

INTERNSHIPS

A springboard for future engineers

Each year, many engineering graduates want to start their own business. When it comes to obtaining the title of engineer, this path can be problematic. It is like trying to run without knowing how to walk. And when we want to go too fast, we often fall flat on our face. This is why the Ordre des ingénieurs du Québec (hereafter referred to as "the Ordre") recommends that we not get ahead of ourselves and that we take advantage of the internship period to develop the skills that will prove to be useful for entrepreneurship in the future.

To get their engineering permit, all junior engineers must be supervised for a three year period by an engineer who is a member of the Ordre. But this supervision can be rather difficult when one decides to start his or her own firm and fly solo. "The result: too often, the Ordre refuses to grant permits to junior engineers whose professional experience cannot be recognized because they didn't acquire the required competencies under an engineer's immediate direction and supervision, regrets Alice Vien-Bélanger, engineer and permit evaluator with the Professional Affairs Department at the Ordre des ingénieurs du Québec. This is why we wish to educate graduates before they wander down this path."

An internship is there to complete one's academic training. "We cannot learn everything in university; a large part of the knowledge as well as the know-how and self-management skills required to practise the profession are acquired over time, working in the field alongside seasoned engineers, adds Alice Vien-Bélanger. Throughout those three years, junior engineers are exposed to various problems, new technologies, unexpected challenges, etc. If they do not begin their careers in a firm under an engineer's supervision, it will be difficult for them to develop the proper reflexes."

SIX ESSENTIAL SKILLS FOR ALL ENGINEERS

This is why the Ordre considers that the internship should serve as a means to develop the six essential competencies common to all engineers: skills that will prove to be important in order to have a successful career as an entrepreneur in the future. For example, the competency *Assuming one's status as a professional* will allow future entrepreneurs to strengthen the confidence their clients' will have towards their business and their work. This competency refers to compliance with official rules (laws, codes, regulations) and unofficial rules (trade practices) as well as ethical principles depending on the issues one faces.

"There is only one way to assimilate these concepts, and that is to be with an experienced engineer and discuss your problems, states Bernard Cyr, engineer and head of admissions and permits at the Ordre. When we have our own business, we automatically represent the image of the business. However, if we don't have a solid professional base, if we haven't developed the proper judgment and attitudes, it will be difficult to sell our services and build a clientele."

The *Resolving problems* competency, which calls upon applied sciences and trade practices, represents the fundamentals of the engineer's professional practice. It is through problem solving that engineers use their expertise in applied sciences and call upon trade practices to find

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solutions to the issues faced in their environment. Future engineers will then be able to learn a systematic approach, allowing them to find the best solution or determine the best way to get to the desired result.

If the *Communicating efficiently* competency is an essential skill for all engineers, it proves to be quite simply indispensable when it comes to meeting clients, managing projects and employees, simplifying the solutions offered by one's firm, settling a litigious file or negotiating a financing. When one is in business, opportunities to communicate are omnipresent. The internship period will greatly improve these opportunities.

Given the scope of their status and professional acts, engineers must pay close attention to the way in which they ensure the quality of their work and services. "The name and reputation of a business can be forever tainted or tarnished when this competency is not mastered", claims Bernard Cyr.

Moreover, under the *Managing technical risks* competency, one must actively contribute, along with everyone involved, in detecting dangers and risks associated with developing and operating a system, work, equipment or product, on the one hand, and implementing measures

to eliminate these risks or reduce them to an acceptable level, on the other hand. The public's safety is always an important concern for all engineers.

More than any other engineer, those who work for their own account cannot afford to make any mistakes. Their work record must be above reproach and they must rise to the challenge inherent to their profession with verve. Their business depends on it. Only field experience and sharing with other colleagues who have successfully carried out major projects can help junior engineers acquire this valuable expertise.

"In order to ensure the success of their business, entrepreneurs must also know how to manage groups, spearhead projects, and make sure that common objectives are reached, says Alice Vien-Bélanger. There is no better school than an internship to learn how to do this effectively and guarantee positive results. The immediate direction and supervision that is required during the internship allow junior engineers to take advantage of their supervisors' valuable experience."

More specifically, the competency related to *Managing activities, technical teams and projects* consists in implementing organisational, human and material means, allowing those who are supervised to reach predetermined objectives while taking the context's limitations into account.

In light of these findings, it seems difficult to imagine that junior engineers, even the most gifted of their graduating class, can meet the double challenge of running a successful business while learning how to be accomplished engineers. That is why it is sometimes preferable to take your time and climb the ladder to success one step at a time.