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THE INCAPACITY FOR PUBLIC ACTION TO RECOGNISE AND ACT UPON IMMINENT RISKS: CASE STUDY OF THE LAC-MÉGANTIC TRAGEDY

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Abstract:

This paper focuses on the public administration systems' inability to act upon risks as they become manifest. More particularly, three issues are discussed. First I describe the causes and consequences of the Canadian government's lack of effectiveness in monitoring and evaluating long term negative effects of policy reforms and programs. Secondly, I argue that a scientific-based approach to calculating and "managing" risks can evacuate ethics and social dimensions of risks as our regulatory framework defines it in narrow terms. Thirdly, I point out the possibility for organizational regression following crisis. My ultimate aim is to shed some light on three issues and their underlying processes.

1-Introduction: Public sector deficits and dynamics that contribute to crisis

On July 6th, a runaway train carrying crude oil derails and bursts in the City center of Lac-Mégantic, causing the death of 47 people. It is the largest land-based oil spill in North America, yet. The offshore spill of British Petroleum involved, of course, more volume of petroleum, and Saddam Husseins' voluntary destruction of Kuwait's petroleum reserves during the first Golf War represented the more important spill up until BP's Deepwater Horizon blowout in the Gulf of Mexico (Freudenburg and Gramling 2011).

With regards to spills and oil transportation crisis, we often refer to the Exxon Valdez, much theory has been build in this case, including Freudenburg's atrophy of vigilance, which was mobilized to build this case study's theoretical background, but there was also an important spill that occurred not long before the Exxon Valdez; the Nestucca Oil Spill. Both Deschamps and colleagues (1997) and Freudenburg's (1992) studies have described processes of systemic environmental and civilian endangering.

Case studies can inform the government of its public endangering deficits as they describe the public sector's prevailing conditions, as well as organizational climate within both public and privately regulated organizations.

This paper will therefore present some of the findings of my doctoral thesis, which is a grounded exploratory research. It was conducted following the tragic events of Lac-Mégantic of July 6th 2013.

The question that guided my exploratory research was: how can we better detect latent signals of risks, and more particularly, the atrophy of vigilance within a critical infrastructure network such as the railroad system? The synthesis of the thesis' theoretical background is presented next.

2- Theoretical background: The Atrophy of Vigilance.

With regards to technological risks, regulation evolves at the rhythm of Catastrophes. They open up windows of opportunity that can lead to mobilizing existing or emerging knowledge (Birkland 1997). According to Freudenburg (1992), there is one real source of systematic risk amplification; sloppy management. Bad management increases risks by letting policies unapplied, by not considering the external public, and by letting unchallenged organizational beliefs that alter information or lead to disastrous blind spots. This scholar's theory is the atrophy of vigilance, and this atrophy represents the combination of several processes, which I will not describe entirely, but I will lay out several of them that capture the essence of his paradigm on risk management and its effectiveness.

Within governments, priorities shift and there can be a lot of pressures for "less burdensome", or more reasonable" policies. There is a problem of maintaining focus and enforcement, when, and if policies and programs are, in effect, implemented. There exists also a view where investment in prevention or even the enforcement of prevention policies is seen as an inhibitor to economic or urban development and growth.

There is irrationality, a paradox, deriving from the scientific character of risk evaluation; where financial consideration are weighted without concern for public opinion, social dimensions of this risks and therefore, the ethical dimensions can be evacuated completely from the decisional making process. By focusing solely on economic aspects of industrial regulation, the larger picture is lost, and decisions have social and environmental counter-effects which are not initially evaluated, let alone monitored. These issues have to do with a regulatory framework which focuses not on the principle of precaution, as it does in some other jurisdiction of the world, but focus narrowly on organizational liability. Self-regulation has longer terms consequences which are not accounted for in traditional envisioning of risks.

Also, new elected governments do not feel they are bound to previous plans and decisions, nor their impact. The political games make it difficult for proper measure and re-calibrating of structural power distribution, as it is politically viable to plan for the future, and "creating employment" rather than carry out past promises and evaluate the long terms effects of economically (ideologically) motivated decisions.

Resilience can be seen as a construct that refers to a broad spectrum of organizational reaction to risks and crisis; there is at one end of the spectrum, resistance, and maintenance of status-quo, in the middle, there could be marginal change to practices, rules, etc. and at the other end of the spectrum, there will be openness, and adaptability. It can be a useful concept at the condition that it is defined and that variables are set forth to explain what it means (see Valiquette L'Heureux and Therrien 2013).

3- Methods

The approach is a qualitative case-study approach. As knowledge is called upon to evolve, theories are only temporary and provisional. They are useful to refine our observations, but do not confine are units of analysis (Latour 2014).

I have let the network define itself throughout my research (Kervern 1995), since the boundaries of the network I was studying not to be established from an external, academic perspective. I used participatory observation and documentary research at the outset, to try to "get inside" this complex network system but it is through raw material, 30 respondents providing me with 50 hours of interview that I could attempt to respond to my theoretical questionings. My exploration of the organizational climates, heuristics, and inter-organizational dynamics enabled me, first to model the complexity of the rail regulation environment and its deficits (see figure #1), and second, to propose a framework (see figure #2) to analyze and manage processes such as the atrophy of vigilance, conciliating empirical and field-based insights with more general organizational theory, including implementation science.

My interviews were semi-directed, and lasted from 1 to 3 ½ hours. I mainly explored the management practices, regulation practices and overall coherence of the governance network, which I also refer to the risk-management regime. The goal of these in-depth interviews was to understand the crisis, the organizational processes involved in its build-up, and to provide insights as to how public servants can better recognize the emergent sources of risks and act upon them in a context of institutional fragmentation. The inquiry methods were conceived as to leave open spaces for investigation and the possibility of embracing accounts from multiple paradigms (Lincoln & Guba 1986, Lincoln, Lynham & Guba 2011; Poupart 1997).

4- Risk Regime historic and impact of past economic reforms

Now that the scope, methods aims and approach of this research have been presented a timeline that replaces the crisis in its broader context will be presented. In 1979, the Mississauga derailment caused the evacuation of 218 000 people out of this city of 284 000. The Hinton train crash then triggered further questioning when the accident's report has shown that CN implicitly allowed deviations and violation of standard operating procedures. The regulator's independence was questioned and reform was announced. (Foisy 1986) However, a regulation reform that was set out to ensure independence of investigation did have some other effects in the long term, since corporate interests have weighted in their power to ensure its favorable positioning in the economy.

The rail regulation reforms that were carried out from 1987 to to 1995 were conceived as a way of ensuring economic prosperity of the Canadian railroads. Canada's government was subsidizing what the

railroads considered "losses". Since railroads are common carriers, they have obligation to transport goods, and some rates are fixed by the government. Grain-dependant branch lines could not be abandoned by the Railroad company, even though they claimed that those portions of rail were not viable enough and were "in deficit". Government compensated up to 80% of the "losses"; which represented millions of dollars over the years of public. The railroads were nevertheless, very profitable. Of course, they lived in a globalized market and experienced some fluctuation at the turning of the 1980 decade, because of the 1981–82 and 1990–91 recessions, but the calculations of losses were made in such a way that every rail portion had to be "self-sufficient", or it represented a "loss" eligible to governmental subsidies. The Canadian Transportation Commission had to approve rail abandonment, and the list of tracks that Canadian pacific railroad and Canadian national railroad, which as a Crown society at the time, were wanting to get rid of was growing longer.

So, using the momentum of the Hinton crisis, and the Foisy Report's political pressure (Foisy 1986), the governments, with its parliament members being close to the railroad and the West's grain producers' interests made a trade-off: in exchange for putting an end to subsidizing the "losses", the abandonment process of lines was to be made lighter and simpler.

Therefore, many players entered the market, and after the privatization of CN, the government went even further in this logic of opening up the market (Flemming, Patenaude, Rae, Findlay, Waters and William 2001, p. 10, p. 384). This "competitive environment" was allowing businesses to operate regardless of their investments in training, in their number of crews, and in their infrastructure. These smaller business beneficiated from important public investments, through "infrastructure government programs" aimed at the rail tracks' maintenance. Some of these new players also beneficiated from loans and public shares to acquire their lines, yards and equipment. They were allowed to operate on business models with the tiniest margins; or as often, it was the case, when looking at MMA's line history, they went bankrupt, re-bought by others with support government participation and investments, bankrupt again, re-bought, and so on… The collective labor agreement could also be abandoned in the process, and the government played very little role in the rail regulation: the rules were to be submitted and established by the railroads (with approbation from the Department), the training, qualification process of workers and the oversight was to be done by railroads themselves, and the government could carry inspections and audits, but, as we'll get to, the problem was that very few "misconduct" could be reprehended, because of several deficits that were left unresolved for years, and all resulted in the regulation's literal absence of teeth: First, the law did not provide inspectors with administration pecuniary sanctions. Second, there was strong reluctance within the upper hierarchical levels of the public bureaucratic to the use of law suits. And thirdly, the "gradation" system of governmental interventions was in favor of the

railroads; in other words, they could ignore orders and have a good chance of not being bothered again, because for this gradation to occur, serious security threats were to be identified.

A threat to security is something rather had to demonstrate. In the absence of crisis, it is always convenient to say that the proper protective layers are in place and compensate for any perceived source of danger. So there was a feeling of invulnerability; everything street-level bureaucrats were trying to change within the businesses was claimed to be "off limits" from governmental intervention.

The successive reforms had installed a belief that was shared by both upper governmental managers and railroads that regulation hinders economic growth, and should be strongly restricted. For example, Transport Canada's own legal branch formally prohibited any intervention or sanctions with regards to railroads' "implementation" of the safety management system's oversight. In other words, the claim of their having a process of risk management was all regulators could have access to; they could sanction the absence or lack of implementation of these claimed process.

In 1999, an accident occurred in Mont Saint-Hilaire and the Transportation Safety Board, born out of the 1987 reforms, recommended that petroleum and derived products transporters have a emergency plan and that they shared it with first responders along their lines. Ten years later, these plans, although prescribed and voted by Parliament in the 2006 amendments the transportation of dangerous goods acts was not enforced and operative seven years later, and "still active" in the TSB's watch list in 2013 (TSB 2013). The concerns for SMS oversight was taken out of, and then, back on this list after the Lac-Mégantic tragic crash. This illustrates that Gatekeepers also face the atrophying process of their vigilance when claims and intentions of change and rectifications are misinterpreted.

5- The Endangering processes within Organizations; from Lack of Reflectivity to Regression.

Within the rail sector's regulatory body, this lack of gradation's towards deviance behavior from railroads organizations, in conjunction with the lack of follow-up in the inspections carried out and to the feeling of powerlessness of inspectors deriving from their superior's support for carrying out their law-enforcement work, fostered impunity. More alarmingly, it was perceived throughout the rail industry and in some governmental units that the introduction of SMS audits literally replaced the traditional inspection programs. Network governance (Provan and Kenis 2008) was severely lacking.

The reform of 2001 was endorsing a vision where the regulator was lacking credibility in its ability to oversee the implementation of effective risk-management strategies. The reform reinforced the private railroads' assurance that the government's legitimacy in supervising standards was almost null. This

situation created a vicious circle: the lesser the credibility, the lesser legitimacy. The reform prompted stakeholders to envisioned regulation as burdensome, strongly restricted, and next to impertinent.

The expertise was believed to be held mostly by private hands, so therefore, the government entrusted the industry with standard-setting, while keeping a minimal approval position, and supervision powers over arbitrating very limited economic areas, such as granting operating certificates after an examination of fitness, approval of dismantling rails, establishing some base- rates for some good's transportation, approval of financial transactions, etc.

Rail safety oversight and ensuring the public's exposure to industrial risks was formally "fanned out" where resources were allocated either within the Central office, and regional bureaus. These two missions were, in theory, the Rail safety Directorate program's aims, but paradoxically, the process involving this shift of approach – using performance-based rather than compliance-based mechanisms, to summarize crudely the regulator's intentions towards safety oversight- created the opposite effect. But, as we organizational theorists try best to convey to our economist colleagues, investments are not proportional to efficiency, and sometimes, this relationship, far from being a 45 degree angle, resembles more an inverted U curve.

Key organizational missions and goals were blasted in oblivion by routines and strong beliefs that "rationalize" risks (Mitroff et Pauchant 1995). These systemic deficits which are labeled "degenerescence" (i.e. atrophy) of vigilance and blockings of reflectivity, and of cindynic (danger-mitigating) mechanisms; and disjunctions and/or blockings with relation to other networks, in the risk management literature (Freudenburg and Gramling 1994; Kervern 1995).

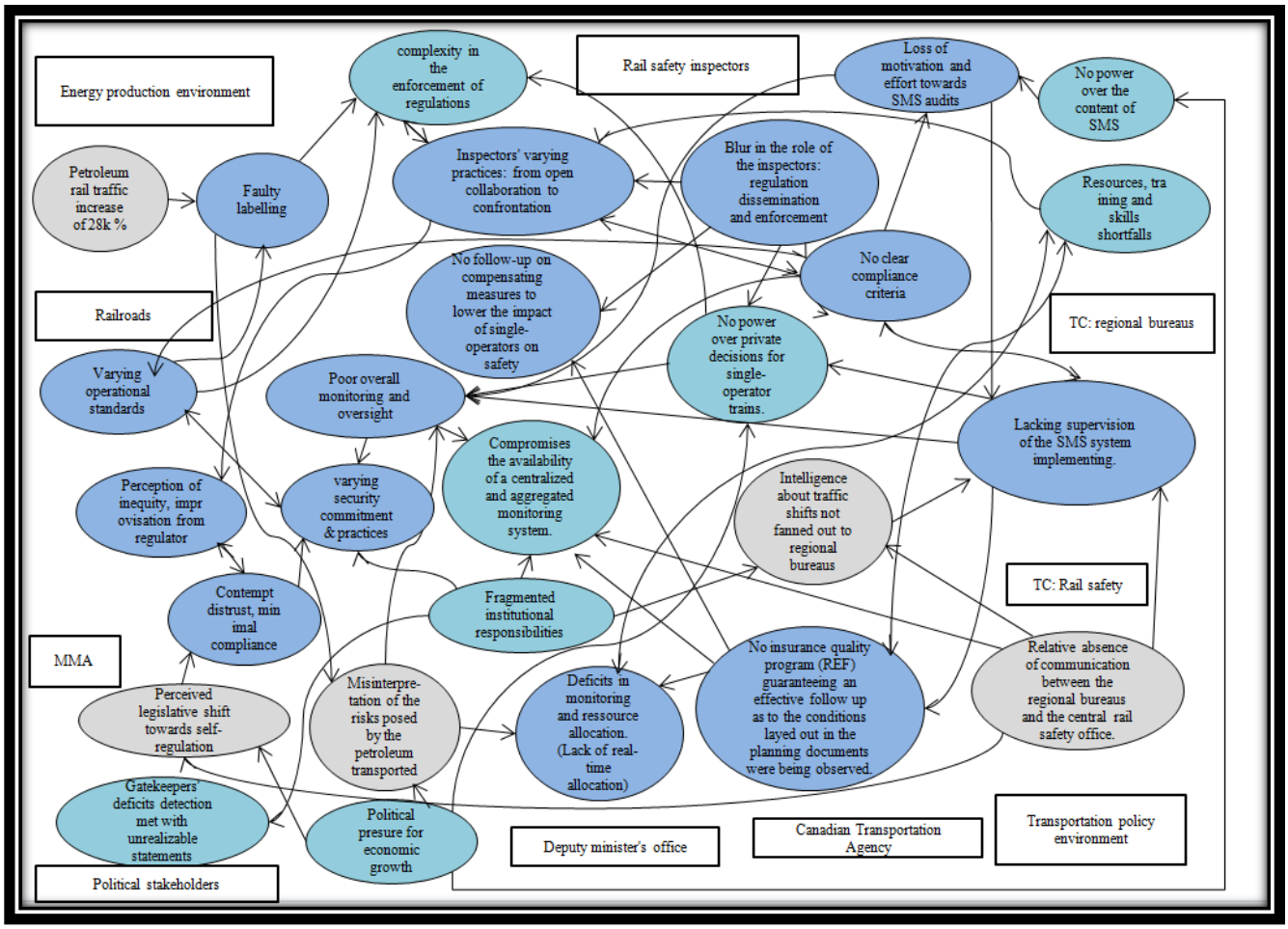
These deficits disengaged both private sector and public sector employees towards rail safety. In addition, over time, the accumulation of these processes exacerbated other latent risks, such as the absence of considering topographic dimension to route planning, for instance, and encouraged denial: denial of responsibility to act, denial of complexity itself.

Reputational assets preservation and budgets increase implicitly becomes the core focus of our public leaders, policy advisors, and upper level bureaucrats. The fact that gatekeepers auditing their organization's performance ring alarms on their lack of risk oversight (Lewis 2001) was in fact used to promote budget increases in a competing arena for Department's Budget credits. This is disturbing, because this institutional logic is not getting the attention - and proper, strategically-informed management and correction - it would deserve now that we realize the profound implications it has for society as a whole.

In 2007, the Advisory Panel of the Rail safety Acts noted the absence of safety culture within government and rail systems as a whole (Lewis 2007, 81), and their report, and the 2013 Auditor general too, noted also that there was no data regarding compliance rate on which regulators could rely, except the self-reported incident and accident database that the TSB hosts. This is still true today.

Ironically, the budget increase of 2009 gave a sense of relief to regulation officers; they would be getting more training and resources, so follow-ups will be more rigorous and eventually the culture change will be carried out successfully. This was wishful thinking, since the regulator's environment operated still with the logic of bureaucratic protection, with a strong blame culture and lack of general reflectivity and regional integration or coherence. Paradoxically, the organization trying to convince railroads to base their inspection programming on integrated data bases did not rely itself on such integrated, real-time intelligence.

Figure #1 Systemic model of the regulation deficits



The blue circles represent managerial deficits, comprising cultural deficits which are factors that can be attenuated through managerial solutions. The gray circles represent the informational deficits, and the turquoise circles, the structural deficits. This categorization is not exhaustive, but serves as a way to group phenomenon of interest. This schema illustrates an oversight failure, and more particularly, the fact that institutional controls will fail when denial of systemic complexity occurs. It also points out that the government is not effectively following up upon the implications and enforcement of policies and programs, there is nothing that leads us to conclude that these cultural, managerial and structural deficits are not present, nor that the situation is any different within other important Departments.

The consequences of ideological choices are evacuated by the ways that governments tend to disengage from oversight and inspections; as level of crude oil being transported by rail increased drastically, the level of oversight was maintained, creating thus a diminishment in the level of crude oil shipment oversight . Self-regulation is costly on the long run, because it creates addition pressure on the state which is left out with additional environmental and civilian exposure to risks which it is not in the position to prevent. As the state's expertise decline, and as independent expertise is not put in position to counsel, the concentration of resource and power strengthens.

The transaction efforts between and within federal bureaucracies is taking up a lot of their resources and time. Protection of institutional assets, carrier-advancement competition within personnel is driving day-to-day logics, and as these exacerbate, these protective logics do not only push the risk-management's effectiveness potential away, it engulfs the very possibility for learning and adapting to events and contingencies that are ahead.

So, not only was crude oil danger's underestimated, the very capacity for resource reallocation was hindered by budget increases which had the effect of building a greater transactional complexity. The unlocking of such institutional sclerosis should, could, or would (depending of theoretical standpoints) be made possible by focusing events. Lac-Mégantic represents such events; 47 civilian by-standers were killed, mostly youth, celebrating a birthday in a bar on a late night in July.

Reform was, of course, announced. The tragedy triggered fast adoption of legislative amendments that were awaiting Parliamentary sanction for years. Nevertheless, this reform was clearly reactive, and an attempt to protect reputational assets of the government. What is worthy to note is that reforms were based on what irritated most the conservative government; the risks were not properly financed, and the government had to pay a fraction of Québec legislature's expenses of the Lac-Mégantic crisis. Half a billion dollars was spent by nationalist's Pauline Marois administration in containing the spill, decontaminating the soil, manage the destruction and reconstruction of the city center, and this excludes

the social and psychological impacts that represents long term research and social services investments. Transport Minister Lisa Raitt's ministry's reform aimed at "give a sense of responsibility" to railroads (and to railroads only). The risks are now, indeed, "better financed", third-party liability levels were established, and insurance coverage increased, and the regulator has "more teeth" when it comes to correcting deviance to standards, and can raise funds (tax) from all railroads if costs of a rail shipment derailment cap the insurance levels, but these changes are not addressing systemic deficits.

Regulatory changes were merely technical; they actually increase the complexity of the standards employees have to follow, they change nothing of the credibility and legitimacy crisis of regulatory bodies with regards to the industry, and does not affect the beliefs and the practices within the Department in regards to the railways' ability to govern themselves, to set standards themselves, and to oversee implementation of risk-management and oversight on their own.

The government does not play a more "hands on" role in the risk governance network as the TSB (2014) suggested. Its general posture is still focused on indirect oversight, audits and relies mostly on private hands for compliance self-inspection. There is little that private firms are not allowed to do, since the regulatory framework has structured the public powers in such a way that the government has no say in businesses' economically-driven decisions. Small businesses are allowed to operate with little or no profit margins. There are major unresolved intelligence shortages in the public railway oversight system which causes a distortion of the auditing, inspecting and investigation efforts. Furthermore, the adaptability of the Departments were not increased by the opening up of their structure (i.e. transparency). Lack of inter-organizational coordination and collaboration about risks and on crisis' lessons as well in between jurisdictional levels and within the federal network still remains.

An organization under stress may not evolve if the adaptive capacity in inexistent or if the mechanisms for learning are inoperative. The crisis, in other words, had the counter-intuitive and uninspected effect of reinforcing current paradigms and beliefs. The tight coupling of the system is still not recognized. Neither is its inherent dynamic complexity and destruction potential.

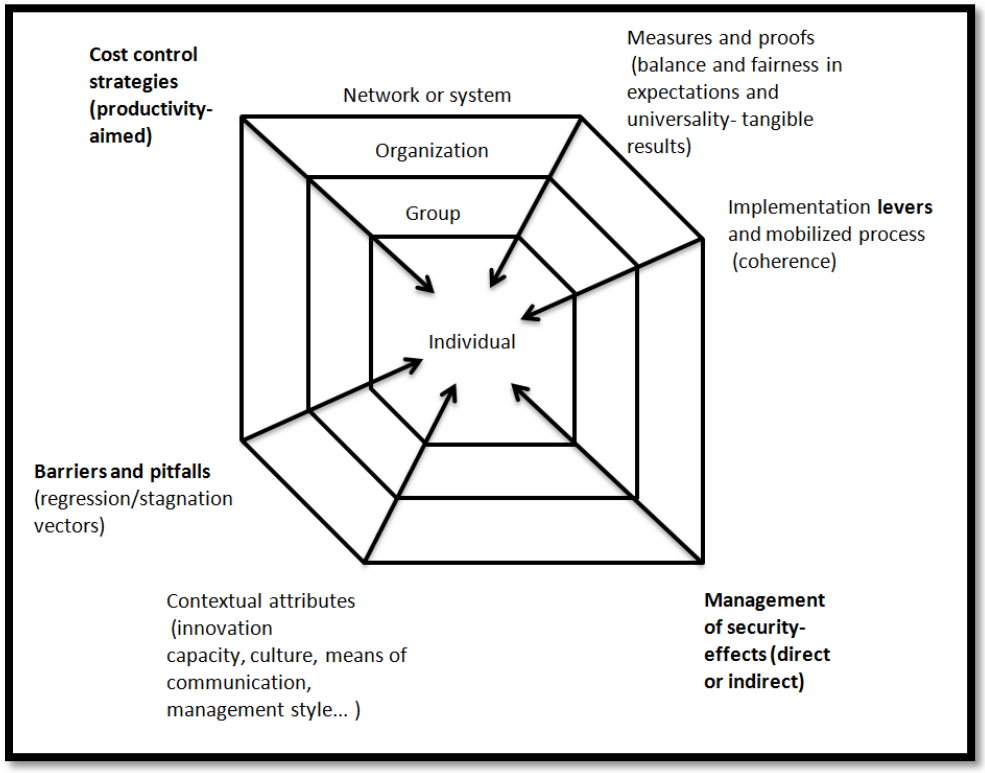
Risks are perceived as coming from the outside; not generated by the very processes and reflexes that constitute the, when looking at it closely and attentively, they are. Long terms effects of reforms are evacuated by the policy network's short term vision and its various budgetary, legal, communicational imperatives that gain priority over effective risk mitigation and organizational learning. It the system, the risk is defined so narrowly the ethical and social dimensions of risks management are left aside (Létourneau 2016).

Organizations that theoretically regulate risks are nurturing an institutional environment, both internally and externally, that hinders the detection of weak signals of crisis and that disengage from safety. Organizations confronted to stress can therefore misinterpret the nature of the treat, regress to primitive reflexes, centralize further decisions and greatly reduce the chances for innovative and strategic solutions to be found (Weick 1993, 91). Just like individual, when placed in a prolonged confrontational environment, organization (or groups, units) may stop using resources they have at hand and disengage completely from what constitutes their raison d'être. Such processes are disturbing and call for a revisited framework of organizational "knowledge-to-action" (i.e. mobilization, Busby 2006) ability.

6- A framework to build knowledge mobilization

This exploration of gaps between knowledge and practices within the risk oversight system served as a basis for the renewed modeling of the dynamics involved in the atrophy of vigilance. More precisely, I tried to capture the dynamism of concurring imperatives within the detection of weak signals of crisis.

Figure #2 Dynamism of concurring imperatives within the detection of weak signals of crisis



Inspired - among other literature - from the writings in implementation science, my model represent the dimension that have emerged from this grounded analysis. It depicts the barriers, levers, and structural dimensions that interplay at a multiplicity of co-influenced levels of abstraction. It can serve both as a

diagnosis tool and management tool of the atrophy of vigilance process within public bureaucracies, for it reflects the socio-technical character of the sources of risks.

Dualities must be understood if they are to be managed. In my model, the atrophy of vigilance vectors, - which are the barriers and pitfalls to vigilance, as well as the cognitive, social and systemic processes of regression and stagnation – are manifold and are positioned as opposing forces to the mobilization of levers of successful implementation of risk-management strategies and sense-making, which is understood here as heedful interrelating, systemic learning, acting upon knowledge in a coherent way, gathering necessary knowledge for decision-making, etc.

The incapacity to overcome the pitfalls of knowledge mobilization and systemic risk governance is both a choice and a perception conditioned by external factors. The model is thus in line with contingency theory, and refutes deterministic approaches, as well as the engineering notions of risk and closed system approach to safety. It proposes that the individual, the organizational and the governance system, being conjointly influenced by their larger environment, have a certain amount of freewill which can be strategically oriented towards the reconciliation of productivity and security vectors within a policy network. The dilemmas of public servants and private sectors employees can be processed (that is, analyzed and managed) through the dimensions which are laid out in this model.

Thus, mobilization, is the result of a process of resource selection from each level of abstraction (individual, group-level, organization and system). At the opposite, the stagnation and regression are a form of disengagement towards safety and vigilance. The level of preparedness to change also reduced the capacity of mobilizing resources towards change, innovation or reflectivity. Therefore, the contextual attributes partially determine the operability of the governance network, its integration, and coherence being linked to its level of de-compartmentalization).

Multilevel governance is complex and its effectiveness is achievable by understanding of the context characteristics of the sociotechnical system. What is to be perceived as a legitimate tool for monitoring reform and assessing success is context-dependant. Nevertheless, my framework insists on the need for distributed leadership, for trust, and for reflectivity. Reflectivity is crucial for vigilance, for it is not only a system's characteristic. It is a dynamic process in which a systems not only allow whistle-blowing, and expertise to have a say in decisions, but support also rigorous and independent exploration of long term effects, whether they be positive or negative, of the decisions taken in the past, and in the present-time.

7-Long lasting conundrums

This paper has raised the issue of risk management by 21st century bureaucracies. If reflectivity and self-criticism is inoperative, and the systemic complexity is denied, then, there is little ways in which safety can be improved, because it is the hidden paths in the system that makes it brittle. Our critical infrastructure systems are tightly coupled this calls for revised modes of network governance. Tightly coupled systems cannot be fragmented and loosely coupled in their management without fostering major crisis, the consequences of which could be much more profound that the ones we have experienced yet.
Political decisions affect the overall safety of the system but lack longer-terms effects monitoring. Economic-growth aimed reforms are often taken with short-term (political) interests in mind, and the civil servants' political masters hold the ultimate reins of power. They have the right to decide not to confer enforcement tools, and not to delegate oversight powers. In turn, the public entities could provide the executive branch with better intelligence, which could prompt quicker readjustments following the detection of unwanted and unnecessary negative reform's effects.

Yet, organizational and systemic deficits are not well understood by public leaders. Gatekeepers, such as the auditor general, are kept "out of circuit". The state's mentality is to formalize behavior, and civil servants are bound to serve the shorter-terms interests of their political masters. Structuring reforms are postponed or set aside in the name of economic growth. The myth, or false dilemma – that we must choose between regulation and prosperity or choose security over economic growth still has ground not only within private sector, but within government as well, especially at the highest level, closest to transactions with the political field, whereas lower level public servants appear closer to ethical and social consideration.

To conclude with, the coordination and the general governance network's coherence are either, missing, weak or incomplete. Audits and investigation reports appear to act more as ways to communicate power and protect strategic positioning within the bureaucratic ecosystem than acting as triggers of change, better transparency, and enhanced collaboration. There are cyclical aspects to this crisis that could be circumvented by a more coherent integration of the entities that compose the risk regime's network and by more transparency from the government, which has not been letting academia scrutinize its organizational environment in a manner that it could help steer its culture and performance.

This analysis has uncovered that there was an dynamic accumulation of deficits, and when comparing the steps taken to increase rail safety, and the core sources of the systemic risks, it is possible to conclude that not only major gaps remain between the two, but also, that Lac-Mégantic's tragedy may be, at least, from a federal governmental perspective, the weak signal, incapable of triggering change to processes, that is the announcement of something greater coming ahead.

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