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Frequently Asked Questions on White Paper on the Practice in Software Engineering

* Please note that references to 'software engineering' below refer to 'regulated professional practice in software engineering'.

1. What is the white paper on "*Practice in Software Engineering*"?

"The Practice in Software Engineering" is a white paper produced by the Canadian Engineering Qualifications Board. It is a reference source intended to help define the scope of software engineering and ensure compliance with regulatory licensing requirements for individuals who may be practicing this work.

2. Why was this white paper created?

This white paper was created to help define the scope of software engineering. Unlike many other disciplines of engineering, many individuals involved in software engineering may not have graduated from an accredited program and work in a variety of industries.

It can often be confusing for engineering regulators, individual practitioners, and employers to know if certain types of work would be considered software engineering. Many types of software engineering products may overlap with software programming or computer science work, which are not regulated.

A proper definition of software engineering will facilitate compliance with regulatory requirements and protection of the public.

3. How does the white paper define software engineering?

The white paper states:

- The "practice of professional engineering" means any act of planning, designing, composing, evaluating, advising, reporting, directing or supervising, or managing any of the foregoing,
    - that requires the application of engineering principles, and
    - that concerns the safeguarding of life, health, property, economic interests, the public

There are two additional conditions that may help differentiate software engineering:

- Software or software systems development (which refers to the full product lifecycle from design to maintenance) requires a systematic, disciplined and quantifiable approach; and
- Failure or inappropriate functioning of the software or software system would harm the public interest, including life, health, property, economic interests, public welfare, or the environment.

Development of software that interacts closely with (e.g., monitors and/or controls) physical devices or systems, the design, operation, or oversight of which would otherwise constitute the practice of professional engineering, is almost always software engineering. Such software is embedded in a variety of devices and systems, including nuclear power production, biomedical devices, and payroll systems to name a few.

4. How does software engineering differ from software programming?

Software engineering primarily focuses on the complete lifecycle of software and software systems, including design, implementation, testing, installation, and maintenance. Software engineers use a systematic approach to analyze user needs, design software, and test its quality.

Software programming focuses primarily on writing code, understanding algorithms, and following specifications. There may not be a systematic approach to addressing a problem.

5. Who does this white paper apply to?

The white paper is intended to help the engineering regulators understand the scope of the software engineering discipline. It will contribute to better efforts to ensure regulatory compliance on the part of those who are performing software engineering. It also increases awareness for employers and individual practitioners about licensing requirements for software engineering.

6. Who should I contact for more information?

For more information about this white paper, please contact Mélanie Ouellette, MA, MBA, Practice Lead, Qualifications, at Melanie.Ouellette@engineerscanada.ca or (613) 232-2474 ext. 225.