# SHIFTING THE TIDE:

## Regulation of software engineering practice

by Ellen Gardner

For years, "software engineering" was not seen as a hard and fast engineering discipline. That started to change when software practitioners were being asked to do everything from coding, to designing safety systems for nuclear power plants. "These were jobs that could have a strong impact on public safety, and people started to recognize the importance of having standards in place," says Gillian Pichler, P.Eng., director of registration for the Vancouver-based Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).

The idea began to take root when the co-founder and then chairman of MacDonald Dettwiler spoke at the association's AGM in fall 1998. "We had been talking about it, but the catalyst was Dr. John MacDonald's strong suggestion that the issue had to be taken on by the regulatory body," says Pichler. APEGBC moved quickly to create a task force, draft a preliminary set of requirements and, by May 1999, software engineering was approved as a new discipline of registration. The association has spread the word through its website, press releases, advertising in industry publications, in-company posters and face-to-face meetings. To date it has received 69 applications, evaluated 39 and granted licences to 19 software engineering practitioners.

Pichler was gratified by the quantity of email generated by advertisements inviting applications. "Some said they had no intention of getting registered, but the majority were full of praise, along the lines of: 'Thank goodness somebody is doing something to formally regulate the standards in the industry.'"

### PUBLIC OUTCRY

The public might once have put up with flawed software, but no longer. "As Y2K and the recent 'love bug' virus showed us, there can be serious consequences when software fails," says Mike Bennett, associate chair, software engineering, University of Western Ontario. "If there are flaws you should be sued. It's that simple."

The provincial bodies that license professional engineers are recognizing their role in upholding standards. At the moment, only PEO and APEGBC are actively licensing software engineers.

PEO's licensing criteria define the core knowledge that software practitioners require for P.Eng. licensing, providing a basis for consistently assessing the qualifications of software practitioners whose work experience is mainly in software design and development, but whose academic background is in something other than an information technology-related engineering program. Previously, the experience of such applicants was assessed on an individual basis. By the end of 1999, PEO had licensed close to 150 software engineering practitioners.

Similarly, APEGBC has developed specific academic and experience guidelines for registration in its software discipline. It's open to qualified practitioners with a degree in electrical or computer engineering, engineering science, physics or the computer/software field and at least four years' experience in software engineering.

Both the Association of Professional Engineers of Nova Scotia (APENS) and the l'Ordre des ingénieurs du Québec (OIQ) are reviewing current policies and preparing their own licensing criteria.

### NATIONAL STANDARDS

On the national stage, the Canadian Engineering Qualifications Board, a standing committee of the Canadian Council of Professional Engineers (CCPE), has established a task force to develop and recommend national licensing standards for software engineers. "As the national organization, their focus is on interprovincial mobility. For that reason, they want to ensure uniformity of standards across the country," says Norman Williams, PhD, P.Eng., deputy registrar, admissions for PEO. The four associations represented on the task force—APENS, OIQ, APEGBC and PEO—plan to report to CCPE in September with recommendations on:

◆ a national software engineering syllabus, which will then be updated every three years;

◆ experience requirements for software practitioners who have applied to be licensed as professional engineers; and

◆ criteria for interviewing these applicants, to assess their fundamental knowledge of the field, specific aspects of their experience, and their professional judgment, skill and expertise.

The associations are also looking at industry, where standards are as random as the success or failure of new dot com start-ups. "They're so desperate for people, they don't care what you call yourself or if you're professionally licensed," says Bennett. He predicts these practices will change, as supply grows to meet the demand.

Meanwhile, an industry as obsessed with growth and development as the high-tech industry has little concern with something as pedantic as standards, says Pichler. "We're saying, be vigilant about quality and practice. Evaluate who you're hiring and make sure those people are registered. Now more than ever, we have a role to play in making sure engineering is practised in a reliable and ethical fashion." ◆