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Engineers Australia

Review of Learned Society

Phase One Listening Report

November 2020

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1. Introduction

1. One hundred years old in 2019, Engineers Australia (EA) is the profession's peak body with over 100,000 members. It operates under a Royal Charter, By-laws and General Regulations.

2. EA's purpose is to advance the science and practice of engineering for the benefit of the community.[1] This is done by educating EA's members and the community, facilitating the exchange of ideas and information, encouraging the development of knowledge and competency, setting and maintaining high professional standards for its members and informing community leaders and decision-makers.[2] EA's constituent bodies and their learned society functions are set out in Parts 4 and 5 of the General Regulations.

3. EA's learned society structure has been reviewed, changed and expanded over time with the most recent formal review occurring in 2012.

4. In May, cameron. ralph. khoury (CRK), a consultancy with experience in professional and member organisations, began a review of EA's learned society. The terms of reference (Attachment A) set by EA's Board, in consultation with the review project's Reference Group (see also Attachment A), specify that the review is intended to ensure that EA has the optimal framework to deliver learned society functions that best serve the current and future needs of the profession. The review must also encompass an assessment of the current delivery methods to see if they are relevant and optimal.

5. Our review process has so far involved:

   - Review of EA documents including statistical data (Attachment B),
   - Briefings by EA staff
   - Meetings with each of the College Boards and a cross-section of office-bearers and members of Technical Societies, Special Interest Groups, Divisions, the Board and National Committees – some 135+ individuals

6. This paper:

   a. reports back to stakeholders on our progress to date and on the key themes emerging from our initial open Listening phase. This is an opportunity for those we spoke to in the first round to check our summary and at the same time, for a broader range of stakeholders to have input, to test our understanding, to challenge aspects of it or to add anything missing.

   b. provides some important baseline information about how the learned society currently works (something we found was not well-understood in our first round of discussions). The aim is to have a common set of facts for all of us to work from.

[1] 2015 Royal Charter and By-laws clause 3.1
[2] 2015 Royal Charter and By-laws clause 3.2

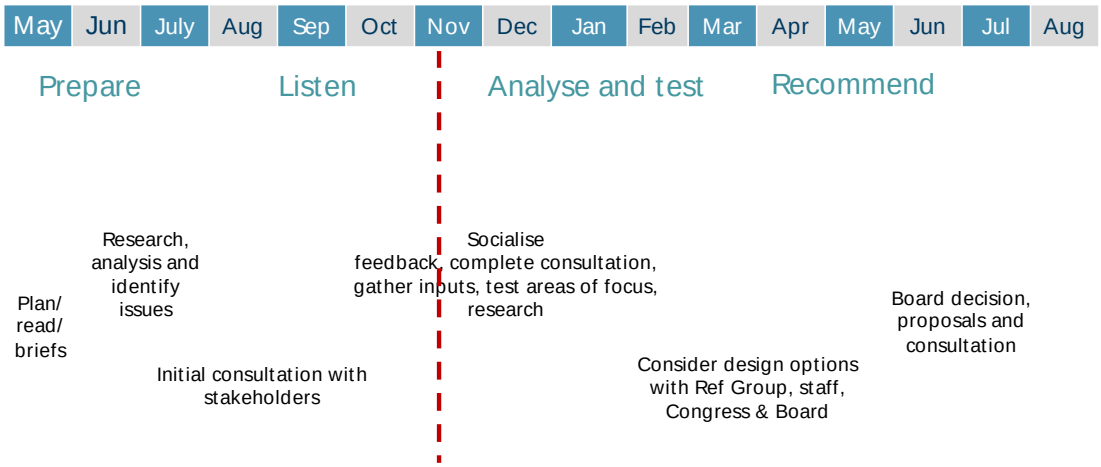
c. provides information about this next phase of the Review including how interested members can contribute, and other ways in which we hope to inform the Review, including seeking out non-member views, additional benchmark research and expert input.

7. At the end of this phase, the consultants will analyse the range of inputs and work with the Reference group, senior staff and Directors to assist the Board to come to a decision on a response and if desired, a package of reforms to put to Congress and the members as appropriate.

Timeline

8. The expected timeline at Figure 1 below has evolved from the original and we expect that it will evolve again over the coming few months.

Figure 1 Projected Review timeline – source CRK



2. Context

Engineering practice

9. We have been provided with extensive, expert background material and many of the members and staff we spoke with provided insights and strongly held views on the nature and future of the Engineering profession. While there are quite some different perspectives, there are some clear broad themes that are widely agreed. A summary of our understanding of the key elements of the context is provided below – with the assistance of EA's Chief Engineer.

10. There are currently an estimated 300,000+ qualified engineers working in Australia[3] (around 186,000 are in engineering occupations[4]). Their role has been described as "conceptualising, [planning,] designing, [testing and analysing,] implementing, producing, operating, maintaining and ultimately disposing of physical and information assets, in the forms of infrastructure, systems, products and services"[5].

11. More conversationally, engineers typically refer to their work as 'problem-solving' as the one common aspect of their work that applies across the many and varied disciplines, subdisciplines and at various points of the engineering lifecycle.

12. Engineers' conceptual and design role points to their critical importance for agility and innovation – with innovation increasingly being recognised as vital for the health of Australia's economic future[6].

13. As 'the world becomes more complex', the engineering profession faces a scale and pace of change – in technology and the strategic context in which technology is developed and operates – that is unprecedented. Engineers are working in the realm of Industry 4.0 and Engineering 4.0, the regulatory environments are changing, the education systems are changing, working modes are changing, as is society in general and the broader geopolitical landscape. The Covid-19 pandemic has accelerated many changes, with others in the wings.

14. The expectation is that "engineering services will move to greater asset complexity and deeper involvement with solution and outcome driven projects."[7] This complexity is likely to increasingly require engineers with inter-disciplinary and multi-disciplinary knowledge areas[8] or, at the very least, an ability to work in interdisciplinary teams. A broader range of generic

[3] Tooher, E J "The Future of Engineering and of Engineering competencies to 2040" p.1

[4] 2016 Census

[5] King, R "Engineers for the Future: addressing the supply and quality of Australian engineering graduates for the 21st century", Report of project undertaken by the Australian Council of Engineering Deans, 2008, P.5.

[6] Commonwealth of Australia, "Australia 2030 Prosperity through Innovation", 2017. Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020.

[7] Tooher, E J "The Future of Engineering and of Engineering competencies to 2040" p.6

[8] Adapted from King, R "Engineers for the Future: addressing the supply and quality of Australian engineering graduates for the 21st century", Report of project undertaken by the Australian Council of Engineering Deans, 2008, P.94.

skills are likely to be required of engineers.[9] Ethics, practice and behaviours are now accepted as the three dimensions[10] of engineers' professionalism[11].

EA's role

15. The role of EA is to support the engineering profession and EA's members to be able to "use [their] knowledge and skills for the benefit of the community to create engineering solutions for a sustainable future."[12]

16. EA plays a unique role by covering the entire spectrum of disciplines and sub-disciplines along with technologists and associates within the engineering profession. This was an outcome of the view that "for engineers to have an effective voice in the policies of this nation, it is necessary for them to speak as one in all matters affecting engineering"[13].

17. There are many strands to EA's efforts. EA maintains professional standards (for entry-to-practice, independent practice and leadership in practice) and assesses for engineering credentials. EA also must work to help its members navigate regulatory changes including registration and advocates to and advises government on regulation development.

18. EA is also expected to make submissions to governments and other bodies on relevant topics, it engages media, facilitates international mobility of engineers through numerous international accords and agreements, works with industry to develop capability building and credentialing strategies, supports networking and lifelong learning, provides recognition for excellence and innovation, advances engineering knowledge and knowledge-sharing, and provides engineering students and graduates with a range of mentoring, networking, and internship opportunities.

EA's learned society

19. EA's learned society is based on a concept that is said to have first emerged during the Renaissance[14] and has evolved in many ways in different countries and different sectors of the community since then. A typical definition today might read "an organization that exists to promote an academic discipline, profession, or a group of related disciplines such as the arts and science".

20. EA's learned society likewise has evolved over time. After the Second World War, in a step designed to "counter the danger of fragmentation" whilst providing mechanisms for "various

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[9] Tooher, E J "The Future of Engineering and of Engineering competencies to 2040" p.8, ACED Futures 2035: A Scoping Study, Caroline Crosthwaite, April 2019

[10] Tooher, E J "The Future of Engineering and of Engineering competencies to 2040" p.9

[11] Engineers Australia Code of Ethics, 28 July 2010

[12] Engineers Australia Code of Ethics, 28 July 2010

[13] The Institution of Engineers Australia, Structure of the Institution in Relation to its Learned Society Functions, Supplement, The Journal, The Institution of Engineers, Australia, July-Aug 1973.

[14] Benade, L Learned Societies, Practitioners and their 'Professional' Societies: Grounds for developing closer links, Educational Philosophy and Theory, 48:14, 1395-14000, DOI: 10.1080/00131857.2015.1104952

fields ..[to] be responsible for their own technical development"[15], EA added National Committees to its Divisional Branch structure. In 1974, Colleges were established in a recognition of the "diverse technical needs of a profession growing rapidly in scope and in knowledge, resulting in a high degree of specialisation"[16]. Technical societies and other bodies are now also part of the learned society.[17]

21. The General Regulations that frame the learned society were most recently amended in 2013.[18] Since then, there have been discussion papers in particular considering the role and structure of EA's Colleges.[19] In our view, the learned society should continue to evolve as needed within its own context.

The learned society today

22. Guidance for the operation of the EA learned society today is set out in the EA General Regulations. These regulations take a very structural view of the society, defining the framework in terms of each of the permitted bodies and with a high level general description of their roles.

23. We found in our initial consultations that there were gaps and inaccuracies in some of the descriptions we were provided by volunteers and so we have set out the relevant provisions of the General Regulations in Attachment C – for reference.

24. Our initial investigations revealed that the Regulations are less helpful than they might be as a guide to how the learned society actually functions. First, it is evident that the bodies within each class defined in the Regulations operate in a range of ways, giving greater or lesser emphasis to the defined roles, depending on their area of interest, scale, complexity of the field of practice and the impact of personalities - to name a few factors.

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[15] The Institution of Engineers Australia, Structure of the Institution in Relation to its Learned Society Functions, Supplement, The Journal, The Institution of Engineers, Australia, July-Aug 1973.

[16] The Institution of Engineers Australia, Structure of the Institution in Relation to its Learned Society Functions, Supplement, The Journal, The Institution of Engineers, Australia, July-Aug 1973.

[17] A paper presented to Congress November 2001 provides a useful description of how EA's learned society operated at that point in time: Roles and Responsibilities of IE Aust Units, Paper prepared by a Taskforce appointed by Congress, December 2000.

[18] In 2012, an EA staff project proposed 8 principles to govern the revitalisation of the learned society ie.

1. Colleges are the peak Learned Society group and represent specific engineering disciplines.
2. National Committees are activity specific instruments of Colleges and have defined terms of reference and timeframes for existence.
3. National Committees promulgating/ incubating an area of practice which has become successful are converted to an ongoing Technical Society
4. Technical Societies are the primary deliverer of CPD nationally
5. Technical Societies can align with more than one College
6. Technical Societies can spawn new colleges
7. Division Groups must be represented on relevant Colleges
8. A Standing Committee of Council oversights the Learned Society

[19] These include Discussion Paper, Role and Structure of Engineers Australia's Colleges, prepared for the College Chairs in 2017.

25. Second, it seems that the operation of the learned society has evolved away from the design implied in the Regulations for a range of practical reasons. These include:

    a. the need for specialised skills

    b. the need for more consistency and more rapid response than a fragmented volunteer structure can deliver

    c. the need to plug gaps in volunteer capacity

    d. because coordination and collaboration structures have not worked well enough; and

    e. because the changing nature of an area of practice has resulted in new bodies being formed to cover perceived gaps.

26. It also became clear that the structure as set out in the General Regulations is a top-down framework envisaged at a national level. Much of the activity is inevitably carried out at a local level, either in the Divisions or regions and by local staff and groups of volunteers – that do not map with any great consistency to the national blueprint. (Interestingly, the COVID19-driven shift to nationally delivered online events has challenged this very long-standing way of operating.)

27. We have included information provided to us about how the learned society functions at Attachment D. We would very much appreciate your assistance with completing that picture – either where we have missed things or simply got them wrong.

3. Key themes from initial Listening

28. Our initial consultations involved a significant number of members, some of whom provided us with papers on point[20]. Our sampling meant that those we spoke with were generally quite involved, holding elected positions and with relatively extensive experience of EA. We were told by that group that our consultations need to be broader for this round, and should include less involved members, more younger members, technologists and associates, the perspectives of women in engineering, engineers trained in other countries, the Divisions and of course, non-members.

Commitment

29. From our observation, EA is much enriched by hard-working member volunteers with considerable passion and commitment to EA. Many engineers clearly value the opportunity that EA provides to connect with colleagues and benefit from broader perspectives and ideas than available just through the workplace and are willing to commit a great deal of their own time to this.

30. That passion and commitment means that those volunteers are keen to see EA being 'the best version of itself'. Perhaps inevitably, in our first round of discussions, we heard multiple versions of what that should be.

31. We also found that sometimes respondents' passion and commitment was less directed to EA itself and more focused on a special interest area or a sub-group such as a Technical Society or the profession generally. In a very few cases, EA is seen as a barely tolerated 'necessary evil'.

32. It may be a reflection of an engineering culture, but compared with other organisations, we also found an apparently high level of desire from volunteers to be very hands-on, to design activities, to organise, to personally deliver and generally to do.

Key themes

33. While the feedback we collected was highly varied, it can be grouped into three very high level themes:

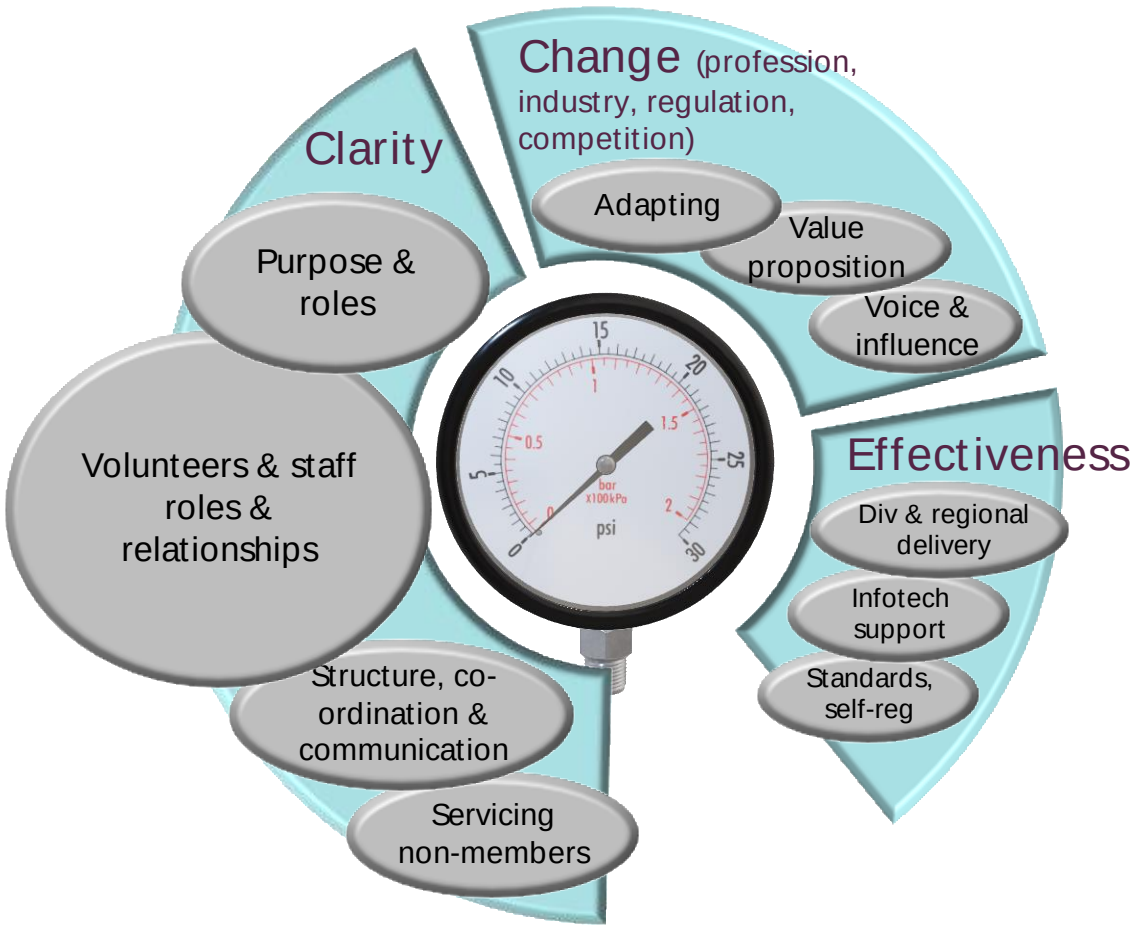
    a. **Clarity** – an absence of clarity about roles and responsibilities, boundaries, how structures work and in some operational policy settings

    b. **Change** – a concern about how well EA is adapting to significant change to the environment, including the practice of engineering, industry, community needs and regulation.

[20] See learned society discussion papers listed in Attachment D.

c. **Effectiveness** – a number of matters that go to EA's effectiveness, some to do with relevance and influence, some to do with quality of standards and self-regulation and some to do with the quality of support for the learned society.

Figure 2 Key issues raised in initial listening – size roughly indicative of how frequently mentioned - source CRK



34. The graphic above attempts to illustrate how frequently a matter was mentioned – for the sake of easier mapping of the feedback. It should not be read to imply any order of importance nor of the effort that might be required to address an issue. The remainder of this section of the Report provides further detail, expanding on each of the topics shown in the summary graphic above.

Adapting to change

35. Many members we spoke with were acutely conscious of the rapidly changing world of the profession, of industry and technology, of regulation and also of the competition from other organisations for the attention and membership of engineers.

36. Much of the feedback that we received reflected this backdrop of concern and a sense that Engineers Australia is not adapting to this change at a sufficiently rapid rate. These concerns were often expressed in terms of anxiety about EA's future – even by those who were clearly deeply committed to EA on a personal level.

Value proposition

37. Frequent concerns were expressed that not enough of the profession are members of EA, (most reported a percentage of between 20% to 30%). The explanations offered for this low membership rate varied and included worries about specific strategies, perceived relevance, image, profile but mainly because the "EA value-proposition" was seen as insufficiently clear.

38. Those involved with other professional organisations told us that EA's breadth of scope means it cannot compete with the depth of focus of more narrowly based professional and industry associations – and it is losing membership to those associations. Some felt that the Learned Society was a key differentiator in this competition that is not being sufficiently leveraged. It was also observed that EA needed to be more relevant to non-practicing engineers – who often moved on to membership of non-engineering organisations.

39. Not all change was seen as a threat. Our conversations took place during the height of the pandemic restrictions and despite some teething problems, many were highly positive about the rapid move to online CPD, meetings and other events. Some commented that they could see great opportunity for improved reach, quality and consistency of CPD. Others worried for the future role of Divisions and face-to-face networking.

40. From a community and government perspective, some hoped that the pandemic-driven public discussion about infrastructure, manufacturing capability, transport and climate change would provide opportunities for greater recognition of the importance of engineering.

Voice and influence

41. Concerns were frequently expressed to us that EA is not speaking out enough about the 'big issues' and is not seen to be influential enough with government and in the media. Many contrasted EA public profile with that of the Australian Medical Association (seen as an exemplar of public influence by a professional association).

42. Quite some frustration was expressed around the perceived failure of EA to be a powerful voice in public debates around engineering-related matters such as transport policy, infrastructure priorities, energy policy, climate change including bushfire resilience, water management, coastal protection and so forth. Some also argued that EA was too reluctant to express a stand on social issues such as family violence or paternal leave. On the other hand some felt that EA was trying too hard on too many fronts and would be more effective if it confined itself to half a dozen 'top issues'.

43. Some that we spoke to had some direct experience of contributing to EA policy submissions, providing advice or comments for EA advocacy or even making media statements themselves. The more experienced also drew distinctions between different types of advocacy, in particular

'industrial' advocacy on behalf of the profession, and 'policy advocacy' aimed at influencing public policy.

44. A few we spoke with had at some stage attempted to raise matters for public comment 'up the line' – generally to no avail. But most had little or no idea how the policy and advocacy processes at EA work.

45. Many also commented on a desire for stronger promotion of the profession and of EA membership – much as is observed from the public advertising by CPA Australia or the RACGP.

Clarity of purpose and role

46. Our consultations to date have found many volunteers consider that there is a lack of clarity as to EA's learned society framework and the role of the various EA constituent bodies. Many of those we interviewed were uncertain as to what their own committee or group should be doing, let alone how the rest of the structure operates.

47. Members of College Boards and Technical Society Committees frequently reported that although they were expected to submit a business plan and an annual report of achievements, they had never received any feedback as to the usefulness of either.

48. In the case of younger engineers, learned society language and concepts were often seen as very old-fashioned, somewhat opaque and not really the 'main game'. Some called for a re-naming of the Learned Society and a revamping of its terminology.

49. A particular point of contention was the role of the Colleges, with some strongly held views that their pre-eminence in the learned society had been eroded and needed to restored – and some equally strongly held views that Colleges are something of an anachronism that are less and less relevant to modern engineering practice and industry needs.

50. Quite commonly, other constituent bodies were viewed almost as competitors. For example, some national College Board members saw the Division Committees as usurping their role with 'their' (College) Divisional Committees. Some Divisional Presidents, on the other hand, questioned what their role should be if 'the Colleges do everything'.

51. Some, particularly College Board members, felt that they were not being provided with opportunity to fulfil all of their General Regulation functions, including to contribute to accreditation, competency standards, policy and advocacy. This was often expressed in terms of losing relevance, roles and importance.

52. While CPD and events such as conferences were generally seen as core work for the learned society, there were highly varied responses to our questions about the function of contributing to the body of knowledge for the discipline or area of interest.

53. A handful we spoke to described a methodical process of collating material from CPD, conferences, published papers, research reports and so forth, of systematically adding this to a searchable repository for members and of maintaining its relevance.

54. More typically, those we spoke to were unaware of how this function happened or how it was made available as a resource to members. Others described more specialist engineering organisations or international equivalents as better sources.

Volunteers and staff roles and relationships

55. The most frequently mentioned issue that we encountered was the effectiveness of the relationship between volunteer members and EA staff and in particular a lack of alignment as to the balance of responsibility and authority between each.

56. Many volunteers reported that they did not know what support they should expect from staff and difficulty understanding what policy or rules applied to volunteer activity.

57. Some reported frustration at what they saw as slow, opaque or generally bureaucratic decision-making when putting forward ideas or proposals for activity. We also heard that some volunteers can be unreasonably demanding in their dealings with staff and fail to recognise that staff have an obligation to support all volunteers equitably.

58. In other cases, the frustrations evident boiled down to different mental models of how volunteers and staff should work together – with some taking a view that staff should simply act on volunteer direction - and others taking the view that staff had to maintain standards and apply policy and that volunteer members had to work within those constraints.

59. While we only spoke with a few staff, it is evident from their comments and from some volunteers that staff too are struggling with a lack of clarity around how to work most effectively with volunteers.

Clarity of structure

60. We found a widespread view that the learned society structure is overly complex, difficult to understand and poorly co-ordinated.

61. Some interviewed volunteers have been involved in a number of EA constituent bodies and so have quite a broad perspective of EA and how it's different parts operate. Volunteers with experience of only one constituent body tended to have limited knowledge and contact with other EA bodies. There were frequent comments from both groups about the 'siloed' nature of EA's various constituent bodies.

62. In particular, there was low understanding of what we are calling the 'functional committees' that perform critical learned society tasks but sit outside the volunteer structure set out in the general Regulations – Professional Standards Committee, Accreditation Committee and the Professional Conduct Committee.

63. Despite the large number of specialised groups within EA, some of our interviewees felt that EA's learned society structure still leaves too many engineers without a 'natural home' and that this is because the structure has not kept up with changes in engineering areas of practice, including the blurring of existing disciplines and the emergence of new disciplines.

64. Some felt that in some ways the structure is too rigid and does not adequately cater for the changes in areas of focus that typically occur as an engineer moves through their career. They often said that the structure should be more flexible and agile and should not take a lengthy review in order to change when needed.

65. Some interviewees argued that EA needs to be based on industry and areas of practice, with more of a focus on practical application, rather than having a focus on an engineer's original academic qualification. Others rejected that view entirely and argued that the current academic discipline-based colleges were essential to the profession's rigour and that the other structures such as Technical Societies and Special Interest Groups provided sufficient flexibility.

Coordination and communication

66. Although some were aware that coordinating mechanisms had been 'designed in' to the EA framework, some we spoke with had no idea that they existed or how to distinguish their roles (which one do I/we use?)

67. Most were aware of the Congress, however those that were either members or had some experience of its workings were often quite critical, casting doubt on its agendas, processes and authority – in short, its ability to make a difference.

68. Relatively few members that we spoke to had direct experience of the EPAC, albeit we found a widely held view that it was not effective and in fact, had not operated for some time.

69. Members of College Committees were more aware of the College Chairs Forum, but again expressed some disappointment that it was not a more effective forum.

70. We came away with the impression that there were some opportunities for volunteer members to get together and discuss issues, however there has been no proper process to address the issues raised at those forums. Some respondents said that a number of perceived problems with the operation of the learned society had been 'stuck' for some time and that there were mounting levels of frustration with this. It also seemed that this was resulting in issues escalating to the EA Board – which often did not have the information or direct expertise to resolve the matters.

Service and support for non-members

71. This frequently mentioned point of contention arises from the structure of many of the Technical Societies which because of their specialised focus, include non-EA members, some of whom are engineers (and therefore eligible to be members) and some of whom are from other professions. This results in tensions over the extent to which EA should be distinguishing between servicing and supporting members and non-members – in practical issues such as fees charged for CPD or for use of EA facilities and resources, control and distribution of funds raised from events and so forth.

Divisional and regional delivery

72. While our primary focus to date has been on the national elements of the learned society, we did have some discussion with those with a focus on the operation of the learned society within the Divisions.

73. Continuous professional development (CPD) and conferences were a considerable focus in our interview discussions. Many interviewees felt that their EA body's CPD offering was restricted by organisational capacity and policy constraints. This is clearly the source of some tension, although many reported that this had been improving over the past year or so.

74. In the case of Technical Societies in regions, we heard that there was also tension as a result of EA's policy of charging a fee to Technical Society non-EA members attending a CPD event at EA's offices.

75. On the other hand, while there had been some teething problems, many interviewees praised EA's uplift this year in rolling out support for online participation and its webinar program.

76. Support for regional membership activity was also raised with us as a point of contention, with reports that it was difficult to obtain support for CPD and networking events when the numbers attending are very small compared with CBD events.

Information technology support

77. While many were highly complimentary about the rapid adoption by EA of online support for CPD and networking events, we heard a number of complaints about the Webex platform used by EA, contrasting it unfavourably with other platforms commonly used.

78. Respondents were almost universally critical of EA's website, describing it as impenetrable, inflexible, difficult to use and generally poorly designed.

79. A number also raised the absence of effective online research and collaboration tools, particularly where members were working together on content (eg. CPD material, policy, research, or other contribution to the technical body of knowledge).

80. In many cases, members expressed exasperation that a professional association with so much systems, software and technology expertise amongst its members could not somehow draw on this expertise or at least ensure that its offerings were of a world-class standard.

Standards and self-regulation

81. Some respondents told us that EA was insufficiently rigorous in its competency standards and that this was at some cost to quality in engineering practice – although there were differing explanations as to the cause.

82. We also heard from a few that EA's attention to the quality of practice by engineers and its complaint-handling about members was very 'light touch' which was contributing to this perception of EA being weak at self-regulation.

4. Initial observations

83. This section provides some initial thinking about a few of the emerging themes. It is not intended to be in any way a complete response to issues raised. Rather, the intent is to provide some observations by CRK based on our initial listening - that may be helpful for members thinking about the EA learned society.

84. It seemed to us that many of the differences in the views we encountered arose as a result of different assumptions as to:

a. The proper role and functions of the learned society

b. The proper functions that lay outside the remit of the learned society (ie. professional association functions)

c. How EA's learned society should most effectively operate

d. The most effective balance of roles and authority between volunteer members and staff

85. In our experience, this is not unusual. We have found when working with a number of member organisations that different views and expectations as to these matters can be a source of considerable tension. If not resolved, they can diminish the unity of the organisation and create considerable unhelpful 'noise' and frustration.

86. We offer these observations in the interests of beginning a process of discussion with a view to clarifying functions and responsibilities and thinking about segments and structures to deliver these. Our experience has been that a fresh way of distinguishing the elements of a complex system such as the learned society can be hugely helpful in promoting a constructive conversation.

87. Of course, in offering these observations, we recognise that functions and responsibilities do not always neatly divide into 'learned society' and 'professional association' nor into 'volunteer responsibilities' and 'employed staff' responsibilities and that the aim should be that functions and responsibilities are carried out in a cooperative and complementary way.

A. Learned society functions

88. Based on our review of the General Regulations and our interviews to date, our initial thinking, as a starting point for the discussion, is that EA's learned society functions are:

a. Setting competencies and standards for the profession – including:

i) Working with tertiary institutions to ensure relevance and quality of education (eg. accreditation)

ii) Establishing standards for experience and skill for professionals moving through their careers and assessing applicants against these (eg. chartered processes)

iii) Working with regulators to ensure public confidence in the profession through meaningful registration, qualification, regulatory enforcement and member disciplinary processes

iv) Monitoring for change, continuing relevance and emerging gaps

b. Ensuring the availability and delivery of relevant continuing professional development – including

i) Curating and creating content

ii) Organising and promoting and events

iii) Monitoring member's compliance with CPD requirements

c. Developing and maintaining a body of knowledge relevant to segments and groupings within the profession

d. Fostering networks and communities of interest amongst the profession

89. This would delineate EA's other functions as 'professional association' functions, namely:

a. The administration of the organisation, managing membership, finances, supporting resources and technologies and so forth

b. The public face and profile of the organisation: advocacy and policy work (discussed below in paragraphs 102 to 106)

c. Promotion of the organisation, recruitment of members, profile and brand management

d. Support for volunteers – advice and information, support for networking, CPD, and events management, technology platforms, elections, etc

e. Service to membership – membership and billing, information and advice, direct services, discount programs, chartering

90. We reiterate that this is a starting proposition. It may be that some functions we have delineated as 'learned society functions' should be delineated as 'professional association functions' or vice versa, which we will be happy to revisit following the next round of conversations.

91. We also caution against equating 'learned society' with volunteers and 'professional association' with staff – something we heard a little of in our first round of discussions. In almost every case above, both under the heading of 'learned society' or 'professional association', we expect that there will be complementary roles for staff and volunteers.

92. For example, if policy responsibility is seen as resting with the CEO and Chief Engineer under the leadership of the President of the day, this will require the organisation's professional policy staff to engage with technical experts amongst the members. Even something like

administration of membership lists will have an essential interface between staff and volunteers.

93. However delineated, we think that the functions are the most important dimension of design for a learned society and should remain relatively stable over time, albeit the activities undertaken to deliver will be flexible.

B. Segmenting the learned society

94. Another important dimension of the learned society is its segments – by this we mean the division of the profession into relevant, practical segments – which may include consideration of:

a. areas of academic qualification

b. areas of industry practice

c. areas of specialised technical interest

d. areas of 'horizontal' interest that may apply across the profession or a number of segments

e. location

95. The choice of segments should be driven by relevance and practicality, should adapt regularly to changes in the practice of the profession and need not correlate with structures.

C. Structuring support for the learned society

96. By this we mean organisational groupings designed to bring volunteers and staff together to deliver the functions (above) and serve the segments. These may or may not map to either the functions, segments or locations. By way of example, we would describe the Accreditation Board as a structure that delivers a function in the interests of members.

97. Arguably structures should be the last consideration, and should be the most flexible dimension of the EA learned society, adapting to changes in the environment, to priorities and demand, to specific challenges, to the capabilities of the people involved and to innovation in support and technology.

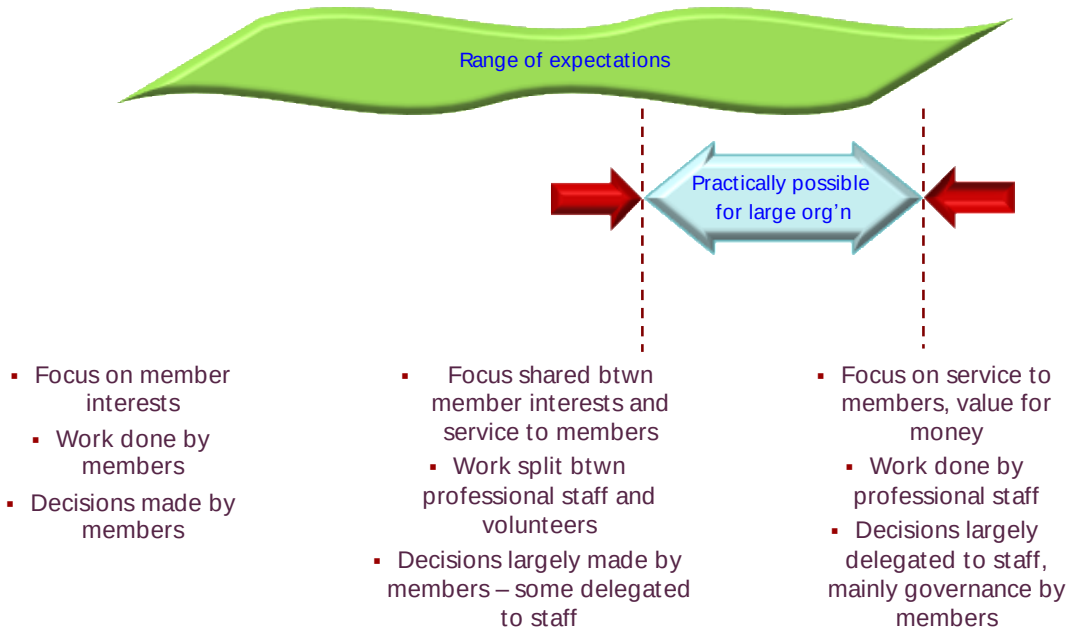
D. Volunteers and staff

98. From our experience of grappling with the often vexed question of the roles of volunteers and staff with a diverse range of member organisations, it is critical to a constructive debate to move away from overly simplistic or emotional arguments about 'who calls the shots around here' or attributing motive or incompetence to the 'other side'.

99. We have found the spectrum shown in the diagram below to be a useful way for organisations to think about how to best balance the responsibilities and roles of member volunteers and

staff below. As a generalisation, most member-based organisations have evolved over their history from fully volunteer beginnings (left side of the spectrum depicted below) towards the professionalised service organisations that are shown towards the right side of the spectrum depicted below).

Figure 3 Spectrum of balance between volunteers and staff in member-based organisations – source CRK



100. Our experience is that while the arguments can range to extremes, large, diverse and sophisticated organisations such as EA actually have a much more constrained range in which they can practically function. While some tensions are inevitable in a passionate, diverse member organisation, these can be much reduced with a shared and more aligned view of the balance being sought.

101. In our observation, members of Engineers Australia have a wider than usual range of 'mental models' of what kind of organisation it is. At least some of this divergence of opinion reflects the reality that separate groupings within EA in fact operate in quite different ways – some operating completely outside the EA 'orbit', some tiny, some effectively sizeable organisations in their own right.

E. Voice – policy and advocacy

102. Although we have not yet had a chance to investigate the way policy and advocacy is handled at EA, it is evident from early consultations that 'voice' is an important issue for members. As we continue our conversations, we think it might be helpful to offer a couple of observations from our experience with other organisations and see whether these resonate in the Engineers Australia environment.

103. The types of policy and advocacy issues that professional associations have to grapple with vary considerably - as do the resultant tensions. Common categories of advocacy issues typically include:

a. High level public policy issues – what others (government, community) should do

These are big picture public policy issues (eg. climate change, bushfire resilience, major infrastructure priorities, energy policy, education, taxation, public safety, etc). Often having an impact at this level is about raising awareness with the public, educating and persuading the media, applying pressure on politicians and so forth. While there is often some technical expertise required, much of being effective depends on communication, marketing and political skills.

b. Detailed public policy – how others should do it

Typically applied at a much less public level, examples have included serving on government and regulatory advisory bodies, putting detailed proposals to government or the community, providing submissions in response to government policy papers or draft legislation, serving on standards development committees. These forms of advocacy are usually much more reliant on subject matter expertise, but also require some coordination and quality/consistency oversight.

c. Advocacy for the profession – how to treat us

Sometimes described as 'industrial' advocacy, this category includes lobbying about the range of courses, number of places and cost of tertiary education, ensuring the profession has a 'seat at the table' where needed and, in some professions, remuneration or taxation related matters. While subject matter expertise is a part of this, it can be much more dependent on lobbying and political skills, soft influence, forming alliances and doing deals.

104. There are also often significant differences of opinion amongst members of a professional association – that become more common the more diverse the organisation is. These can include different perspectives or interests of professionals who practice alone or in small partnerships and those that work for large organisations; differences because of industry competition (eg. renewables v. oil & gas); differences between those that educate or train and those that employ; differences between those that regulate or monitor and those that practice. Even with quite specialised fields of practice, significant and bitter differences can exist between schools of thought.

105. A special category of difference that must be resolved is when the interests of the community, and therefore the interests of the profession as good citizens, are at odds with the self-interest of the professionals or sections of the profession. (An example is when the accounting profession grapples with their public position on the increasing costs of tax advice.)

106. Some of the professional associations we have worked with have also struggled with the need to be highly responsive in meeting the ever-shortening news and opinion cycle. Organisations that can offer a virtually instant response to a media enquiry or who can be first with a commenting press release or maintain a 24/7 social media presence will soon become the 'go-to' source of expert commentary. This capability is increasingly only sustainable with heavy reliance on full-time employed expert staff.

5. Responses

107. As indicated at the beginning of this Paper, we will be reaching out to EA members (as well as engineers and stakeholders who are not members) to obtain their input and assist in refinement of the issues and framing of options.

108. In addition, members and other stakeholders are welcome to contribute to this Review in any way that suits. While written comments are by no means necessary, we would of course welcome informal written commentary on any of the questions raised or other matters. A simple email will suffice – directed to CRK consultant Phil Khoury at phil@crkhoury.com .

109. To assist thinking and participation, we have set out below a number of broad questions – but we are not of course confining input to those questions.

a. What do you see as the key changes to the profession, and to the external environment, that are impacting on the practical day-to-day operation of EA's learned society functions?

b. Does this paper adequately capture the key issues relating to learned society operations? Are there other important issues that need to be considered?

c. Where do you think EA should be in the spectrum of member organisations (Paras 98 - 101, Figure 3) so far as the balance of responsibility between volunteers and staff?

d. What functions do you think are properly the responsibility of EA's learned society and what are properly the responsibility of EA's President and CEO and staff?

Please note - because we are still at the stage of defining and exploring the issues, we have deliberately not asked for solutions at this point.

Attachment A – Review Terms of Reference

Review of EA Learned Society

The 2020+3 Strategic Plan for Engineers Australia has identified Future Ready as one of its six key strategic shifts. In particular, the engineering profession and EA needs to be positioned for the future of work by ensuring that our Learned Society is optimised to deliver and remain relevant for the emerging and future profession.

The Board of EA has commissioned a formal review of its Learned Society framework. Consultation on the Terms of Reference has been undertaken with the National Congress of EA through a representative Working Group. The input from the Working Group has been constructive and valuable in reframing the terms of reference, clarifying governance and other aspects of the Learned Society Review.

Key Theme – Deliver tomorrow's profession

- Maintaining technical excellence
- Strengthening cross field relationships
- Ensuring broad contributions

Terms of Reference

The review of Engineers Australia (EA) as a Learned Society is intended to ensure that EA has the optimal framework to deliver Learned Society functions that best serve the current and future needs of the profession.

The review is to encompass an assessment of the current delivery methods to see if they are relevant and optimal.

The review will also consider whether any changes need be made to EA's Royal Charter, By-Laws and Regulations to implement these recommendations.

Scope

The review will cover all learned society roles and functions. This will include the colleges, the technical societies, national committees, standing committees of the Board, the Professional Standards Committee, the Professional Conduct Committee, the Accreditation Board and by extension the Board and the staff skills and structure to support such groups.

Governance

The Board of EA is the governance body for this review as it has governance responsibility for EA and the contractual responsibility with the appointed consultant.

National Congress is the body for debating, agreeing and recommending any changes to EA's governing instruments. It is fundamental to implementation of any such actions resulting from the review. However, appropriately, governance of the review itself rests with the Board.

A Reference Group has been established as a sounding board to test and assist in validating outcomes from the Consultant's review. It is not a steering committee (which function is retained by the EA Board).

The Reference Group comprises the National President (as Chair), the CEO, 2 Past National Presidents, a representative of Young Engineers Australia (YEA), and 3 representatives of National Congress being one each from the Colleges, Divisions and Technical Societies/National Committees.

Reference Group		Other EA roles
Chris Champion	National President & Chair	Chair, National Congress
Bronwyn Evans	Chief Executive Officer	
Doug Hargreaves	Past President 2010	Chair, International Advisory Panel
David Cruickshanks-Boyd	Past President 2015	Member, Accreditation Board
Nicole Brown	Young Engineers Australia	National Committee, Young Engineers Australia
Peter Sokolowski	Colleges	Chair, Electrical College Board
Bruce Howard	Divisions	Immediate Past President, Sydney Division
Nolan Bear	Technical Societies / National Committees	Past Chair, Australian Cost Engineering Society

The Reference Group provides a broad sounding board with wide EA experience and bring different perspectives to the review.

Project Phases & Timelines

The phasing of the review and an indicative timeline is provided while recognising that the project needs to be managed with some flexibility. A balance needs to be struck between allowing the process to unfold without any sense of undue haste – and maintaining sufficient momentum to maintain member interest and achieve an outcome.

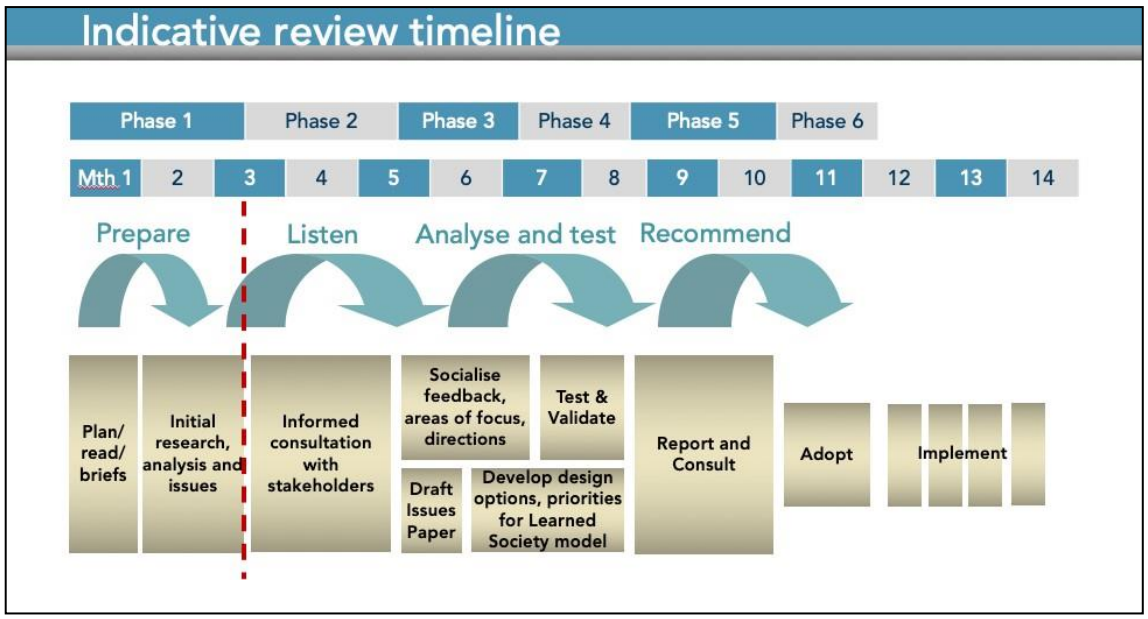
The review is a staged approach with the following key phases21 (illustrated below):

- Phase 1 – PREPARATION
  Initial desktop research by consultant.
- Phase 2 – LISTEN
  Wide consultation with all learned society key participants to help define and agree the problem/s to be solved.
- Phases 3/4 – ANALYSE & TEST
  A draft Issues Paper is shared from Phase 2 Listening to identify areas of

[21] Note that this original projected timeline has evolved with early experience – see Page 4

focus, direction. Collaboration to develop design options for the learned society function, priorities, timeframes. Test & validate.

- Phase 5 – RECOMMEND
  Draft report with recommendations to Board. Test & validate. Refine.
- Phase 6 – ADOPT
  Subject to wide consultation and adoption by Board, and National Congress as appropriate where changes to Royal Charter and/or By-Laws are required.



Attachment B – List of reviewed materials

EA Constituent Documents and Policies

- 2015 Royal Charter and By-laws
- Engineers Australia General Regulations as amended with the approval of the Board on 5 December 2019
- Technical Societies of Engineers Australia Guidelines & Regulations, Revision 7, May 2006
- Engineers Australia's Strategy 2020-2023
- Professional Standards Committee Approved Terms of Reference, approved by Board on 6 December 2018
- Engineers Australia, Accreditation Management System Accreditation Principles AMS-POL-01, version 2.0
- Engineers Australia, Australian Engineering Competency Standards Stage 2 – Experienced Professional Engineer, approved 5 June 2012
- Engineers Australia, Continuing Professional Development Policy approved by Board 10 October 2017
- Engineers Australia, Stage 3 – Engineering Leadership and Management Competencies

Membership data and documents

- Engineers Australia Membership Numbers – Mar 2020
- Engineers Australia, 2020-09 College Membership data
- Engineers Australia, Tech Society membership September 2020
- Engineers Australia Fee Schedules 1 July 2020 – 30 June 2021
- Engineers Australia, Where will Membership Take You?
- Engineers Australia CP Eng, The Measure of Excellence
- Engineers Australia, Chartered Areas of Practice, https://www.engineersaustralia.org.au/Chartered/Chartered-Area-of-Practice
- Engineers Australia, Market research data
- Engineers Australia, Creating a better tomorrow. Volunteer Handbook, 2020

Learned society discussion papers

- Discussion Paper, Role and Structure of Engineers Australia's Colleges, prepared for the College Chairs, 2017.
- Brown I (compiler), National Committee input to the review of the Learned Society Framework, 2 July 2020
- Collier P, Discussion Paper. The Colleges: Enabling Their Role as the Learned Societies of Engineers Australia
- Crow T, Ireland V, Tooher T and Underhill M, Engineers Australia Becoming Future Ready, Board Submission, 3 May 2020

- Ireland V and Crow T, Paper #1 Convincing Engineers Australia to undergo a Strategic Change
- Engineering Futures Working Group, College of Leadership and Management, Sydney 20 December 2019, Future of EA – Becoming Relevant again
- Tooher T, Paper #2: The Future of Engineering and of Engineering competencies to 2040
- Chairs of the Technical Societies, Proposed Review of the Learned Society Framework. The view from a Technical Society perspective, 5 June 2020
- Engineers Australia, Discussion Paper, Proposed Communication/ Collaboration Structure for Learned Society Activities

Other documents

- Benade L (2016), Learned Societies, Practitioners and their 'Professional' Societies: Grounds for developing closer links, Educational Philosophy and Theory, 48:14, 1395-1400, DOI:10.1080/000013857.2015.1104953
- King R (2008), Engineers for the Future, Report for the Australian Council of Engineering Deans
- Engineers Australia Annual Reports
- Engineers Australia, Learned Society What is it and what does EA's Learned Society do
- Engineers Australia May 2020, Registration of Engineers. The Case for Statutory Registration
- Example College Strategic Plans, Agendas and Minutes
- Example Technical Society Agendas and Minutes
- Engineers Australia, 2019 Technical Sessions
- The Institution of Engineers Australia, Structure of the Institution in Relation to its Learned Society Functions, Supplement, The Journal, The Institution of Engineers, Australia, July – Aug 1973.
- Michael, K (2001), Roles and Responsibilities of IE Aust Units, Paper for presentation to Congress November 2001.

Attachment C - The learned society in the General Regulations

110. EA's General Regulations[22] state that EA "develops and implements its learned society functions primarily through the Colleges, technical societies and the Engineering Practice Advisory Committee"[23]. Divisional committees, Special Interest Groups and National Committees also play an important role.

Colleges

111. Colleges provide "a discipline based home for members and .. a vehicle …[to] advances the science and practice of engineering for the benefit of the community through building the body of engineering knowledge and supporting the career development of engineering professionals".[24]

112. Each College must have a College Board responsible for[25]:

a. identifying and facilitating the delivery of continuing professional development through College branches, National Committees, affiliated Technical Societies and conferences;

b. identifying emerging changes in technical standards and gaps for their discipline;

c. consulting with and providing advice to the Professional Standards Committee on the technical standards for their discipline;

d. identifying emerging new disciplines/ significant cross-discipline areas that may require a new College or Technical Society or cross-College approach and providing the Board with advice as to this via the College Chairs Forum;

e. contributing to the body of knowledge relevant to their discipline;

f. identifying and facilitating the provision of high-level technical advice that contributes to public policy and representing EA in the wider community in line with EA policies;

g. participating in expert panels, committees or forums and nominating members of the College to external bodies as required;

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[22] Note at start of Part 5

[23] Reg 5.01 provides that Engineering Practice Advisory Committee is a standing committee of the Board consisting of National Dep President, Chairs of College Boards and Presidents of Tech Societies. Its functions include considering matters relating to EA's learned society function and providing advice to the Board about this (Reg 5.02(a)) and reviewing the activities of Colleges and Technical Societies in relation to learned society functions and providing guidance to them (Reg 5.02(d)).

[24] Reg 5.07

[25] Reg 5.10

h. collaborating and cooperating with Technical Societies and other EA Colleges; and

i. providing leadership and guidance to College branches and National Committees.

113. The College Board is required to prepare a 3 year plan and an annual report to the Board.[26]

Technical Societies

114. EA's Board may establish or recognise a Technical Society with functions that include[27]:

a. collaborating with relevant Colleges in implementing EA's learned society functions;

b. establishing and maintaining the body of knowledge relevant to the Technical Society;

c. participating in establishing and maintaining requirements for attaining engineering qualifications in the disciplines relevant to the Technical Society;

d. participating in periodic reviews of the Australian Engineering Competency Standards;

e. participate in setting best practice standards for ongoing professional development and competency assessment of members in the disciplines relevant to the Technical Society;

f. representing EA in the wider community consistent with EA policies;

g. nominating a temporary member of the Professional Conduct Committee if asked to do so by a College; and

h. any other function conferred on it by resolution of the Board.

115. The Technical Societies Australia, Guidelines & Regulations, May 2006 provide more detail.[28] These specify that a Technical Society is "a group of practitioners formed to foster and promote the practice of a particular field of technical endeavour that may transcend formal professional disciplines".[29] Membership is open to EA members and those not EA members. "A member of a Technical Society who is eligible to be a member of Engineers Australia should also become a member of Engineers Australia in due course."[30]

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[26] Reg 5.10(3)

[27] Reg 5.19

[28] They specify minimum size requirements and processes for establishing regional sub-groups. A Technical Society must be led by a Committee and in all but exceptional circumstances the Chairman, Secretary and Treasurer must be EA members. EA services and fee arrangements are also specified.

[29] Clause 3.01

[30] Clause 7.01

Other EA bodies

116. Learned society functions are also attributed to other EA constituent bodies specified in Part 4 of the General Regulations.

117. In particular, Divisional Committees' responsibilities include liaising with Colleges and Technical Societies in respect of EA's learned society functions undertaken at the local level[31].

118. Special Interest Group's functions include working and liaising with Colleges, Technical Societies and Divisions to meet the needs of their cohort.[32]

119. Where a national focus is required for a significant area of engineering that is not covered by a College or Technical Society, the Board may constitute a Centre including to identify gaps or emerging needs in skills and knowledge for that area of practice.[33]

120. Lastly, a National Committee of up to 6 members may be established to provide a national focus – and may establish a branch within a Division.[34] A National Committee must have a term of not more than 3 years, but further terms are possible.[35]

Oversight bodies

121. The Engineering Practice Advisory Committee is a standing committee of the Board consisting of the National Deputy President, Chairs of College Boards and Presidents of Technical Societies. Its functions include considering matters relating to EA's learned society function and providing advice to the Board about this[36] and reviewing the activities of Colleges and Technical Societies in relation to learned society functions and providing guidance to them[37].

122. Each College is represented on the College Chairs Forum. Like the Engineering Practice Advisory Committee, this is a standing committee of the Board that provides a forum for the exchange of ideas between Colleges and, more broadly, effective communication between learned society bodies[38].

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[31] Reg 4.05(1)(b)
[32] Reg 4.14(4)
[33] Reg 4.14(5)
[34] Reg 4.15
[35] Reg 4.15(g)
[36] Reg 5.02(a)
[37] Reg 5.01 provides that Engineering Practice Advisory Committee Reg 5.02(d)).
[38] Reg 5.04

Attachment D - An overview of EA's learned society bodies

123. This section is intended to describe how EA's learned society bodies operate in practice and is based on our meetings with some 20 volunteer boards/committees and data provided by EA staff. Inevitably we have had to generalise in this section. We are aware, for example, that practices across Colleges are not uniform and so the experience of some volunteers will be different from what is described here. Perceptions also differ. In some cases, staff advised that there had been recent changes which not everyone was aware of. We are also conscious that we have not spoken to every group within the learned society, so our understanding in some areas is still incomplete. So corrections or suggestions are most welcome.

124. We have included in this section bodies specified in the General Regulations. We have also included other groups including committees established by EA's Board that are within our Review Terms of Reference.

Colleges

125. Eight of the nine Colleges provide a technical discipline specialisation – however several of the Colleges described their discipline as more akin to a horizontal specialisation (crossing a number of other College disciplines) rather than a vertical specialisation (distinct from other Colleges).

126. College membership varies greatly in number, as the following table demonstrates.

Figure 4 Membership by College – 06/07/2020 – source EA

Div.	Biomed	Chem	Civil	Electrical	Enviro	ITEE	CLM	Mech	Structural	Total
CAN	61	41	597	565	125	587	869	703	149	3,697
NO	46	379	2,313	1,029	230	433	659	1,361	693	7,143
NCL	38	212	1,416	720	224	238	514	896	448	4,706
NTHN	6	40	301	166	36	56	140	195	88	1,028
QLD	379	971	8,161	4,164	953	1,735	2,404	4,930	2,293	25,990
SA	118	343	1,422	1,094	263	683	765	1,621	692	7,001
SYD	712	883	8,443	3,813	1,060	1,848	2,773	4,896	3,409	27,837
TAS	30	32	557	343	63	101	140	361	174	1,801
VIC	352	998	7,455	3,800	1,044	1,853	2,671	5,344	2,581	26,098

WA	115	1,057	3,882	2,948	479	1,173	1,476	3,879	1,556	16,565
Total	**1,857**	**4,956**	**34,547**	**18,642**	**4,477**	**8,707**	**12,411**	**24,186**	**12,083**	**121,866***

*Nb. Includes multiple memberships as a member can be a member of more than 1 college

127. College activities, undertaken with EA staff support, may include any or all of awards, conferences, scholarly journals, Australian Standards engagement, technical sessions, workshops, seminars, training, the provision of advice regarding professional standards, identifying emerging changes, provision of advice contributing to Engineers Australia submissions/policies/position papers and some also have regular newsletters.

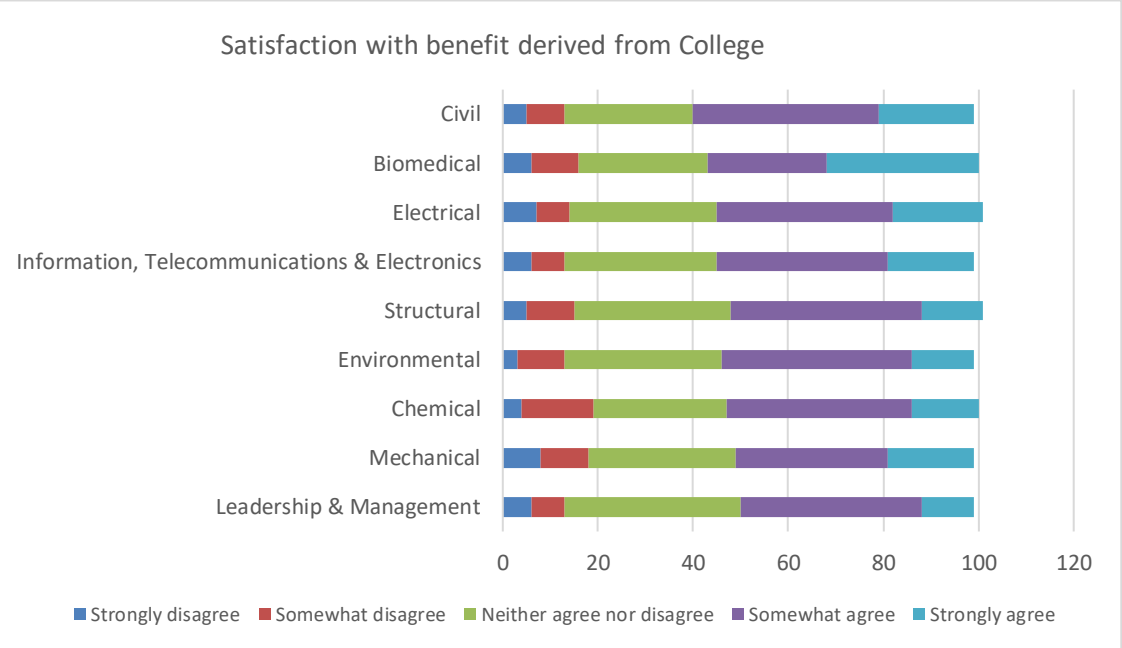
128. The following table provides some information to illustrate the range of technical sessions hosted by Colleges, both alone and in collaboration.

Figure 1 Technical sessions hosted by Colleges in 2019 – Source EA (data not reliable and does not reflect current pandemic-affected situation)

College	No. of events	No. of registrants
Biomedical College	4	165
Chemical College	10	676
Civil College	4	498
Civil College, College of Leadership and Management	1	110
Civil College, Structural College	13	975
Civil College, Structural College, Biomedical College, College of Leadership and Management	1	81
Civil College, Structural College, Mechanical College, Environmental College	1	30
College of Leadership and Management	16	1589
Electrical College	14	1253
Electrical College, Information, Telecommunications and Electronics Engineering College	14	505
Information, Telecommunications and Electronics Engineering College	11	447
Mechanical College	9	612
Structural College	15	1257
Host not attributed in EA's records	355	33585
Grand Total	468	41783

129. EA market research shows quite consistent and reasonable levels of member satisfaction with their membership of the Colleges, with between 50% and 60% providing positive feedback.

Figure 2 EA surveying of satisfaction levels with Colleges – Source May/ June 2019 EA survey of members n=4,236



130. All Colleges have a Board (operates at a national level) and some, but not all, have College Branches (operate at an EA Divisional level).

131. College Boards comprise a mix of elected and appointed members. College Boards can co-opt representatives of College Branches, aligned National Committees and aligned Technical Societies. However, this is not the case for all College Boards.

132. We were told by several College Boards of a "disconnect" between their Board and their College Branches and that their Branches are typically more connected to EA's Divisions. This could be the case even for a College with a Board that included Branch representatives.

133. From the information from our interviews, it seems that College Boards are primarily focused on College-based (ie. national) conferences and awards. For the most part, they report that they do not oversee all of the CPD offerings in their discipline area from around the country – although the pandemic has been having an impact on this.

134. We also heard from a number of College Boards that they do not have a formal, structured involvement in reviewing competencies, university course accreditation or undertaking chartered engineering assessments relevant to their discipline (although the responsible EA committee may from time to time reach out to individuals within the College for assistance with these functions) – and that they would welcome the opportunity to be more involved in all these activities. College Boards do sometimes play a role in preparing EA policy submissions but they generally described their policy and advocacy role as quite limited and again, a preference for more involvement.

Technical Societies

135. There are 27 Technical Societies and 1 affiliated body. Most are unincorporated bodies with a membership list managed by EA. Five incorporated Technical Societies manage their own membership lists.

136. Typically Technical Societies are multi-disciplinary with non-engineering members and in some cases non-EA member engineers as the table below shows.

Figure 3 EA Technical Societies and Affiliated Societies as at November 2020 – source EA

Technical Society/ Affiliated Society	EA Members	Total Members	College / Tech Soc Affiliation
Australian Shotcrete Society (AuSS)	66	98	ATS Civil
Australian Tunnelling Society (ATS)	409	652	Civil AuSS
Systems Engineering Society of Australia (SESA)	437	665	Leadership & Management RES AMC ACES
Australian Cost Engineering Society (ACES)	284	376	Leadership & Management AMC
Society for Fire Safety (SFS)	341	498	Sits across all Colleges
Railway Technical Society of Australasia (RTSA)	870	1142	Civil
Australian Geomechanics Society (AGS)	1391	1856	Civil
Australian Society for Bulk Solids Handling (ASBSH)	90	103	Mechanical
Risk Engineering Society (RES)	323	390	Leadership & Management SESA AMC ACEs
Mining Electrical and Mechanical Mining Engineering Society (MEMMES)	150	256	
EMC Society of Australia (EMC)	42	66	Electrical
Transport Australia society (TAs)	287	375	Civil
Mine Subsidence Technological Society (MSTS)	40	56	
Australian Society for Defence Engineering (ASDE)	164	176	ITEE
Australian Earthquake Engineering Society (AEES)	135	162	Structural
Australian Composite Structures Society (ACSS)	51	58	
Sustainable Engineering Society (SENG)	444	539	Environmental
Australasian Fluid and Thermal Engineering Society (AFTES)	80	85	

Australasian Association for Engineering Education (AAEE)	451	1313	Sits across all technical Colleges
Australasian Particle Technology Society (APTS)	13	25	
Institute of Industrial Engineers (IIE)*	37	80	
Materials Australia (MA)	63	63	Mechanical
Society for Building Services Engineers (SBSE)	202	216	Electrical
Society for Engineering in Agriculture (SEAg)	40	44	
Asset Management Council (AMC)	Unknown	Unknown - was 901 in 2014	Leadership & Management Civil RES ACES SESA
Electric Energy Society of Australia (EESA)	Unknown	Approx. 852	Electrical
Institute of Public Works Engineering Australasia (IPWEA)	Unknown	Approx. 4148	Civil
Red R Australia	103	103	

* June 2020

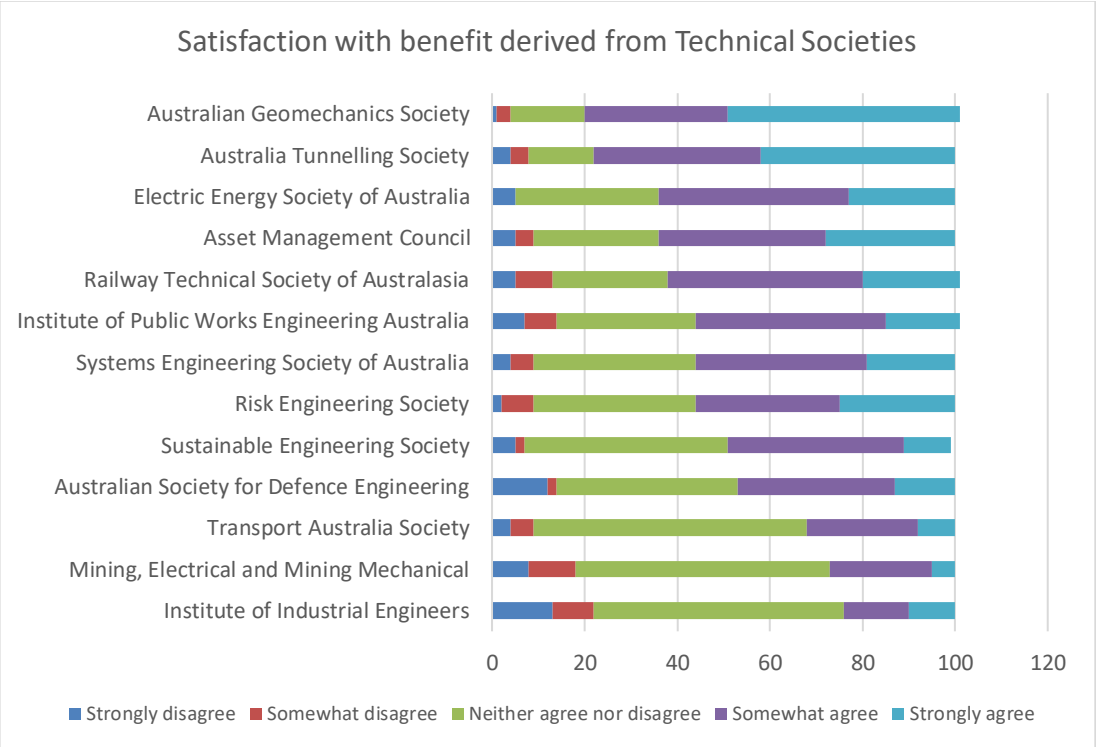
137. Technical Society activities include awards, conferences, short courses, workshops, publications, practice guidelines, training and technical sessions. The following table provides some information about technical sessions hosted by Technical Societies.

Figure 4 Technical sessions hosted by Technical Societies in 2019 – Source EA (data not reliable and does not reflect current situation)

Technical Society	No. of events	No. of registrants
Asset Management Council (AMC)	1	2
Asset Management Council (AMC), Australian Cost Engineering Society (ACES), Risk Engineering Society (RES), Systems Engineering Society of Australia (SESA)	1	81
Asset Management Council (AMC), Electric Energy Society of Australia (EESA)	1	27
Australasian Tunneling Society (ATS)	14	1145
Australasian Tunneling Society (ATS), Sustainable Engineering Society (SENG)	1	165
Australian Composite Structures Society (ACSS)	1	54
Australian Cost Engineering Society (ACES)	6	341
Australian Geomechanics Society (AGS)	3	281
Australian Society for Bulk Solids Handling (ASBSH)	1	46
Australian Society for Defence Engineeering (ASDE)	2	69
Electric Energy Society of Australia (EESA)	8	1021
Institute of Industrial Engineers Australia (IIE)	1	64
Railway Technical Society of Australasia (RTSA)	14	815
Risk Engineering Society (RES)	8	703
Risk Engineering Society (RES), Sustainable Engineering Society (SENG)	1	83
Royal Aeronautical Society (RAeS)	1	109
Society for Building Services Enigneering (SBSE)	1	81
Society for Engineering in Agriculture (SeAG)	1	28
Society of Fire Safety (SFS)	2	155
Sustainable Engineering Society (SENG)	8	496
Systems Engineering Society of Australia (SESA)	3	687
Transport Australia Society (TAS)	7	256
Host not attributed in EA's records	381	35074
Grand Total	**467**	**41783**

138. EA market research of larger Technical Societies shows more variable levels of member satisfaction, with between 25% and 80% providing positive feedback.

Figure 5 EA surveying of member satisfaction levels with some of the larger Technical Societies – Source May/ June 2019 EA survey of members n=57 – 99 (response rate varied per Technical Society)



139. Some Technical Societies are affiliated with an international engineering or other professional association, as well as being within the EA umbrella. Some, but not all Technical Societies have geographically delineated Chapters.

140. For the most part, it seems that some Technical Societies operate with minimal interaction with EA Colleges or other EA constituent bodies however enhanced relationships with Colleges have been built up over the past 4 years for others.

141. Some Technical Societies rely considerably on EA staff for support in organising member events and use EA premises and webinar technology. Other Technical Societies organise member events offsite and arrange and publicise these largely by themselves.

National committees

142. There are 9 National Committees, each of which have between 6 and 10 committee members (some also have a few Corresponding Members). Some maintain linked Divisional branches. Some National Committees are aligned with just one College and others with more than one College.

143. EA's website describes their role variously but generally the focus is on the improvement of theory and practice or the promotion and dissemination of knowledge and excellence in the relevant field. Some National Committees describe their role as an expert advisory committee to EA.

144. With EA staff support, the National Committees generally organise awards, conferences, publications, training and technical events. They also provide speakers on request.

Figure 6 Technical sessions hosted by National Committees in 2019 – Source EA (data not reliable and does not reflect the current situation)

National Committee	No. of events	No. of registrants
National Committee on Coastal and Ocean Engineering (NCCOE)	1	52
National Committee on Water Engineering (NCWE)	1	99
Host not attributed in EA's records	465	41632
Grand Total	**467**	**41783**

145. The learned society has a number of other categories of bodies – some of which we have not yet had a chance to engage with. For completeness, we have included them and we apologise in advance if we have not done them justice in our very brief descriptions below. We are intending to improve our knowledge of these during the coming stage of the Review.

Division Committees

146. The Division Committees provide leadership and direction to members in their Division. They typically have strong relations with Branch committees (eg. Branches of the Colleges, National Committees, Young Engineers etc) in their geographical area. Most Division Committees also have Regional Groups that are very active in promoting connectivity and delivering technical and other events locally. Coordination of the various Divisional groups (44 in the Sydney Division) is typically promoted by a quarterly meeting of the various Chairs/ Deputies.

147. The result is that, with the support of EA's Divisional staff teams, the Divisions 'provide the backbone of the offering to EA members'[39].

Other Communities and Groups

148. Young Engineers Australia represents, supports and provides a voice for EA's 40,000 young engineers (the largest subgroup within EA). It has a National Committee and local Branch structure with representatives from Branches on its National Committee. It organises presentations, workshops, seminars, technical sessions and networking events for young

[39] EA General Manager

engineers and generational exchange activities. It also has an awards program and provides an online library for members.

149. The National Committee for Women in Engineering (NCWIE) aims to identify strategies and recommend actions to increase the number of female EA members and address the specific needs of their cohort. As well as a National Committee, it has Branches across the various EA Divisions. NCWIE organises technical sessions and has an awards program, a newsletter and have issued a range of other publications.

150. The National Committee for Engineering Associates and Technologists is a Special Interest Group which focuses on the specific needs of its cohort. A number of members we spoke with mentioned this as an important section of the membership and an underdeveloped area of potential growth for EA.

151. Engineering Heritage Australia is a Centre which maintains a heritage register and issues heritage practice notes. It has a National Committee, local Branches and maintains an awards program.

152. EA's website identifies 4 Communities of Practice: Internet of Things, Risk Engineering Body of Knowledge (which is overseen by the Risk Engineering Technical Society), Humanitarian Engineering and Cyber Engineering. Anyone, whether or not an EA member, can register free of charge to be a member of these. Membership of a Community of Practice provides access to an informal forum to share experiences, knowledge and skills. Access is also available to webinars (for a small fee for non-EA members), case studies, practice notes, articles and forums. We note that EA does not currently formally count these bodies as part of the learned society.

153. EA also has a range of other groups that have a special focus as per the following table.

Figure 7 Technical sessions hosted by these other Groups in 2019 – Source EA (data not reliable and does not reflect current situation)

Groups	No. of events	No. of registrants
Young Engineers Australia	13	567
Women in Engineering	11	680
Women in Engineering (WIE), Young Engineers Australia (YEA)	4	436
Engineering Technologists, Engineering Associates	2	133
Engineering Heritage Australia (EHA)	7	314
Host not attributed in EA's records	877	80,091
Grand Total	**914**	**82,221**

Professional Standards Committee

154. The Professional Standards Committee has been established by EA's Board to oversee the development and maintenance of the professional standards framework (stage 1, 2 and 3 competency standards).[40]

155. The Chair is appointed by the Board. It also includes a nominee of the College Chairs Forum, an Accreditation Board member and senior EA staff.

156. The Committee meets 4 times per year for half a day each meeting and is supported by EA staff.

157. It provides a consistency check across practice area competencies and helps to identify where generic competencies require specific amplification.

158. It also receives reports about standards related matters including chartered assessments and auditing of CPD by chartered engineers to ensure that these processes are operating effectively.

Professional Conduct Committee (PCC)

159. The PCC is a 3 person volunteer committee established by EA's Board (may also have temporary members). Its role is to investigate and decide a complaint where there is an allegation that an EA member has failed to comply with EA's Code of Ethics. The PCC is currently chaired by an engineer and is comprised of one other engineer and a lawyer.

160. The Chair considers the complaint and, if the complaint provides enough detail, passes the complaint to EA staff to gather information and ask the relevant engineer to respond.

161. The Chair may decide the complaint. Alternatively, and as is usually practice, a complaint is decided by a panel, meeting virtually. Typically the 3 PCC members will constitute the panel. There is, however, the option to include someone else, for example, an engineer who is expert

[40] Professional Standards Committee Approved Terms of Reference, 6 December 2018

in the relevant field. Where this is deemed appropriate, the Chair will occasionally seek the assistance of a College to identify a relevant expert. But more commonly, the Chair will use his own contacts.

162. Brief reasons for decision are then prepared by EA staff for settling by the Chair. This is then provided to the engineer and the complainant.

163. Typically only about 10% of complaints result in a sanction. Where this is the case, there is an appeal avenue for the engineer. But there has been only one appeal in the last few years.

Accreditation Board

164. EA has "responsibility for the accreditation of higher education and VET programs that are designed to prepare students for entry to practice in the profession of engineering"[41]. This is done within the Australian Qualifications Framework, applying EA's Stage 1 Competencies and defined Accreditation Standards.

165. The Accreditation Board was established by EA's Board to "administer the accreditation principles, standards and procedures of Engineers Australia governing accreditation, on behalf of the profession of engineering"[42].

166. Typically EA will undertake 15 to 20 accreditation assessments per year. For each assessment, an EA Accreditation Panel is constituted, usually under the leadership of a former Engineering Dean. For a large university, the Panel may be comprised of up to 15 individuals from both academia and industry. Each Panel member must be an independent discipline expert. Participation on a Panel is on a volunteer basis.

167. The Panel prepares a report on its findings, including recommendations for program improvement. Each report is considered by the Accreditation Board as the accreditation decision-maker. This process ensures quality and consistency. The accreditation report is then released to the education provider. An appeal process is available to education providers.

168. The Accreditation Board and Accreditation Panels are provided with operational support by EA's Accreditation Centre staff. This unit is led by EA's National Manager Accreditation, who has extensive university engineering experience. The support includes the formation and briefing of Panels, the scheduling and logistics of the site visit, reporting and communication of accreditation decisions to education providers.[43]

169. EA's accreditation process is subject to regular international review. This is as per EA's international agreements governed by the International Engineering Alliance. These include mutual recognition of engineering qualifications and professional competence, through Accords (Washington, Sydney and Dublin) and Agreements for each occupation category.

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[41] Accreditation Principles AM-POL-01, Version 2.0, paragraph 4.1
[42] Accreditation Principles AM-POL-01, Version 2.0, paragraph 5.2
[43] Accreditation Principles AM-POL-01, Version 2.0, paragraph 5.3

Chartered assessment process

170. An EA member may apply to become Chartered in one or more of the 26 Chartered areas of practice (maximum of 4 areas of practice possible).

171. To become Chartered, the applicant must demonstrate competency against the 16 elements of the Stage 2 competencies. The evidence required to be provided by applicants varies according to the years of experience of the applicant. The final stage of the process is a professional interview. This will be conducted by a qualified EA Assessor. In some cases, a Chartered volunteer may also be present to assist the Assessor. This will be the case, for example, if a systems engineer is seeking to become Chartered. The Colleges may be used to help identify an appropriate expert to assist in this regard.