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PROFESSIONAL ENGINEERS REGISTRATION BILL 2019

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The registration of engineers presents many challenges. On the one hand it is important to regulate who is designing what, and on the other, there are many practical challenges to implementing such as system. Existing systems in Australia, such as the one used by the Institute of Engineers have their pro's and cons. The challenges are sufficient such that any registration system is very difficult to implement, and fraught with difficulty. The main problem with registration is that is needs to recognise the differing levels of experience that are deployed in design. The main three levels are:

1/ a person that is a qualified engineer, and can work in an area under supervision

2/ an engineer that can work independently, and without supervision, but whose work needs to be verified by someone with extensive experience

3/ an engineer with extensive experience that is trusted to verify work and provide a guarantee of safety and security Engineering registration typically focuses on level (2).

This generates lots of potential memberships, and this level can be acquired through different registration bodies after about 5-10 years. Unfortunately, this level does not guarantee the effective management of risk singly, but in combination with level (3). Any registration system needs to accommodate this, and they rarely do.

A second challenge is that registration is normally at a very high level, such as "civil" or "electrical". These are very wide headings, and there are numerous topics within this. For example, in electrical, a person could design power equipment, or networks, or be a maintainer, or design lighting, or low voltage, or even some electrical devices. The designer could work in rail, or power, or water, or any other industry. In many cases these skills are not transferrable, and so a broad categorisation is very difficult to interpret. Sub-headings are necessary really, and they are never provided.

A third challenge is that some engineers move from one area to another. For example, I worked in Mechanical Engineering for 6 years, and then moved to Systems Engineering, and transfers are common. One very serious problem is that a person might get chartered/registered in electrical for example, and then work in another discipline entirely for 20 years. There needs to be a process for determining how to transfer from one to another. This brings up the next question: should registration be surrendered? Many engineers move to other areas, and their skills lapse over time as they no longer work in that area. An engineer that has not worked in an area for at least 5 years may need to surrender their registration. Skills need to be maintained.

Another important issue is competency assessment. Currently industry practice is to self assess, which is fine if managed properly. Competency assessors in large companies are normally engineers who have been around forever, and 30 plus years seems typical. In some cases the competency assessors themselves do not have degrees, and yet are assessing (which in many cases is fine). The process of assessment, and the position of a competency assessor, needs to be recognised, and rules provided for this position. This is especially important if the registration system only provides for level (2), and not for (1) an (3). This position is for all practical purposes a level (4).

There are even more challenges. Registration systems are typically directed at engineers who design things, as this is where the risk sits with the individual. A poor designer can cause all sorts of problems, and verification may not detect them (but is meant to). However, in manufacturing and maintenance, the risk is held by the corporation, and not by the individual. For example, for Cochlear, approvals for the manufacture of products is held with the company, and not with a specific individual. In maintenance, for example the rail industry, there will be a Safety Management

System (SMS), approved by the relevant government department, and compliance to this guarantees safety. Registration of engineers for manufacturing and maintenance has very little meaning.

Things get interesting when engineers move from maintenance to design (which is common). Registration then matters, but no registration is available for someone working in maintenance. There needs to be some sort of transition regime, from one to the other, where rules can be applied. Perhaps a transitional registration, conditional on performance of certain tasks.

Overall a registration system needs to recognise how skills are developed, assessed and maintained. If the system runs counter to this, then the effectiveness of any such system just creates more cost and bureaucracy for doing wok in Australia.

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