Chapter 4 Actualization of the Professional Ideal of Engineers in Québec: A Review of a Few Obstacles



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Abstract With mandates from *L'Ordre des ingénieurs du Québec* and with the collaboration of a public organization employing a few hundred engineers, we were able to document important areas of tension between the professional ideal of engineers and the obligations imposed by the workplace context, in public as well as in private markets. This was particularly the case of engineers that were salaried employees. The tension between market logic and professional logic in these working environments reflects certain problematic aspects concerning the actualization of the professional ideal of engineers. Based on data gathered under these mandates and on the literature of organizational as well as professional ethics, we will first be concerned with the subject of multiple loyalties and the challenges it represents for the salaried engineer considering the actualization of his professional ideal. We will secondly consider two aspects of another phenomenon that obstructs this actualization: the phenomenon of de-professionalization. And finally, we will conclude by exploring certain ways to counter the damaging effects of these obstacles.

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4.1 Introduction

Like many other professions, engineering's practice settings will follow the developments of market economy and of transformations in the workplace. One of the most significant consequences will be the rise in the number of engineers that are wage employees within organizations where they often have to relate to a wide range of professionals from different fields. As employees of sometimes very large organizations – public services, engineering consulting firms, aerospace companies, etc. – their professional activities must take into account structures that aim, in a market logic, at the highest possible benefits. This does not go without creating pressure on the engineers' professional practices. Therefore, certain conditions in the actualization of their professional ideal will be inevitably affected by these developments and transformations. In numerous situations where engineers are wage employees, we have observed obstacles in actualizing their ideal. This is at least the assumption that we intend to document and support in this chapter.

Our analysis is based on data gathered in Québec, where the engineering profession has been at the center of certain current and public issues, to which we shall return in the first section of the chapter. One must also take into account that the Québec's context of regulation of the engineering profession is something rather singular and that this certainly has an effect on how the professional ideal of engineers is conceived and actualized. There is no doubt that this context, on which we will briefly focus in our first section, will guide our analysis and the conclusions that we will put forward. Nonetheless, we have good reason to believe that a fair number of our explanatory hypotheses of these obstacles to the actualization of the engineers' professional ideal are likely to be relevant and to clarify significantly similar phenomena in different cultural and legal contexts. Furthermore, since our contribution will specifically apply to the situation of engineers that are wage employees, we will insist on the relevance of using analytical frameworks that originate from organizational as well as professional ethics. The first section of the chapter will thus set up essential elements to the comprehension of our subsequent developments: (1) Québec's context of regulation of the engineering profession; (2) the context by which our database was produced for our analysis; (3) the analytical frameworks that were mobilized.

In the second section, we will consider the first of the two phenomena that seem problematic concerning the actualization of the engineers' professional ideal: the case of multiple loyalties. The situation of the salaried engineer within an organization is objectively one of multiple loyalties. At the same time an employee and a professional, the salaried engineer finds herself/himself at the intersection of two courses of action not always compatible, therefore putting him in a situation of conflict of loyalties. We shall document this question of loyalties so as to show how the actualization of the professional ideal is compromised. As her/his status as an

employee is confronted with an inversion of the asymmetry of power that normally characterizes the professional activity, the salaried engineer finds herself/himself in a position of vulnerability that can possibly lead him to give up the actualization of the constituent values of his professional ideal.

In the third section, we shall consider another phenomenon that can be an obstacle to the professional ideal: the de-professionalization process. In certain working contexts in an organization, the de-professionalization process takes two forms that we shall distinguish, although they can very often be complementary. On the one hand, the de-professionalization process is to be understood as a decrease in the exercise of an autonomous professional judgment. On the other hand, we shall rather refer to it as a weakening of the engineer's professional identity. In both cases, the de-professionalization process results in working practices disconnected from the ideals and the values of the profession.

Finally, in our conclusion we shall present some lines of thought in developing strategies to counter the most noxious effects of these obstacles to the actualization of the engineer's professional ideal.

4.2 Elements of Context

The practice of engineering in Quebec is inserted in a legal, statutory and ethical frame, created and imposed by Québec's own professional system, a structure set up by the legislator at the beginning of the 1970s. Presently more than 40 professions are governed by the *Code des professions*, which is the essential legal source of this professional system. As for all other professions recognized by the Québec legislator, the profession of an engineer is controlled by a professional order – *L'Ordre des ingénieurs du Québec* (OIQ) – which is accountable to the *Office des professions*. The latter is the body responsible for the enforcement of the *Code des professions* but also for the entire legal frame of the professional system, and more widely of all the legal supervision of Québec's professional system. All the engineers practicing in Québec in the one or the other engineering specialties recognized in the *Code des professions* are necessarily members of the OIQ, otherwise at risk of being the object of legal pursuits.

Every engineer working in Québec has to follow a set of legal and statutory requirements among which the Professional Code, the Engineers Act and the Code of ethics of engineers, stipulating duties and obligations to be respected, particularly in relation to the public, the customer, and the profession. It is important to know that *L'Ordre des ingénieurs du Québec* has as its principal mission to watch over the protection of the public. Unlike the former professional corporations that defended the profession's special interests and its members, the professional orders have presently to make sure that their members' practices conform to a set of standards that

¹One will find a presentation of the reasons leading the Québec legislator to adopt this system in Legault (1999, pp. 7–38).

must guarantee the public's protection. Consequently, the orders have then to set up structures, from professional inspection to mechanisms of investigation and discipline. The guilty professionals expose themselves to disciplinary measures going from the simple reprimand to fines and, in the most severe cases, to the exclusion from the order, which involves losing the right to practice. Besides, these measures do not exempt the professional from criminal and civil prosecution by parties possibly affected by his actions.

This raises the question of what happens regarding the professional ideal of the engineers in a strongly formalized professional system that is, in addition, imposed by the Québec legislator. It is necessary to know that the duties and obligations listed in the Code of ethics of engineers do not express the entire ethos of the profession. While the Code insists on obligations concerning, in particular, public safety, integrity, professional autonomy, availability and professional secrecy, *L'Ordre des ingénieurs du Québec* also reminds engineers that their professional ideal advocates four very important values that must guide them in their professional practice: competence, sense of the ethics (in reference to the professional conscience and to the duty of favoring first and foremost the interest of society as well as customers), responsibility and social commitment. Thus, the professional ideal of the engineers does not rely solely on obligations imposed upon them but also calls on values that must establish their professional identity and guide them positively in their choices and actions on a daily basis.

The difficulties actualizing this ideal were particularly clear during a series of unfortunate events involving engineers that occurred in Quebec between 2006 and 2015. These events brought the profession into headline news. The authors produced the data for analysis following these events when asked to participate in various initiatives with the objective of shedding light on certain aspects surrounding them. The first event arose in 2006 when an overpass collapsed – the Boulevard de la Concorde overpass – which spans an expressway in the north suburb of Montreal. This incident caused the death of five passengers in two motor vehicles, crushed by the falling overpass, and also injured six other people. A Commission of inquiry, also known as The Johnson Commission (after its chair Pierre-Marc Johnson) was established to investigate the circumstances of the collapse, determine the causes, and formulate recommendations to avoid that such a tragedy should be repeated. Following its release, the OIQ appointed the co-researchers Bégin and Rondeau to proceed with an analysis of the Commission's report so as to provide, from an ethical point of view, considerations susceptible to direct the reflections and the actions of the OIQ. We also had the mandate of proposing hypotheses that could result in a subsequent and extensive research. As we will show, certain analyses made in our report highlight obstacles to the actualization of the engineers' professional ideal (Bégin et al. 2009).

The second source of information stems from a private survey conducted for the benefit of the *L'Ordre des ingénieurs du Québec* in 2011 and for which the coresearchers Bégin and Lacroix had the opportunity to participate as expert advisors

in ethics.² During several months, Québec's media had revealed disturbing information about the illegal financing of political parties, embezzlements, corruption and collusion in obtaining lucrative public contracts in the construction sector. Engineering firms, construction companies – but also the mafia – were particularly targeted by these allegations. Wanting "to have access (to) a precise and relevant information about the situation" (author's translation)³ (Ipsos Descarie 2011, p. 2), the OIQ appointed a polling firm to collect this information, by means of individual interviews, of focus groups and a survey among its members. Sent to 57,911 members of the OIQ, the survey showed a response rate of 16.1% (9352 respondents), with a statistical margin of error of ±1.0%, 19 times out of 20. The results to which we shall refer to in the two subsequent sections of our analysis can thus be considered as very reliable.

Our third source of information is the ethical diagnosis made in 2013 and 2014 under the responsibility of the co-researchers Bégin and Langlois in a public organization employing more than a hundred engineers (Bégin et al. 2014). Essentially, this public organization was reacting to public allegations regarding practices within the organization. The mandate did not aim at all at the organization's contractual practices. The report highlighted six items in particular, one of which was the specific situation of the engineers within the organization. We shall refer to some of the relevant data in this respect from the report.

We shall thus rely on the results obtained within these three mandates. These results appear to us to overlap and complete analyses that we can find in the relevant scientific literature. It is worth mentioning, furthermore, that we approached these three mandates both from the field of expertise in applied professional ethics and from the field of organizational ethics. We see professional ethics as being essentially preoccupied with ethical questions and problems that emerge from professional activities, from contexts regulating these activities (business ethics, regulations, etc.) and from contexts in which the professional practice takes place (private practice, business practice in a company, practice within public services, etc.). As regards organizational ethics, we were concerned with the ethical issues that arise, particularly, but not exclusively, within organizations characterized by regulatory models and hierarchical labor relations, and where functions and roles are assigned to the individuals who work there. In these organizations, we can find several regulatory modes (labor contract, administrative rules, professional business

²L. Bégin and A. Lacroix took part in designing this survey and in the interpretation of the results on behalf of the OIQ. An important part of this private survey was made public recently because the OIQ was compelled to give it to the commissioners within the framework of the Commission of inquiry on the construction industry (the CEIC). For reasons of confidentiality, we will return only to the sections made public.

³The following translations from French are marked only with the abbreviation (a.t.).

⁴For reasons of confidentiality, we will not name the organization in question and we will not reveal in a very detailed way the principal results. We will limit ourselves in mentioning only certain data that do not reveal the content of the diagnosis produced for this organization.

ethics, diffuse rules of the workplace, etc.) that do not always lead to a harmonious and effective coordination of the workers' conducts (professionals or otherwise) and do not always produce results that are socially acceptable and responsible. Because our contribution specifically concerns salaried engineers working within organizations we mobilize again these two domains of applied ethics.

4.3 Multiple Loyalties

The first phenomenon that makes the actualization of the engineers' professional ideal problematic is multiple loyalties. Québec's legislation, as with others, states that loyalty is expected of every person working for a professional organization. It implies that a salaried employee must act with caution and diligence in the exercise of his duties, so as to avoid causing prejudice to his employer. In the same manner, she/he will have to show restraint in his comments concerning his employer and cannot display publicly his differences with the latter. But it will not prevent her/ him from also being a professional – particularly relevant for an engineer – and to be bound by commitments and obligations specific to this status. An engineer can also feel a form of commitment towards his colleagues, whether they are members of her/his own profession or not. Expectations are related to each of the roles inhabited by this person (employee of the organization, member of a professional order, colleague, labor union member) and thus requires a form of loyalty. Loyalties are thus at the heart of numerous and tangled up commitments, obligations, and expectations (Centeno and Bégin 2015). Although loyalties are numerous for every salaried professional, they not conflicting per se. Indeed, the fact that a person has to live in a situation of multiple loyalties in the workplace does not necessarily imply that this person will go through important difficulties or conflicts because of these diverse commitments. However, the potential for conflict is very real (Emmet 1975, p. 159). A conflict of loyalties arises when the professional finds herself/himself in a situation putting stress on diverse commitments that he took, and thus forcing her/ him to be unfaithful to some of them and, at the same time, to the people with whom he made these commitments. As underlined by M. Martin and R. Schinzinger (1983, p. 187), "The relationship between loyalty to employers and other professional obligations is complex. Loyalty to employers can mean (1) meeting one's moral obligations to employers – in which case loyalty is automatically good; (2) being zealously supportive of the employers' interests – in which case there are limits to how far loyalty is good." A classic form of conflict of loyalties for a salaried engineer will present itself when the latter is required by her/his employer to act in a derogatory manner concerning her/his professional obligations or, more widely, to go against the essential values of the ideal of his profession.

Although the legislation contains the obligation of loyalty to employers, the situation of the salaried professional is singular in that an essential element of the

professional activity is the independence of judgment and action.⁵ As Vandenbroek emphasizes in reference to the professional practice of engineers, "to safeguard his professional independence, one must preserve the capacity to act in accordance to his profession and protected from any sort of intervention, may it be real or apparent, coming from any person, employer or customer included" (a.t.) (1993, p. 94). For that reason, according to Québec's jurisprudence on the subject, loyalty to the profession and to ethical obligations has precedence on the terms of the contract binding the professional to an employer (Sullivan and Tremblay 2007, pp. 40–41). This priority of loyalty to the profession and its values is recognized and asserted by some of the engineers that we met in an interview during our research mandate with a public organization in Québec employing a few hundred engineers. For example, one of them told us: "we have to ensure our loyalty to our employer but not beyond certain [...] principles of ethics and values" (a.t.). In the same manner, another asserted that: "an engineer is first and foremost an engineer, before being an employee of the State" (a.t.) (Bégin et al. 2014, p. 43).

At the same time, we shall not be surprised to find that such conflicts of loyalties can also be resolved in spite of or to the detriment of the profession' values and ideal. This emerges from the answers to some of the questions of the 2011 OIO survey. To document the phenomenon of wrongdoings, we asked engineers participating in the survey if they, during the last 5 years, had been a direct or indirect⁶ witness of certain suspicious situations concerning the granting of contracts in their sector of activity. These situations of malpractice were: favoritism, low bidding with catching up (the case of extras), conflicts of interests, fragmentation of the bidding procedures to bypass rules, bribes, false representations, collusion, breach of confidentiality, contribution to one or several political parties to maintain affairs (forbidden in Québec by the electoral Law), plagiarism of engineering documents in the submissions. Another question concerned wrongdoings concerning the delivery of mandates. Sixty-one percent of the responders said that they had been direct or indirect witnesses of at least one of the wrongdoings enumerated in the first question. Once the data had been divided along these lines, we found that 52% of all the engineers admitted that they had witnessed indirectly one of these wrongdoings and 33% had been direct witnesses of at least one of them. As for wrongdoings concerning the delivery of mandates, 64% of the responders asserted that they had been direct or indirect witnesses during the last 5 years (48% witnessed at least one of the wrongdoings in an indirect

⁵Freidson affirms this need for independence in a particularly strong way: "Professional ethics must claim an independence from patron, state, and public that is analogous to what is claimed by a religious congregation". (Freidson 2001, p. 221)

⁶A "direct witness" is a person who has seen and/or heard; an "indirect witness" is a person who has heard of certain problems by a credible third person working in the same sector.

⁷The order of enumeration of these wrongdoings respects their decreasing order of occurrence. Thus, favoritism is the most frequently observed (38% of the responders), followed by low bidding with catching up (32%), conflicts of interests (31%), fragmentation of the bidding procedures to by-pass rules (24%), bribes (20%), and so on.

way; 41% witnessed at least one of the wrongdoings in a direct way). These figures are much more important than the survey's sponsors expected. This means that numerous engineers have had to deal with situations of conflicts of loyalties in the 5 years preceding the poll. Indeed, an engineer who are witnessing wrongdoings and who are seeking to fulfill his professional ideal whether concerning the ethics of the profession and/or its central values cannot stand idly and say or do nothing. At the same time, her/his superiors will expect him as an employee to turn a blind eye to the situation – or even to participate in it – if they are themselves the instigators of these wrongdoings or if they contribute to it. It can also involve wrongdoings committed by colleagues without the knowledge of their employers. In this last case, loyalty to colleagues may generate expectations opposite to the loyalty to the profession and to the employer. In all these scenarios, the important question for our research subject was to find out how the engineers reacted in these situations.

The survey also reveals that 73% of the engineers who directly witnessed one of the enumerated wrongdoings did act upon it. The majority of them (56%) chose to warn a person in charge of the organization. Only 3% of these witnesses decided to notify L'Ordre des ingénieurs du Québec, which is nevertheless the body responsible for ensuring the integrity of the professional practice of the engineers. We cannot conclude from this result that loyalty to the organization was privileged in the majority of these cases. In effect, nothing allows us to imply in any way that in all these situations – or at least the majority of them – an engineer preoccupied with his professional ideal felt that he had a duty to inform his professional order about it. Nevertheless, the very low percentage of engineers having warned the OIO raises certain questions as regards the dominant loyalty in the practice of these engineers. These questions are all the more relevant when we notice that the results concur with those obtained in another survey that we conducted in 2013-2014 with engineers working in a public organization, and for which we produced an ethical diagnosis. In this case, less than 2.1% of engineers informed the OIO about wrongdoings which they witnessed in the exercise of their function. This result turns out to be the more significant as almost three times more of them (6.1%) would have witnessed a breach in the professional ethics. Yet in such situations, the Code of ethics is quite clear: engineers have the duty to notify the syndicate without delay if they believe that an engineer infringes this Regulation (article in 4.01.01. g). In these few cases, the primary loyalty went to the colleagues whom they did not want to denounce to the professional practice supervisory board. Consequently it was difficult to invoke an actualization of the professional ideal.

This report is strengthened by other data from both surveys. In the 2011 survey, 27% of engineers witnessing in a direct way at least one wrongdoing did not act upon it, while this percentage was established at 17.7% in the 2014 survey. While several of them took into consideration that they had insufficient proof (48% in a

⁸Three groups show definitely larger numbers than others in witnessing various wrongdoings in the two targeted categories (the granting and the implementation of contracts): (1) the supervisors of building sites, (2) engineers who take part in the process of granting contracts, and (3) engineers who take part in the business development of their company.

case, 40% in the other), it is interesting to note other principal explanations were invoked in order to abstain from acting. These explanations which include the sense of powerlessness, the lack of confidentiality or anonymity in a case of denunciation, the fear of reprisals, as well as the desire not to harm a colleague or a company, are equally common to both surveys (every explanation is put forward by approximately 20% of the engineers that did not act). "Not wanting to harm a colleague or a company" is particularly significant concerning the order of priority of the engineers' loyalties, in that it indicates a loyalty to other commitments than those associated with the professional ideal.

These few data show the difficulty to which an engineer becomes subject when working within an organization as a paid employee. She/He then finds herself/himself at the center of a set of commitments, expectations, and obligations that do not always favor an actualization of the values and ethics of the professional ideal. The phenomenon of the multiple loyalties is very often translated into conflicts of loyalties which force the engineer to make choices that sometimes turn out to be very difficult (Langlois 2008, pp. 43–46). Besides the fact of a loyalty sincerely assumed towards the colleagues, the company or the organization for which the engineer works, it is worth considering other factors which can explain the lack of motivation in prioritizing loyalty to the professional ideal. Both surveys also reveal the importance of the other reasons – already mentioned – not to act in situations of wrongdoings: the sense of helplessness, the lack of confidentiality or anonymity in the case of denunciation, and the fear of reprisals. Yet these reasons have the unusual feature that they show the feeling of powerlessness that engineers experience when facing these situations. And this feeling of powerlessness becomes an obstacle to the actualization of the professional ideal.

We can quickly analyze the question of this feeling of powerlessness by recalling a well-known characteristic of professional activities: the power asymmetry between the professional and the customer. In the standard situations of a professional practice, a customer finds himself in a position of relative weakness in front of the professional. Sullivan reminds us that professional services "[...] are often beyond lay ability to understand fully or to judge. There is thus an inescapable relationship of trust between practitioner and client involved in any successful professional enterprise" (1995, p. 147). Because of this power asymmetry, it is essential to protect the customers against possible abuses committed by professionals, to the detriment of their customers. The Québec professional system was set up with the objective to reduce as far as possible these risks of abuse. But in a situation of paid work, this power asymmetry is in itself fundamentally modified. When the engineer is salaried, the person who requires his services and who is his customer is also, in reality, his employer.9 As a customer, the employer "concedes" a form of power to the professional but as an employer he has an undeniable stronghold over the professional. If he cannot exercise the professional's expertise - which effectively puts the

⁹The *Code of ethics of engineers* stipulates it clearly: "1.02 In this Regulation, unless the context indicates otherwise, the word "client" means a person to whom an engineer provides professional services, including an employer".

employer-customer in a position of partial vulnerability – he can nevertheless impose his guidelines and his choice of actions, thereby putting the professional in a real position of vulnerability. Because of imperatives of cost efficiency and greater profits, we can easily imagine that employers-customers might require from engineers working for them that they act in a way that is detrimental to their professional obligations and against the central values of their profession. The power asymmetry thus being inverted, the engineer can fear that a refusal on his part might entail forms of reprisals, going from a loss of any possibility of advancement within the organization to a pure and simple dismissal. Naturally, the pressures exercised can be very diffuse. But the fact remains that when mentioning "fears of reprisals", "lack of confidentiality", or "sense of powerlessness", the engineer expresses his awareness of his position of vulnerability.

These fears are certainly not excessive. The works of the Commission of inquiry on the construction industry (CEIC) documented certain situations where whistle-blowers found themselves in difficult positions. A particularly interesting case is one of a junior engineer, K. Duhamel, who tried to denounce an obvious situation of wrongdoing to her superiors (CEIC 2015, p. 44). Dissatisfied with the absence of will to rectify the situation, and in spite of barely veiled threats implying not to follow up on any more of these accounts, she then resolved to inform her superiors. The result was that she found herself allocated uninteresting tasks, without any link to her real qualifications, and especially very far from the theater of operations of the wrongdoings. Disgusted, she voluntarily quit her job with her employer but had immense difficulties finding a new one. Apparently, the reputation of being a whistleblower spreads and the employers are not inclined to trust them because they are afraid – as we can believe – that these "inflexible" defenders of the professional ideal will find some of their own practices at fault.¹⁰

To conclude this brief analysis, it seems reasonable to assert that the phenomenon of multiple loyalties plays a crucial role in making the actualization of the engineers' professional ideal more problematic. The data in our two baseline surveys indicate that engineers experience obvious tensions between the diverse loyalties that challenge them, and that the end result is not to the advantage of the professional ideal. For some of these salaried engineers, and to their detriment, we can presume that their position of vulnerability obviously gets the upper hand over the actualization of the professional ideal. In these situations, the engineer knows what values are expected by the profession but cannot resolve to assume the risks that it involves: the conditions in which he finds himself are not favorable to an actualization of his professional ideal. The second phenomenon to which we shall now pay attention is the de-professionalization process. Here we shall analyze obstacles that will likely affect the conditions of an actualization of the engineers' professional ideal even stronger.

¹⁰It is obviously not a typically Québécois phenomenon. See, in particular: Thompson (2005, pp. 245–266) and Schehr (2008, pp. 149–162).

¹¹We can read a disconcerting testimony of this kind of situation in a text with a revealing title: "I Gave Up Ethics – To Eat!" (Consulting Engineer 1983, pp. 233–238).

4.4 The De-professionalization Process

While multiple loyalties force the salaried engineer into situations of difficult choices, the de-professionalization process shows us the engineer losing the fundamental marks of his professional activity. 12 The work of an engineer as an employee within an organization may lead to the phenomenon of de-professionalization which can take one or another of two forms that will often be complementary. In the first one, de-professionalization is to be understood as a decrease – or even a complete atrophy – in exercising an autonomous professional judgment. In the second, there will be a weakening – if not the disappearance – of the salaried engineer's professional identity. In both cases, the effects of this process will be apparent on a continuum: as it becomes more or less radical, the de-professionalization process will leave us in the presence of professionals for whom the practices are partly – if not wholly – disconnected from the constituent values of the professional ideal. The hypothesis that is put forward here is not that these engineers would act against the values of their profession. It is rather that these values and the professional ideal that they express stop being marks or guiding principles directing the engineer's practices. Thus the hypothesis of the de-professionalization process does not assert that certain groups of engineers would be deliberately deviants to their professional ideal; it rather demonstrates that their employee's activity does not relate anymore to this ideal. We cannot obviously exclude that in certain situations some of these engineers can also be deliberately deviants. Because the de-professionalization process occurs gradually, we can presume that some awareness of acting in a deviant way sometimes emerges in the first stages of the process. But once the break with the axiological and normative marks of the profession becomes clear, the awareness of acting in a deviant way inevitably loses its meaning.

The first form of de-professionalization is the easiest to document. Asserting the autonomy of professional judgment is at the heart of the classic model of professionalism and it is one of the principal conditions required in Québec's professional system in recognizing an activity as aspiring to the status of 'profession' (Professional Code 2016, article 25, paragraph 2). Nevertheless we notice that the massive increase in the number of salaried professionals, combined with market pressures and transformed operating methods of work organization, contributes to a weakening of this professional autonomy. Additionally professional expertise has increasingly become subject to the standards of efficiency and profitability (Boussard et al. 2010; Centeno and Bégin 2015). In general, the professionals – particularly those who are salaried – lose some power for the benefit of administrators, managers and leaders whose actions are guided by market logic. As the French sociologist F. Champy insists, "[...] we can ask ourselves if the members of a given profession still have the necessary autonomy to accomplish their work, in accordance with the knowledge, the know-how and the constitutive values that the profession's common

¹²We use the concept of de-professionalization in a way that differs from that of Freidson (2001, p. 129). Freidson refers to the loss of the status of the profession.

culture would allow them to do in the absence of outside interference" (a.t.) (2009, p. 203). In the absence of such autonomy, we do not see any more how the professional ideal could possibly be actualized.

These shortcomings in exercising a professional judgment for engineers were clearly documented in the case of the collapse of the Boulevard de la Concorde overpass, for which we submitted an ethical diagnosis for the benefit of *L'Ordre des ingénieurs du Québec*. Directly implicating Québec's Ministry of Transport – which had the responsibility of supervising and controlling both the construction and the maintenance of the road infrastructures – the Johnson Commission report formulates a very clear recommendation for that purpose:

The Commission is of the opinion that the Ministère must take action to address shortcomings in respect of its work, notably, as regards to poor record keeping, unclear accountability and the apparent difficulty of engineers to impose their professional judgment. The Ministère should implement an action plan to rectify this situation. (Commission of inquiry into the collapse of a portion of the de la Concorde overpass 2007, p. 182)

This "apparent difficulty of engineers to impose their professional judgment" must not be understood as an exclusive reference to their technical expertise. A professional judgment also includes reasoning capacities directed at finding an adequate solution in a given context. It implies the capacity to determine in an autonomous way the best course of action, by taking into account at the same time a problem's technical specifications, the expectations and needs of the customer, as well as the current rules and the predictable consequences of the activity in question for the company. For that purpose, the Québec's Interprofessional Council – an advisory body set up by the professional orders – underlines that the exercise of a professional judgment requires the professional competence, understood here in a wider sense than only a technical skill:

Indeed, beyond the knowledge and the skills proper to a domain, the professional has to demonstrate a capacity to integrate and to apply them in diverse and complex situations, at the service of a customer or an employer, and in the prevention of the damages for the latter. We are then speaking about a code of ethics and ethical dimensions in the appreciation of needs and services. The competence so defined supports the exercise of a professional judgment (a.t.). (2007, p. 12)

The professional judgment thus requires technical knowledge as well as the abilities and the capacities of an ethical nature that must be mobilized in contexts of risks of damage for the customer and the company. Martin and Schinzinger specified this, "Pursuing those [professional] responsibilities involves exercising both technical judgments and reasoned moral convictions" (1983, p. 191).

We can make the assumption that the salarization of professionals would nevertheless tend to reduce the professional judgment to a technical expertise thereby initiating the de-professionalization process. By subjecting a professional activity to market imperatives – or even to those of bureaucratization¹³ – we indeed witness

¹³ Fully realized, ideal-typical bureaucracy is intrinsically at odds with professionalism, since its aim is to reduce discretion as much as possible so as to maximize the predictability and reliability of its services or products. (Freidson 2001, p. 217).

what we could qualify as overestimating the technical expertise, at the expense of the values of the professional ideal. According to Scott (2008, p. 232), the regrouping of professionals in service organizations or corporations (such as engineering consulting firms) would render professional work as well as the organization of professional services more permeable to the logics of market and profit. The professional is then more and more recognized as a technical expert but less and less as a professional that must benefit from a margin of flexibility allowing him to exercise his professional judgment.

The 2011 survey undertaken for L'Ordre des ingénieurs du Québec supplies revealing statistics on this issue. The following question was sent to participants: "Q10. What in the following statements represents best the margin of flexibility that you benefit from in your current work environment?". The proposed choices in the answers were the following: "Little or no margin of flexibility. I am an employee who executes the tasks which are attributed to him and who follows the employer's guidelines", and: "A certain margin of flexibility. I am a professional that profits from a certain autonomy and who is able to exercise his judgment concerning the guidelines given to him, and who even refuses to submit to these guidelines in case of a disagreement". Twelve percent of the engineers asserted seeing themselves as employees forced to follow the guidelines and the demands of their employer. In other words, these engineers perceived themselves as mere agents. This result deserves to be linked to the statistics concerning engineers who in the presence of wrongdoings either took or did not take action. We can reasonably surmise that the less an engineer considers himself having a margin of flexibility, the higher the risk of turning a blind eye to certain wrongdoings that would be disapproved in the light of his professional ideal. This hypothesis would, however, need to be confirmed. It is also likely that the decrease in – and even the disappearance of – the exercise of an autonomous professional judgment will result in a weakening of the engineer's professional identity. At least, the following question is worth considering, namely: if an engineer comes to perceive himself as a mere executant, what incentive does he have to identify himself as a professional?

However the issue concerning the relation between the engineer and his professional identity remains meagerly documented. That is why the discussion of the second form of de-professionalization – the weakening of the professional identity – rests more on hypotheses than on convincing data. Advancing the hypothesis of a weakening of the engineers' professional identity signifies support for the idea that, at some point, this identity stops being a dominant reference or principle of action for the respective engineer. Consistently, it is postulated that the conduct of these agents is more directed towards standards, values and expectations connected with other different positions that they occupy within the organization. This question also relates to the conflicts of loyalties: the second form of de-professionalization happens when an engineer occupies more than one role and finds herself/himself at the heart of several commitments. This is when the risk of an "identity crisis" occurs

¹⁴One will find nevertheless in Langlois (2008) the results of interviews of design engineers that go in the same direction of the proposals that we are outlining.

or, most likely, a change of paradigm that "translates into the progressive, but constant disappearance, of the sense of belonging to a workgroup" (a.t.) (Lacroix 2011, p. 74). In this particular case, allegiance to the profession and its ideal is gradually subdued to the advantage of an organizational identity. Gunz and Gunz (2007) present the organizational identity in the following way:

The «organizational» identity is that of a professional who has taken on some of the characteristics of a non-professional employee of the NPO [non-professional organization], in the limit, seeing him- or herself as an employee who just happens to have, for example, a law, accounting or engineering degree. This identity is more likely to be associated with proletarianization, which proposes that professionals become like other employees of the NPO. (2007, p. 855)

For the authors, in a situation of conflict between ethical elements of their profession and ethical elements of their organization, salaried employees will almost certainly choose the action that corresponds to the identity which has come to be the dominant for them. Having said that, this dominant identity may not be an informed choice dictated by personal interest (Solbrekke 2008, p. 491): the deprofessionalization hypothesis is different in this respect in claiming that a behavior dictated by fears of reprisals, become a subject of vulnerability – an issue which we raised earlier about the vulnerability of certain engineers battling against situations of loyalty conflicts. According to this hypothesis, if engineers favor the standards and the values of their work environment, it is because they became more significant and more rewarding than the standards and the values of their profession. We can estimate that those engineers motivated by fears of reprisals continue to refer consciously to the standards and the values of the profession even though their behavior may pull away in actualizing their professional ideal.

Certain factors contribute to increasing the likehood that organizational identity will prevail (Gunz and Gunz 2007, pp. 856–859):

- The professional dedicates more time to non-professional activities than to professional activities:
- The professional is involved in the process of strategic decision making in his organization;
- The professional does not believe that his work as a professional can be concretely rewarded by the organization (by means of bonuses or of promotion);
- The professional believes that his own work is exposed to important risks given in subcontracting.

These factors essentially demonstrate that a prioritized identity may vary according to the work contexts in which the professional asserts his expertise. This prioritized identity results from a form of negotiation between the professional and his work environment (Solbrekke 2008, p. 488). More diffuse factors such as peer approval and the need to be recognized are also important to consider.

A de-professionalization process in favor of the organizational identity would then make it possible to explain certain forms of de-responsibilityzation of the professionals. Identity provides the cognitive framework from which the work situations are interpreted. However, the organizational identities often contain rules less consensual

and, especially, less explicit and demanding than those of the professional identity: the ethical challenges experienced in certain situations could then more easily pass unperceived (Butterfield et al. 2000, pp. 988–990). This weakness of lacking a moral reference for the organizational identities will be prevailing particularly in organizations whose informal cultures (Bazerman and Tenbrunsel 2013, pp. 117–127) as well as the rhetoric and representations they convey (Dryzek 1996, pp. 103-125) are hardly or not at all sensitive to the ethical dimension of the problems met in these situations. Such organizational contexts undoubtedly concur to the moral disengagement of the professionals (White et al. 2009, pp. 41–74) that are in a de-professionalization process. We will be able to interpret certain results of the 2011 survey in the light of this proposition. Let us remember that one of the questions of the survey related to the nature of the actions undertaken by the engineers when they witnessed in a direct way wrongdoings concerning the granting of contracts or the realization of mandates. Among the engineers who chose not to act, 11% of them gave the reason that it was not their responsibility to take action, which expresses an obvious de-responsibilityzation on their part. Another 3% rather justified the absence of action by stating that it was a common and accepted practice, a reality in the industrial realm. The engineers were consequently voicing an organizational identity that is apparently little worried by the ethical dimension of problems met in certain situations.

This form of de-professionalization also seems to have played a part in the events surrounding the drama of the collapse of the Concord overpass. At the very least, the Commission of inquiry's report underlines a certain laxity in the activities of monitoring and control of the Ministry of Transport's engineers over a 30 years period, even though the staff was conscious of the special character of the structure and the problems that it posed (Commission of inquiry into the collapse of a portion of the de la Concorde overpass 2007, p. 115).

The Report points, in particular, to the existence of the following gaps: the poor quality of the inspection files (p. 109), the absence of teamwork (p. 115), the absence of consultation between engineers at the time of delicate decisions (p. 101). Testimonies of engineers interviewed by the Commission also indicate a strong trend in explaining their behaviors by sometimes referring to their status of union member, sometimes to their role of adviser – rather than that of a professional – that they would hold in the organization. In this last case, it allowed the engineers to walk away from their responsibilities because of an absence of feedback to their recommendations. One can then suppose that certain management practices and the organizational culture of the Ministry did not make it possible for these engineers to adequately preserve their professional identity, thus preventing the actualization of the engineer's professional ideal.

¹⁵The Commission notes that in the system in force in 2004 – and which still is – the engineer who calls upon the Direction des structures to obtain an expert opinion remains responsible for following up on the advice obtained. This suggests a relationship between the DS and the DT similar to that of an external consulting firm with its client rather than that of a specialised service providing support to another part of the same organisation, both being accountable for final decisions. This ambiguity of responsibilities has consequences. (Commission of inquiry into the collapse of a portion of the de la Concorde overpass 2007, p. 111). See also p. 101

4.5 Conclusive Remarks: Ways to a Solution?

The phenomena on which we focused our attention highlight the difficulties for engineers as salaried employees in maintaining high standards of professionalism. It is not so much their technical expertise that is questioned in these contexts than that of actualizing the values and ethical standards of their profession. However, we cannot disregard this second aspect of professionalism without transforming the engineer into a simple executant. Is it possible to counter or, at the very least, to limit the most negative impacts of these phenomena? The salarization of engineers is obviously not a momentary phenomenon or likely to diminish. The fact is that more and more salaried engineers are working in complex and large-sized organizations, be they public or private. Under such conditions, market logic will not be inclined to yield ground vis-a-vis professional logic. Nevertheless, it remains possible to react to the risk of a progressive erosion of the profession's ideal. The following three ways are worth consideration. Their application will vary according to the types of professional frameworks and acts existing in various countries or legislatures that are interested in reacting to these phenomena. The important thing is to see that they embody this frame of mind in concrete measures.

The first measure consists of setting up support and control methods in organizations employing engineers. This initiative was suggested in Québec by $L'Ordre\ des\ ingénieurs\ du\ Québec\ (OIQ)$ and it was included in the recommendations of the Commission of inquiry on the construction industry (recommendation #28). The idea is, primarily, to make it possible for the OIQ to require certain accountability from employers and to ensure by various means that engineers work in an environment favorable to an honest practice of the profession. Such measures are not uncommon and other authorities could just as easily carry out control. Among the levers in considering this objective, one can consider those suggested by Dodek (2012, pp. 407–409):

- 1. The mechanisms of mandatory registration of firms and targeted organizations;
- 2. The emission of licenses conditional with the compliance with certain rules;
- 3. The obligation to transmit certain information;
- 4. The establishment of conformity systems including audits;
- 5. The imposition of sanctions.

Such measures should help the engineer to counter the vulnerability induced by his status as a salaried employee and to encourage him to settle conflicts with honesty by favoring the values and standards of the profession. In the same way, these measures would contribute to maintaining conditions more favorable to the exercise of an autonomous professional judgment.

A second path to be explored consists of supporting initiatives aiming at reducing the gap between how engineers see their own values, obligations and responsibilities, and how managers and employers see them. It is a question, essentially, of countering the de-professionalization process operating to the benefit of the organizational identity. To reach this goal, it would be desirable to set up discussions

between representatives of both engineers and managers of various hierarchical levels. The idea would be to discuss various issues, which, in the organization, challenge the professional ideal, so that a better comprehension of the problems, as well as the roles by which these problems are tackled and solved, is developed. This kind of initiative encourages a more collaborative and reflexive management and is respectful of the roles occupied by everyone. The development of this kind of measure is not an easy task and it appears to require an uncommon managerial focus regarding ethical concerns. Nothing prevents us however from including this kind of measure in a number of conditions to be respected by the organization in order to obtain certain privileges related to good practices. But, in this instance, what is necessary is political will.

A final way to be explored could mobilize at the same time professional associations and regroupings as well as political authorities: ensure that the engineers profit from adequate mechanisms in order to act if need be as whistleblowers. In the mandates, which we carried out, significant loopholes in protecting whistleblowers are obstacles to the actualization of the professional ideal. Because of their vulnerability and the various pressures on them in times of problematic situations, the engineers can be inclined to move away from professional expectations concerning them. Such reactions are foreseeable in the absence of sufficient support. The idea is not so much to encourage engineers to be whistleblowers but to create conditions facilitating this course of action and, at the same time, creating adverse conditions for the deviating managers and administrators. The knowledge that such measures exist, indeed, lets us believe that those deviating managers and administrators would be less inclined to misuse the position of vulnerability of certain engineers.

Taken together, these approaches to a solution appear to us to offer certain safeguards – certainly quite imperfect but nevertheless necessary – against possible drifts that will affect the actualization of the engineers' professional ideal.

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