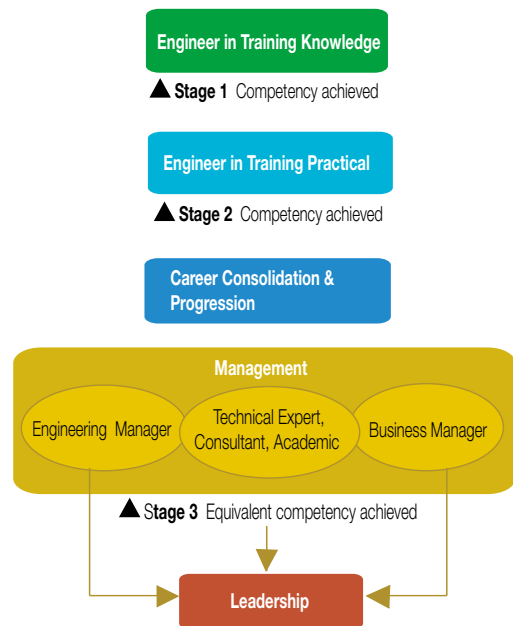


## 5 Continuing professional development

*To expand the avenues available to our members for education and learning through their careers, so they may equip themselves better for professional success and strengthen national engineering capabilities.*

1. Target our professional development programs, including conferences, in accordance with the new national priorities for all career stages; keep the national priorities relevant and find ways to keep quality consistently high.
2. Develop an overall framework for delivery of professional development services to members, wherever they are, which makes most practical use of our network of members, and available technology.
3. Encourage members to extend their professional development objectives beyond those necessary to fulfil their obligations for retention of Chartered status and/or registration, or for articulation to higher competency levels.
4. Maintain the momentum of working in partnership with employers to reinforce the value of ongoing professional development for our members and their enterprises.
5. Capture and protect the intellectual value of all Engineers Australia events, particularly conferences, through journals or other information repositories accessible to all our members.
6. Encourage all members to recruit eminent and high quality speakers for our events.
7. Work with other associations and like-minded bodies where joint professional development activities meet our needs.

### Engineering Career Path - continuing professional development



## 6 International reach and influence

*To extend and strengthen our achievements and esteem around the globe, in the interests of our members and the profession.*

1. Work to extend the recognition in other countries of the qualifications and competencies, and therefore opportunities, of our members; and ensure that our reciprocal obligations to members of overseas associations are honoured while they are in Australia.
2. Take the lead in advocating with government ways to reduce barriers to trade in engineering services.
3. Take account of the special needs of our members who are overseas in formulating our strategies for communications and service delivery.
4. With regard to our members in other countries, work with overseas associations and Australian government and other agencies to maximise local support and access to recognised professional development.
5. Communicate better with our members about our international programs, and how they can take better advantage of them in ways that are sustainable for Engineers Australia over the longer term.
6. Participate in forums for the advancement of the profession internationally; take 'good neighbour' initiatives where it is judged to be in our interests.
7. Provide a service to take maximum advantage of members visiting to and from overseas.
8. Implement organisational arrangements to improve the coherence of our international relationships and activities, and reinforce consistent messages about Engineers Australia.
9. Facilitate Australia's skilled migration objectives through such measures as our skills assessment service.
10. Pursue and implement bilateral agreements with regulatory authorities in trading partner economies to facilitate practice rights of visiting Australian engineers based on international registers.



## 7 Internal communications

*To build stronger relationships and shared sense of purpose among all our members and staff through more effective communications.*

1. Take steps to monitor the emerging needs of our membership on a regular basis, and use best endeavours to accommodate members' requirements.
2. Offer members clearer choices based on how they want us to communicate with them, and on how they wish to gain access to our other information and resources, customised to their individual interests.
3. Simplify the processes involved in transferring from student membership to graduate membership.
4. Promulgate and implement protocols for communication and information exchange among members and staff – including the effects of legal obligations such as privacy laws.
5. Gauge the effectiveness of our communications through usage monitoring and ongoing feedback.
6. Ensure that valuable information on the purpose and outcomes of all Engineers Australia committee activities is made readily accessible to members.



## 8 A capable organisation

*To harness our complex structures and systems into a more coherent and transparent enterprise for both members and staff.*

1. Implement nationally agreed priorities across the organisation in conjunction with individual unit programs.
2. Assign and communicate responsibility, authority, and accountability in accordance with priorities in our annual Operational Plans.
3. Align resourcing and funding strategies with agreed priorities, and report performance regularly against intended outcomes.
4. Provide clear guidance to new office-bearers, members, and staff on the way we do all our business.
5. Make performance reports on progress with our plans available to members and staff on a regular basis.
6. Implement better and more integrated ways of exploiting our membership database and our administrative information systems.
7. Implement improved governance arrangements, including for the higher governing and executive committees, and report annually to the members and to Congress.
8. Support the achievement of our annual priorities with cost-effective staff, financial, and administrative services.





# What will affect our future DIRECTIONS?

*(The following material is drawn from an environmental scan provided as background information for participants in the initial planning day in Canberra in July 2004. It does not form part of the Strategic Plan endorsed by Congress in November 2004.)*

The enduring aims of Engineers Australia are to promote and advance the science and practice of engineering in all its branches, and to facilitate the exchange of related information and ideas.

Further, Engineers Australia is to:

- Raise the character and status and advance the interests of the profession of engineering and those engaged in it;
- Liaise with governments and other bodies in Australia on matters of concern to engineers and to the engineering profession and to the wider community;
- Ensure that those admitted to membership have adequate knowledge, so that the community has confidence in the employment of engineers; and
- Promote honourable practice and repress malpractice, settle disputed points of practice and decide all questions of professional usage and etiquette affecting members.<sup>1</sup>

Engineers Australia is the largest and most diverse association for members of the engineering team in Australia and is one of the world's most respected engineering associations. It sets standards of engineering and practice, maintains a code of ethics and represents the engineering profession to government and the community.

Engineers Australia must assess and adapt to future developments in a wide range of circumstances external to the organisation in order to remain relevant to our present and future members, and to keep the profession at the forefront in contributing to community wellbeing and national prestige.

We have drawn on many sources for the following analysis,

which we acknowledge at the end of this Appendix. If, in the pursuit of brevity, we have misrepresented any of those sources, the responsibility is ours alone.

## Economic and labour market trends

Globalisation and the development of world markets have had the greatest impact over the last few decades on the economies of all nations, including Australia. In recent time, economic growth has been strong in the United States, China, and certain other East Asian economies.<sup>2</sup>

The Australian economy is expected to continue to record solid economic growth and low inflation in 2004-05 and 2005-06, against the backdrop of strong world growth. In the medium term, the risks to the global outlook remain skewed to the downside.<sup>3</sup>

- Globalisation enables greater work opportunities for Australian engineers in other countries. Regional trade agreements may have a significant impact on the future number of engineers who choose to work overseas, rather than in Australia. With a more mobile engineering profession, there is the potential that many professionals will not retain their membership when they leave to work overseas.

International trade and investment are critical to economic growth in Australia. Exports generate around one in six Australian jobs, and Australian exporting businesses are among our fastest growing and offer the best job opportunities.

- Foreign owned companies can and do employ engineers from overseas, which is a potential source of

# APPENDIX

membership and engagement. These engineers may be members of overseas professional associations, and may consider membership of several associations, particularly in specialist fields of engineering.

Preferential regional and bilateral agreements have continued to proliferate. The World Trade Organisation has also increased its activities with regard to multi-lateral negotiations about liberalisation of trade in services, with engineering services specifically on the agenda.

There is an increasing trend for Australia to enter into regional and bilateral agreements.

- Regional trade agreements have the potential to significantly raise the level of exports of Australian engineering products and services.

The domestic economy remains stable, with expected growth rates over 3 percent per annum in the short term. Australia has experienced solid employment growth and low inflation. However, household debt is at an all-time high, and therefore spending power could be under pressure were interest rates to rise markedly.

- Steady economic growth indicates no significant impact on spending pattern of engineers. Membership is a discretionary expenditure, and decisions about continuing membership will generally not be influenced by macro-economic considerations in the medium term.

Engineering is facing a long-term skills shortage issue – even now, infrastructure and resources work, together with significant outsourcing policies, have led to a doubling in the number of consulting engineering firms over the last decade, with a 7-fold increase in earnings.<sup>4</sup>

The insurance market will continue to be difficult, although the rapid increases in premiums in recent years may be moderated in the short to medium term.

- Business focus can tend to be on short-term profit and therefore an unwillingness to take on training of Australian graduates; coupled with fewer graduates and other skill shortages, the result is likely to be higher business migration levels to fill skills gaps. There are opportunities for Engineers Australia in this market with regard to gaining new members and accreditation of overseas qualifications.
- While engineering business might be expanding, there

is a danger that more and more early and mid career engineers may decide to leave the profession, and allow their membership of Engineers Australia to lapse. The profession needs to consider strategies to retain their technical engineering knowledge and skills, and reinforce the value of those skills with other non-technical business and management competencies.

- Engineers Australia has established the Centre for Engineering Leadership and Management (CELM) to respond to the needs of those engineers who find themselves taking on increasing responsibilities in supervisory, management and leadership roles as their careers progress.



Tightening labour markets and shortages of engineers in some sectors at the graduate level will encourage organisations to look at their recruitment and retention strategies. In the short term, firms are addressing this by employing staff from overseas or poaching staff from interstate.

As a result of continuing industrial relations reforms, there will be a continued reduction in union participation rates and an increased use of workplace agreements and short-term contracts.

- These may provide additional scope to promote professional development programs.

Past international activities of Engineers Australia have enhanced the image of the Australian engineering profession. Opportunities to build on these past successes will continue.

- Our involvement in the World Federation of Engineering Organisations and in the Engineers Mobility Forum is essential to continue association-to-association links and alliances. It enables Engineers Australia to influence world standards of engineering practice and build capacity in developing economies. It is also a brace against standards being dictated by bigger economies.
- Trade agreements have the potential to impact on engineering education in Australia, and on Engineers Australia's accreditation programs, making international agreements like the Washington, Sydney and Dublin Accords an important focus of the future. They should serve us well in both attracting qualified engineers to work in Australia, and create opportunities abroad for Australian engineers and engineering firms.
- The APEC Engineer initiative should continue to expand, provided that the Australian government continues to endorse this approach in trade negotiations.

A highly acclaimed bilateral mutual framework has been established with the Japanese government simplifying recognition of Australian engineers wishing to deliver services in Japan and vice versa.

## General demographic trends

The domestic demographic challenge is a declining proportion of the population being of prime working age. This is a permanent change - the age structure of the population is likely to stabilise with a far higher proportion of older Australians.<sup>5</sup>

- Australia's aging population will be reflected in Engineers Australia's membership demographics and in the potential pool of engineers eligible for membership.
- Engineers may choose to work longer, in line with increased life expectancy and in response to the declining percentage of younger age workers.

## Immigration

Australia has one of the most diverse populations in the world – 21 per cent of Australians come from outside Australia.

Because migrants are predominantly of workforce age, migration will assist in keeping up workforce growth. Moreover, if they are skilled they will raise general skill levels and productivity.

Since the mid-1990s, the skilled component of Australia's Migration Program has more than doubled from less than 30%. This trend is expected to continue.

- There are opportunities for membership growth from the migrant intake into Australia, and opportunities to grow the overseas skills recognition service provided by Engineers Australia.

## Participation

Engineers Australia supports eight Colleges and some 50 national committees, technical societies and interest groups spanning all areas of engineering technology and related management topics.

There are some 45,000 professional engineers – defined as a person having a bachelor degree or above, and

**Professional engineers in each State and Territory (Census 2001) :**

State and territory	Level of qualification of bachelor or above, and in engineering occupations	Bachelor degree or above in engineering or related technologies	Engineers Australia membership (excluding students)
NSW	14,844	64,073	14,846
Vic	11,898	51,359	11,054
Qld	7,742	33,417	9,114
SA	2,769	11,951	2,939
WA	5,898	25,460	5,826
Tas	603	2,605	915
NT	318	1,372	418
ACT	719	3,102	1,399
National Office			5,034
<b>Total</b>	<b>44,790</b>	<b>193,336</b>	<b>51,544</b>

who regard themselves in an occupation associated with professional engineering (eg Engineering Manager or Electrical Engineer).

There are nearly 200,000 professional engineers - defined as a person having a bachelor degree or above in the field of study entitled Engineering and Related Technologies.<sup>6</sup>

5 out of 6 people with Engineering and Related Technologies degrees work in the private sector, with the balance in government service. 1 out of 6 are employers or are self-employed – the balance are employees.

- Excluding student members, Engineers Australia has some 50,000 members.
- Engineers Australia has a small but growing percentage of technologist members. Opportunities exist to grow this member segment.
- Females account for less than 7% of engineers in the employment sector.<sup>7</sup>
- Engineers Australia has a very small percentage of female members. There are opportunities to raise the level of this member segment.

## Education

There are about 60,000 university students in the fields of engineering and related technologies. Taking all student categories into account, Engineers Australia presently has over 23,000 registered as student members.

Engineering seems to have been unable to attract a higher participation rate overall among university students – if anything, the proportion declined somewhat from 8% in the mid-1990s to less than 7% in 2002.<sup>8</sup>

Comparisons can often be subject to definitional discrepancies, but Australia ranks well down in the proportion of first degrees awarded in engineering - some 300 per million population compared to South-East and East Asian advanced economies which have rates 2-3 times higher, and many Western European countries with rates 50-200% higher.<sup>9</sup>

- There is potential for Australia to experience future shortages of engineering graduates in a range of disciplines, with consequences for economic competitiveness in the application of innovative technologies.

The proportion of females in all levels of engineering study has steadily increased since 1980 from about 3% to over 15% by 2000. Nevertheless, female participation in engineering still accounts for by far the lowest share in any broad field of study - less than half the next lowest.<sup>10</sup>

- Unless more female school students study the enabling sciences and perceive engineering as a career choice, low numbers of female practitioners, and therefore members of Engineers Australia, will continue.

## Technology innovation and uptake

Technological innovation is increasing, and the take up of technology in Australia is particularly high compared to other countries.

Information is not only available but it is also accessible, in part due to cheap distribution available through the Internet and Intranets.

Australian business increasingly is becoming densely networked domestically but especially internationally. Australian business will take place against a backdrop of continuing technological change and integration of markets.

Australia's economy will continue to evolve beyond the industrial age into the information age. The services sector will dominate domestic output and ultimately also our export profile. The challenge for business will be to locate and create the talent needed to compete in a global services economy.

Over 30% of Engineers Australia members are located outside a capital city area.

- Technological take up will heavily influence the way in which Engineers Australia does business and delivers its services, particularly to our younger members and members outside major metropolitan centres.
- Communications with members will increasingly be done via electronic means. With a membership which is inherently sophisticated in the use and global reach of information technologies, and becoming increasingly so, Engineers Australia must aim to offer access to modern, efficient and secure IT systems, including knowledge management for communities of interest among our members.

- Engineering business must take on the use of information technology to expand their businesses and export their services.
- Engineers Australia needs to be mindful that advances in communications technology enable members to gain access to other overseas organisations. It also provides an opportunity for recruitment and retention of members working overseas.

## Changes in the socio-cultural environment

Beyond strong support for the fundamental values and institutions of the liberal Western democratic tradition, there is a mix of shifting expectations and values across the community.



The era of protectionism and stability, into which many older Australians began their employment, has given way to a generation with the expectation of opportunity rather than continuity. They regard mobility in all its forms, for example in travel, residence, career and personal relationships, as part of life.<sup>11</sup>

Issues of quality of life and balance between work and leisure have become more important. There is a focus on balancing family and work, which may result in a focus on more flexible hours of work and a shorter working week, and continuing debate on broader social and family support issues which could affect employment conditions and the way businesses arrange their affairs.

- Engineers Australia will need to recognise the time pressures on professionals, and find flexible ways for our members to contribute and enjoy the benefits of membership which best meet their personal preferences.
- Changes to work practices such as more people moving to part-time work will result in lower levels of discretionary spending, which may impact on membership of Engineers Australia.

Workforce pressures, particularly the need for skilled professionals, language skills and overseas connections, and the desire for reciprocal opportunities overseas, have resulted in the need for increased business skills migration. This is creating new cross-cultural issues that go with a diverse workforce and population.

- Engineers Australia has a large number of members from non-English speaking backgrounds, and needs to be responsive to cross-cultural issues at both the professional and community levels.

Terrorism is a concern and there is a greater level of insecurity than previously. Systems and policies are being implemented which could be seen to constrain some of the freedoms previously enjoyed by Australians.

- The engineering profession has a major role to play in enhancing the nation's security in an era of increased threat from terrorism - in collaboration with other stakeholders, in prevention, preparedness, response and recovery.

## The professions in society

The community relies on the profession to set its own objective standards for membership, registration and practice. For Australia, closer monitoring of standards and closer definition of practice are two factors that attract the attention of the insurance industry.

Indeed, Chartered status and the national engineers registers are increasingly accepted as the benchmark for independent practice by industry and all spheres of government in Australia. When advocating the profession

to government, robust standards and procedures should be among the strongest arguments supporting the role of Engineers Australia.

However, society is becoming more litigious, and it is being driven by unreal expectations as to the capacity of systems to deliver goods and services to an impossibly high standard, without understanding that risk is involved in the delivery of professional services. Increasingly, the legal system is determining that any deviation from formal operating rules constitutes negligence.

- Engineers are facing a more litigious society, and are expecting Engineers Australia to provide some means of addressing this.
- Those admitted to Chartered status and Registration must demonstrate the competencies required to practice independently, and maintain their competency through Continuing Professional Development.

Short-termism can affect businesses as they face increasing demands from investors and shareholders to deliver quick results. This can and does result in cost cutting to fund returns and research and development suffer. However, this has been offset by a focus on accountability, particularly in the corporate governance area. Institutions and authority are not assumed to be trustworthy, and society is more and more imposing demands that business and government must show that they are honest, fair and efficient.

Many engineers occupy highly influential positions in industry, academia, and government. For many members of the profession, the acquisition of skills in establishing and managing businesses, and in bringing technology and innovation from the backroom into the marketplace, will be vital to future success.

In addition to leading organisations, engineers have been well represented in non-executive capacity in Australian boardrooms – as at 2000, some 13% of non-executive directors had an engineering background.

- Accountability expectations will have an impact on the ethical practices not only of company boards and executives, but may require a renewed focus on engineering ethics. Engineers' decisions will have to include more social and environmental considerations. Engineers cannot be seen, or see themselves, simply as technocrats.

The global competitive environment is increasing the pressure for cross-disciplinary and cross-professional collaboration and integration of decision-making. There is the potential for more complex interactions among science, engineering and other technology professionals.

- The increasing interaction among engineering, science and technology related professions may affect our future approach to membership and member services.

## Public policy issues

The political agenda in Australia has been characterised (on both sides of politics) with structural reform, which has covered almost every aspect of economic activity. Because of these reforms, Australia is enjoying high rates of productivity and economic growth. The reform has occurred incrementally over a long time period, and will need to continue.

Spending on key economic infrastructure and services, especially energy, transport, telecommunications, and housing is of concern. Engineers Australia has built a reputation for high quality contributions to public debate on such recent topics as report cards on national infrastructure, the case for enhancing global trade in professional services, and securing critical infrastructure and the built environment.

- There are opportunities for Engineers Australia to continue to demonstrate leadership and be at the forefront of public debate on engineering and technology related issues on behalf of the engineering profession.

Environmental degradation will be a predictable challenge to Australia's capacity to build security, prosperity and social harmony over the next 20 years.

Electoral pressure and a lack of coordination between governments may result in issues such as environmental problems, (especially water, salinity, energy, transport, and greenhouse gas management), being tackled individually, rather than as part of a more holistic approach across all spheres of government.

- There is an opportunity to influence long term planning in areas of infrastructure development and environmental management.

Skills shortages are a long-term issue. Some areas of professional practice such as engineering have not been taken on board by governments as an issue.

There will be a need to invest large sums in knowledge and skill development so as to create and retain competitive advantage. There is a need to broaden the definition of innovation, and put more emphasis on encouraging business to build new ideas, as well as technologies, into products and services.

The expectations for lifelong learning and skill renewal will bind education and commerce closer together. Education will more directly reflect the needs of business.

Business will play a greater role in funding and directing Australia's education system, but it must occur in ways which improve Australia's capacity to innovate and compete. This will occur as Australian governments find their priorities turned towards the needs of ageing baby boomers, especially health and aged care.

- Engineers Australia will need to keep public policy focus on research and development, sustainment of skills in engineering and related technologies, and the ability to exploit technology for competitive advantage.

The issue of sustainability is becoming critical, not only in economic and environmental terms, but also in social terms. With pressure on resource use and management of



consumer waste, business will need to look postproduction to address and report on alternatives for sourcing raw materials, as well as the social implications of their operations.

Areas of potential for innovation abound. Examples include the confluence of genetic engineering, materials science and communication technologies, biomimicry in relation to sustainability and reducing the need for non-renewable resources, and the development of clever clean-up processes for the human body (nanomachines that attack cancers), for ecosystems (toxin eaters and water purifiers) and for industrial processes (microbes that do the mining and the refining).

- There is an opportunity to continually push innovation and sustainability as the basis of engineering best practice.

## Factors affecting the membership decision

Membership is open to all qualified members of the engineering team who are prepared to subscribe to a common code of ethics and to commit themselves to the sustainable development of Australia.

Engineers Australia looks beyond the engineering category in advocating the value of membership of the profession. It must communicate with engineering practitioners, but also with groups that influence perceptions of professional standing, and groups that advocate on Engineers Australia's behalf.

There are a range of domestic and global engineering membership bodies available to practitioners, as well as other professional and academic bodies which current members and potential members will consider relevant to their own professional and personal development aspirations.

Some generalisations can be made about the attitudes and characteristics of engineering practitioners, simply by reference to their age. This yields some differentiators in regard to how they might regard the value of membership.<sup>12</sup>

- Baby Boomers (born 1946-1962) value teamwork and group discussions; view work from a process-orientated perspective; believe that achievement comes after

“paying dues”; value company commitment and loyalty; believe in sacrifice in order to achieve success; seek long-term employment; are involved in elder care; and may have older children at home.

- Generation X (born 1963-1976) values autonomy and independence; thrives on open communication; views work from an action-orientation perspective; seeks out the “whys” in issues; does not believe in “paying dues”; seeks to acquire skills and expertise; does not have long-term loyalty to a company (but are loyal to individuals); believes in balancing work-life objectives; looks for a shared crusade (inspirational company vision); and is reluctant to take on leadership roles.
- Generation Y (born 1977-1988) is more than three times the size of Generation X, rivalling Baby Boomers in size and spending power; information and media savvy; more heavily influenced by popular media than any other generation; reacts more favourably to visual communication; Internet natives: 80% of teens have a computer at home and about half have access to the Internet; has a strong work ethic, entrepreneurial spirit and sense of responsibility; is comfortable with change; is paving the way to a more open and tolerant society; blends collaboration, networking and interdependence to achieve goals; has self-confidence and optimism about the future; values skill development and thrives on mentoring/coaching; and is well educated.
- The characteristics that differentiate the so-called Generation Z (1989 - present) have not yet been adequately defined.

Engineers Australia will need to tailor its communications in ways which fit well with the lifestyle and aspirations of members and potential members in an ever-increasingly crowded competition for their time and attention.

- Some key strategic differentiators are identifiable based on the ‘career stage’ of the individual practitioner.
- Other segmentation methods are a valid means of achieving fine segmentation at a secondary level. These segments include demographic differentiation based on age, industry, engineering discipline and specialism, unit affiliations, roles within units, location and gender.

- Ultimately, Engineers Australia will engage with individual members and potential members better the greater the degree those individuals are able to customise the elements of membership of greatest value to them personally.

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