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EVALUATING APPLIED AND PRACTICE-BASED RESEARCH

SUBMISSION TO THE SECTOR REFERENCE GROUP C/O TERTIARY EDUCATION COMMISSION
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BACKGROUND TO IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) is the lead national professional body representing the engineering profession in New Zealand. It has approximately 10,000 Members, including a cross-section from engineering students, to practising engineers, to senior Members in positions of responsibility in business. IPENZ is non-aligned and seeks to contribute to the community in matters of national interest giving a learned view on important issues, independent of any commercial interest.

In preparing this submission, IPENZ consulted the New Zealand Council of Engineering Deans and received supportive comments.

EXECUTIVE SUMMARY

IPENZ considers that applied and practice-based research is presently discriminated against (although probably inadvertently) because the Performance Based Research Fund (PBRF) ratings apply numerical weightings rather than using a holistic assessment. At present, research quality assessment is largely limited to the opinion of peers. IPENZ recommends that greater use be made of "fitness for purpose" as the means to assess applied research.

Of the proposed changes presented in the review paper, IPENZ supports changes to the PBRF that improve the current system's design by using holistic assessments (used as the norm, rather than in the final evaluation phases); greater detail in panel specific guidelines; training for panels and allowing panel chairs to seek confidential statements from nominated referees.

IPENZ does not support changes that establish special cases for applied and practice-based research, such as the establishing of a new entrepreneurial panel, because this detracts from a holistic view of research.

GENERAL COMMENTS

DEFINITION OF RESEARCH

Page 5 of the review paper states that the definition of research specifically excludes routine professional practice. IPENZ fully agrees that the conduct of professional practice is not research. However, IPENZ notes that the improvement of professional practice methodologies – through either discovery or incorporation of new knowledge – is research.

The research will often involve establishing how the new knowledge (which may be know-how and not necessarily know-what) should be reflected in standards, codes of practice and practice guidelines. For such knowledge to be incorporated into professional practice, the proposed new documents must be peer reviewed by the profession. The role of the researcher in contributing to these processes should be considered research, provided they undertake the development work and are not simply the peer reviewer.

IPENZ considers that clarity on this matter would be helpful.

MEASUREMENT OF RESEARCH QUALITY

The measurement of research quality in the PBRF is largely limited to the opinion of peers. This is a very narrow view of research quality. In professional and applied research, the fitness for purpose is an equally valid quality measure. Fitness for purpose can be judged by the success in resolving the problem the research was undertaken to address, and to some extent, the likely impact, potentially including the financial impact, of the research.

In engineering, there are many researchers whose work is theoretical (it is just as possible to do basic research in engineering as in other disciplines) and whose research can validly be measured entirely by peer evaluation. However, there is also a significant group of researchers who are in fact much more highly valued in their profession because they do research that links to the needs of New Zealand industry and sometimes international industry. This research is often conducted under commercial terms that prevent normal publication or public disclosure. Therefore, this research would be more validly measured through fitness for purpose.

The problem with evaluating research quality by fitness for purpose is that the evidence is not discrete and can instead include a variety of forms of evidence. The present numerical weightings of the three components (research output, peer esteem and contribution to research environment) were introduced against IPENZ's recommendations, as presented most recently in the IPENZ submission on the Performance Based Research Fund – Phase Two consultation dated 18 March 2008, and also in earlier IPENZ submissions at the time the PBRF was being designed. IPENZ recommended against the numerical weightings, because the only valid way to evaluate applied and professional practice research is to take a holistic approach, weighing each piece of evidence using judgment of its validity on a case-by-case basis. A researcher who invents something that is the basis for new industry may not be able to publish at all, so there would therefore be no discrete research output of a classical type.

FEEDBACK ON THE OPTIONS FOR CHANGING THE PERFORMANCE BASED RESEARCH FUND

Pages 16 and 17 of the review paper present options for changing the PBRF processes, along with the advantages and disadvantages of those options. IPENZ's comments to each of the options are below.

a. Provide greater detail in panel-specific guidelines, in particular through addressing impact as a means of assessing quality.

IPENZ considers that this change would be useful, especially with a clearer definition in relation to research, through the improvement of professional practice methodologies.

The panel-specific guidelines should make it clear that holistic assessment, rather than weighted scores, of the portfolio will be applied where the researcher is doing applied or practice-based research. The panel-specific guidelines should also clearly state the types of research output that arise from practice-based research, for example, in engineering, a new code of practice or standard with annotation as to the research involvement of the person should be acceptable. Other professions will have different terminology and types of codification of knowledge to improve practice, and the language used should be inclusive of all professions.

b. Changes to the composition of panels evaluating practice-based research, to ensure that representatives from industry, professional groups or public bodies are included as appropriate.

For engineering and technology, this is already done to some extent. This change could be utilised further and IPENZ would support this.

c. Training for panels to include specific debate on broad assessment of impact.

IPENZ considers that better training for panels will assist in giving panel members confidence to use a holistic assessment of research. Poorly trained panels will tend to stick to the rules and numerical assessment.

d. Allowing panel chairs to request confidential statements from nominated referees to attest to impact of applied research.

IPENZ supports the seeking of corroborative evidence. This form of corroborative evidence is widely used in the assessment of engineers as part of their professional development, and when reproving their current competence throughout their career. IPENZ considers it can be applied to the area of research, as it is to other types of engineering practice.

When an engineer undertakes a competence assessment through the peer review system operated by the profession in New Zealand, they initially fill in a self-review in which they present their best evidence against the standard (this is equivalent to a researcher submitting a portfolio). IPENZ supplies the candidate's self-review to the referee and asks the referee to both verify the accuracy of the self-review and provide an opinion on the quality of the candidate's work. IPENZ has found this process very effective and see no reason why it would not work in the PBRF.

e. Encouraging panels to consider holistic assessment on the basis of research impact in the final phases of evaluation.

Rather than holistic assessment being used only in the final phases of evaluation, IPENZ recommends that holistic assessment is the norm for assessing practice-based research. The strong signal that it is a holistic judgement made by peers is a completely comfortable process for engineers – it matches the way the profession assesses candidates.

f. Allowing a period of grace of five to six years for academics newly appointed from industry or the professions, before they become eligible for the PBRF. This would be an alternative to "NE" status for those academics.

Rather than this option, IPENZ believes that holistic assessment, as set out in option (e), would be better. The people for whom a period of grace may be relevant are likely to

have made a major technical contribution to the profession (ie be interested and involved in technical advancement prior to joining their tertiary education institution). By being able to use such evidence, and if assessed by holistic assessment, the need for special treatment might become quite small.

g. Allowing tertiary education organisations to exclude clinical practice from teaching load, even when this is part of a degree programme, in determining eligibility.

IPENZ considers that while this potential change seems appealing, it would be tricky to do. IPENZ recommends avoiding the problem by making the other changes proposed above. IPENZ considers that a good clinician teacher should be involved in improvement of practice methodologies. However, if clinicians are to be exempted, then IPENZ recommends that this be allowed for other professionals who are teaching professional practice, for example, engineers who are teaching design.

h. Establishing a new entrepreneurial panel to supplement existing discipline-based panels and allow academics who so wished to submit evidence portfolios to this new panel and to a disciplinary one, with a grade derived from the weighted average of those two scores.

IPENZ does not support this potential change, and is particularly strongly against the proposed 50/50 weighting, which is entirely arbitrary. IPENZ considers implementing this proposal would be an admission to there being major problems that have not been resolved in the mainstream system.

CONCLUSION

IPENZ is of the view that applied and practice-based research is inadvertently discriminated against because of imperfect PBRF system design, particularly applying the arbitrary numerical weighting system rather than using holistic assessment, the lack of guidance on “fitness for purpose” as a research quality measure, and lack of clarity about what practice-based research is.

Of the proposed options, IPENZ is against those that establish special cases for applied and practice-based research. Instead, IPENZ supports better overall system design that recognises that useful outputs that are valuable to user groups can be of high quality, even though they may not be peer-reviewed in an academic sense.

IPENZ questions why the Tertiary Education Commission, with its interests in economic, environmental and social development, would want its systems to discourage those researchers who are working hardest to make a practical difference to our industry, businesses and important social services, such as the health professions.

IPENZ appreciates the opportunity to make this submission and is able to provide further clarification if required.

Andrew Cleland

Chief Executive