

**TRANSPORT CANADA AND ITS COMPLEX  
REGULATION-INNOVATION  
NEXUS: IMPLICATIONS FOR FUTURE  
INNOVATION AND  
REGULATORY STRATEGIES**

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**Introduction**

This paper develops a relatively brief two phase empirical and conceptual account of Transport Canada as a leading federal regulatory body. The first centers on Transport Canada itself and the key evolving characteristics of its regulatory mandates, approaches, regulatory volumes, views of innovation and governance changes. The second centers on a conceptual effort to trace the evolution of a sample of regulatory concepts and reforms and their interactions with innovation, using Transport Canada and transport sector illustrative examples. With respect to the combined features of this dual story, several conclusions are highlighted that warrant special emphasis for both current and future theory and practice regarding the complex transport regulation -innovation nexus.

The paper examines the nature of Transport Canada as a regulatory body facing diverse notions about what innovation is or should be and also choices among diverse regulatory instruments and instrument-mixes to achieve innovation. The analysis maps and explains its regulatory evolution in the last two decades into its current status as one of the top three federal regulatory departments. Transport Canada links up with overall federal government regulatory policy and the

latter' s innovation policy content and aspirations but these broader policies are not explored here (see Conference Board of Canada 2010; Doern 2010; Doern and Johnson 2006).

While the paper has a Transport Canada departmental focus the analysis is also developed to some extent in a broad international illustrative way where appropriate and feasible.

## **TRANSPORT CANADA AS A REGULATORY DEPARTMENT**

We first look at Transport Canada as a regulatory department functioning in relation to the transport sector and industry. We map briefly the department' s mandate and evolution, the diverse contents of transport regulation within its mandate, its regulatory and rule making volumes and key relationships and the nature of its regulatory stakeholder relations (Transport Canada 2010; 2010a; 2010b; 2010c; 2010d; 2010e).

### **Department Mandate and Evolution**

The Transport Canada mandate can be found in its summary statements submitted to federal central agencies but it also flows in more particular ways from the 60 plus statutes or Acts and regulations it, or its minister, is responsible for or in which the minister has joint responsibility with other ministers or departments. In its most recent Report on Plans and Priorities (Transport Canada 2010a), the department summarizes its mandate as follows:

Transport Canada is responsible for the Government of Canada' s transportation policies and programs. *The Canada Transportation Act* makes the department responsible for monitoring the ongoing health of the national transportation system, as well. While not directly responsible for all aspects or modes of transportation, the department plays a leadership role to ensure that all parts of the transportation system work together effectively. The department' s vision of a sustainable transportation system is one which integrates and balances social, economic and

environmental objectives. Our vision is guided by the following principles:

- highest possible safety and security of life and property-guided by performance-based standards and regulations when necessary
- efficient movement of people and goods to support economic prosperity and sustainable quality of life- based on competitive markets and targeted use of regulation and government funding;
- respect for the environmental legacy of future generations of Canadians-guided by environmental assessment and planning processes in transportation decisions and selective use of regulation and government funding (Transport Canada 2010a, 3-4).

The mandate document also commits the department to four strategic outcomes expressed as: an efficient transportation system; a clean transportation system; a safe transportation system; and a secure transportation system (Transport Canada 2010a, 4-5).

However, the above mandate statements also partly indicate its regulatory philosophy through phrases such as “guided by performance-based standards and regulations when necessary”, “targeted use of regulation” and “selective use of regulation”. Moreover, the department overall has, since the 1980s and 1990s shed or devolved many aspects of direct management and regulation which is mainly why its portfolio of agencies is so large (Hill, 1999; Ranger 2010). These include airports, ports and other regulatory agencies that are now highly decentralized or made independent. While these changes were made under the rubric of both privatization (in the 1980s) and mid-1990s Program Review budget cutting and efficiency rationales they are also cast with considerable validity as

being innovative and producing innovation well before innovation policies were fashionable or in place (see further discussion below).

### **Regulatory and Rule-Making Volumes**

Transport Canada is one of the two or three largest federal government regulators in terms of volume. The regulations refer basically to regulatory proposals and projects subject to the Canada Gazette process and related consultation dynamics. Rule-making volumes in a larger sense refer more to major occasions of statutory change. The latter are normally much less frequent, but obviously rules do show up in statutes/laws themselves. Information supplied by the department indicates that Transport Canada has processed about 30 to 35 new regulations per year during the past three years. Its newer planning and priority system indicates that as of June 2010, 147 projects are in the queue. About 90 percent of the latter deal with proposed safety and security measures.

Among the modal and regulatory areas of the department, about 80 percent of regulatory proposals historically and at present come from civil aviation and maritime safety, in that order. Road safety and dangerous goods are next in volume but well behind the first two modal realms. The development of the priority-setting aspects of the above-mentioned 147 is still being developed. Explicit kinds of regulatory agenda, similar to the spending agenda of the federal government, do not exist on a government-wide basis (Doern 2007) but departmental plans are being developed and thought through at present. The list of 147 projects currently in place was prepared to give senior Transport Canada managers a better idea of how many regulatory projects were queuing up in the department. There is the possibility, once the process is in place, that senior managers would delay action on some files and direct that others be expedited based on their risk profile. But it must be stressed that a large number of Transport Canada's regulatory projects are technical in nature, relating to such things as construction standards for transportation craft etc. In these kinds of technical standards the department would have no choice but to put them in place because transportation safety

and the integrity of the transportation system itself depend on uniform standards throughout the world.

Given the volume and political-economic and technical nature of any such agenda, there is little doubt that criteria about such agendas would come from government-wide priorities and the Transport minister's priorities intermingled with the nature and severity of particular risks involved in any given project. And there would always have to be room for unexpected risks as happens in the expenditure agenda. We return to these agenda features/choices in our later discussion of the regulation-innovation nexus and in the conclusions to the paper.

### **The Diverse Contents of Transport Regulation**

To understand the eventual regulation-innovation nexus and dynamics one also needs a reasonable sense of the diverse contents of transport regulation within and across the main transport modes. In other words, what types of behaviors are being encouraged or restricted by regulation, whose behaviors are being influenced this way and where are they located spatially and as goods and people in motion in transport systems or moving from one mode to another? One can only give selected examples in the context of this brief subsection but they are indicative of a quite dense but also quite literally fast moving complexity.

First, regulations are intended to impact on the behavior of transport service firms and service provider staff and employees in the different modes of rail, road, air and maritime shipping. These can be carried out in the name of increasing the speed and reliability of transport services, the avoidance of multi-modal congestion, or on the reliability of supply chains.

Regulations also impact the behavior and perceptions of different types of consumers and users, again in different modes. Such consumers and users can be high income or moderate and low income users, young, middle-aged or aged customers/citizens, frequent

business travelers/users, businesses as users which are shipping normal goods or hazardous goods.

The above examples can all in some sense be seen to relate to various kinds of transportation service quality. But transport regulation is also increasingly about all of the previously mentioned performance outcome realms cited above, namely, an efficient transportation system; a clean transportation system; a safe transportation system; and a secure transportation system.

A *clean system* relates mainly to environmental and sustainable aspects and related values/outcomes and involves regulation (and innovation) systems emanating both from within Transport Canada and from other agencies such as Environment Canada not to mention from the provinces and from cities/local government as well through planning laws and processes.

Transportation *safety* has arguably been the dominant focus historically in transport regulation, again across all modes. However, for the last decade in particular, it has been joined by concurrent needs to secure transportation *security*. Indeed, in Canada these security concerns began not just with post-9/11 terrorism prevention concerns but even earlier with the 1985 Air India crash due to terrorism as well. As we will see in more detail later, the combined safety and security issues and regulatory and management needs helped produce Transport Canada's 2007 *Moving Forward* policy document, whose subtitle stressed the imperatives of "changing the safety and security culture" (Transport Canada 2007). In addition, however, the differences in the regulatory nature of safety versus security need emphasis. As former Transport Canada Deputy Minister, Louis Ranger stressed in a recent paper, "transport safety and security programs are fundamentally different in that they focus on very different types of risks. "Safety risks" originate from unintended failures, errors or misfortunes whereas "security risks" originate from deliberate or malicious attempts to disrupt, disable or destroy" (Ranger 2010, 12).

Last but not least, two further features of the nature of transport regulation need to be mentioned. One is the *infrastructure* nature of transport facilities and also intermodal meeting and gateway points and the other is the need for Transport Canada regulators to *adopt by reference* the rules and standards of international transportation agencies.

In the first case, infrastructure can mean, in the recent history of Transport Canada, that Infrastructure Canada as an agency is a part of the transport portfolio. It has been spending and allocating funds on infrastructure projects (many transport-related) both before the current recession and now as a part of the federal stimulus program. Such infrastructure funding is usually not seen as regulatory in nature but in some senses it clearly is. All funding, especially infrastructure funding comes with rules and “criteria”. Moreover, many such projects involve public-private partnerships in the funding approaches and such partnership agreements always contain rules and performance obligations.

Thus, the very nature of infrastructure projects is that despite their core spending features, they are almost always encased with bundles of rules and requirements of both a contractual and policy nature. These rules aspects can be both innovation enhancing or innovation constraining (or both) depending on their specific design features and partnership attributes/agreements.

With respect to regulation by reference adoption of international standards this is quite simply a global reality built into the nature of integrated global transport systems, such as air travel, and marine, but also rail and road vis a vis Canada-U.S. travel and transport. Key international agencies here include the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO). For this and other reasons, sections of Transport Canada such as the civil aviation branch have an explicit Standards Branch to deal with regulatory and technical drafting that is closely tied to these dynamics of international harmonization and cooperation. Both road/auto and also dangerous goods also, not surprisingly, have intricate Canada-U.S. regulatory and technical coordination, not to

mention the cross-border security issues and related trade volumes across both countries.

### **The Nature of Regulatory Stakeholder Relations**

The above discussion of Transport Canada's diverse regulatory contents already gives us a sense of the department's stakeholder relations but a bit more needs to be said about the nature of these relationships (Ranger 2010). The first point is that the main stakeholders on the industry side tend on the whole to be large firms or entities (airlines, rail companies; shipping companies, road and auto companies, airport and port authorities). They have great expertise and capacity and regional breadth and are used to working with Transport Canada on a continuous basis as new regulatory and standard-setting pressures and challenges and technology changes come forward. The same is true when these interests work and lobby through their main lobby groups. In short, because of the high regulatory volumes noted above, the Transport Canada business stakeholders are engaged with the department on a continuous basis.

These industry links are also reinforced by the work of well established formal advisory consultative bodies. These are permanent structures which meet semi-annually and which allow discussion of regulatory and other policy issues brought forward both by Transport Canada and by industry.

As is the case in many fields of public policy and governance, the relationships of Transport Canada with consumer, passenger, employee regulators/inspectors unions, NGOs, and environmental interests and groups are somewhat more diffuse than those that exist on the business side. They are frequently involved not only directly but also indirectly through their lobbying clout with other federal and provincial departments with mandates that are sympathetic to their agendas, including innovation and variously defined public interest agendas. Some of these differences in the basic structure of power for these two sets of interests emerge when we look below at the varied regulation-innovation relationships and tensions.

## **Departmental and Related Characterizations of Innovation**

Before looking more closely at the Transport Canada- related regulation-innovation nexus, it is important to note briefly how the department and recent international transportation reports have defined and characterized innovation.

In a 2010 paper, Transport Canada defined innovation as “the process through which new economic and social benefits are extracted from knowledge. Through innovation, knowledge is applied to the introduction of new or significantly improved products, services and processes”.....it is “defined in the broadest sense and refers to not only new and emerging technologies but also new or better ways of using existing technologies. Equally important for innovation are research and development (R&D), business practices, policies and regulatory approaches, and skills and capacity building” (Transport Canada 2010e, 1). This report goes on to highlight the increasing pace of innovation, and highly innovative sectors such as freight containers over the last 40 years. But it also cites recent federal reports on innovation which show Canada’s overall lagging record compared to some other countries, including weaknesses in transport innovation (Transport Canada 2010e, 3-7).

The OECD-linked International Transport Forum for 2010 was focused on the potential for innovation, with several papers presented and discussed at its annual meeting. A paper by the forum secretariat defined innovation as “the development and deployment of new technologies, techniques and policy approaches” and stressed that “the solutions to many of transport’s persistent problems must be found in innovation” (International Transport Forum 2010, 4). The paper also highlighted several barriers to innovation including, for example: large upfront investment costs for firms; an inappropriate intellectual property rights regime; inappropriate rules and regulations; weak institutional coordination; and lack of skills and knowledge (International Transport Forum 5-7).

One important paper at the forum with a key Canadian link was the previously cited paper by Louis Ranger who had recently retired as

Transport Canada's Deputy Minister (Ranger 2010). This paper was also a strong but nuanced call for the importance of innovation but focused on "innovative policy instruments" (in short, on more than regulation) and on related best practices. With Transport Canada's experience and challenges clearly in mind, Ranger addressed issues of innovative governance, innovative financing, innovative regulation, and innovative strategies (Ranger 17-20).

Two points warrant emphasis regarding these basic characterizations of innovation. The first is that innovation in general is certainly linked to technology but it is otherwise given a quite wide-ranging definitional scope. This should not be surprising but it does effect ones ability to analyze the innovation-regulation interactions and relationships. The second point to stress is that the spillage beyond regulation is almost immediate. Other policy instruments and governance arrangements emerge quickly and necessarily. This too must be kept in mind and also increases the degree of difficulty both in thinking about and taking action only on regulation-innovation nexus dynamics.

#### **THE REGULATION-INNOVATION NEXUS IN TRANSPORT CANADA:INSTRUMENTS AND INNOVATION ATTRIBUTES**

With these features of Transport Canada in mind we now look at a very sample of four regulation-innovation relationships.<sup>1</sup>

With respect to *command and control* approaches to regulation, it is fairly clear that Transport Canada has not only historically moved away from this kind of approach but overall would prefer to continue to do so. The history of the Canadian Transportation Agency (CTA) and its predecessor bodies also clearly exhibited this pattern of policy and regulatory change (Hill 1999). The devolution of the departmental portfolio agencies in the 1980s and 1990s also testifies to this regulatory change preference. None of these changes, however, were typically made in the name of innovation policy as

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<sup>1</sup> For an analysis of a larger set of approaches in transportation, see Doern 2010.

related to technology-driven innovation although they may at the time, and certainly since, have been viewed as “innovative” and indeed as profound change. They were made more in the name of efficiency and competitiveness and of course, in the early privatization aspects of the 1980s changes, they were made with a sharp eye on changes in the U.S. and UK under Reagan and Thatcher. The mid-1990s changes were also driven by fiscal deficits and budget cutting Program Review imperatives and initiatives (Ranger 2010).

*Deregulation and self-regulation* as an approach to regulation needs only brief mention here since it has inherently been for Transport Canada a key part of the above story of moving away from command and control. A specific complementary self-regulation example is the delegation of authority to issue certifications and conduct inspections to the Canadian Business Aviation Association (CBAA) some of which was recently rescinded (Doern 2010)

*Economic and incentive-based regulation (including cap and trade)* has certainly been a part of Transport Canada’s approach to regulation and/or a growing part of the regulatory environment it increasingly faces. In this realm innovation policies begin to emerge more explicitly but always with the caveat about innovation with respect to: what change in behavior? in what time frame? and in whose interests and through what kind of democratic fora? In almost all of these aspects, there are indeed more flexible, economic and incentive-based features which are seen to be innovative in that sense, but they almost always also involve some kind of crucial “command” element (Doern 2007) In many example areas of these approaches, Transport Canada may well have a direct responsibility but in others, other regulators or levels of government have the lead role and legal jurisdiction, but Transport Canada may still want to play a leadership and more exhortative role.

*Management-based regulation* is the concept that is arguably the most preferred and increasingly most practiced at Transport Canada and of course it builds in a performance focus as well. The department has deployed safety management systems (SMS) to help companies identify safety risks before they become bigger problems.

Transport Canada regulations require the aviation industry to put safety management systems in place as an extra layer of protection to help save lives and such approaches are in the process of being adopted internationally as well.

Management-based systems have also been manifest in the previously mentioned *Moving Forward* initiative aimed at changing the internal Transport Canada culture as it relates overall to the combined safety and security mandate. Partly because of continuous close relations between the department and its stakeholders most of which are large firms or players with expertise and capacity of their own, management-based regulation does function with a view to taking advantage of and mobilizing in a co-governance way, the front-line knowledge that key transport firms and other entities (e.g. airport and port authorities) have about their own operations and related technologies (Coglianese 2010).

The experience of the *Moving Forward* initiative shows, however, that while both innovation and public interest regulatory effectiveness can result, they are not at all automatic and they cannot always follow a “one size fits all” approach in different modes or even in different situations within modes. Approaches must also vary between large and small firms/operators with the latter arguing often that they cannot support/afford these additional management-based approaches (Transport Canada 2007).

Moreover, they depend on immense amounts of trust and the continuous and careful building of trust vis a vis the public, consumer and environmental NGOs, and Transport Canada’s own front line inspectors and staff and their relevant public service unions. Inspectors and their unions express support for well established traditional front-line inspection approaches. They are often not opposed to more risk-based and audit-like inspection but argue that it should be an additional complementary approach rather than a replacement approach. In most circumstances, this requires new forms of education and training.

## **Conclusions**

The analysis has developed a relatively brief two phase empirical and conceptual account of Transport Canada as a leading federal regulatory body. The first centered on Transport Canada itself and the key evolving characteristics of its regulatory mandates, approaches, volumes views of innovation and governance changes. The second centered on a conceptual effort to trace the evolution of a small sample of regulatory concepts and reforms and their interactions with innovation. With respect to the combined features of this dual story, four conclusions warrant special emphasis for both current and future theory and practice regarding the complex transport regulation - innovation nexus.

The first conclusion is that Transport Canada as a high volume regulatory body both in general and when dealing with potential innovation impacts and outcomes, needs to have a more explicit ranking/agenda process for its annual regulatory projects. It will be difficult to even know what its innovation impacts will be, especially when innovation is defined in technology specific ways, if all new regulatory projects just queue up in a linear manner and are not ranked or analyzed with innovation explicitly in mind.

Second, one can conclude that it is in some respects not surprising that Transport Canada has defined innovation policy in very broad ways linking them variously to technology but also “knowledge”, reform, change, and simply being innovative. This has also occurred in broader federal regulatory-innovation policy discourse. But there is a clear danger that if innovation policy can be everything, then maybe it will be nothing, a policy and outcome test that no one can fail.

Third, the history of regulatory reform changes provided suggests a thirty year story where it is important not to conclude that later eras “replace” earlier ones regarding regulatory approaches (and their innovation impacts). This would be a mistake. It is much closer to the truth to conclude that successive approaches rarely leave the field of

either debate or practice and instead tend to be layered on top of or along side other approaches. As shown, “command and control” approaches may be less favoured now but “command” features remain an important feature of both regulation and innovation agendas even when wrapped in the discourse of incentive-based economic regulation or management-based regulation.

Last but not least, the transport regulation-innovation nexus review suggests that Transport Canada’s regulatory governance world has a much higher composition of complex features not faced as frequently or as sharply in other federal policy fields. These features include: its modal, multi-modal, and intermodal imperatives; the infrastructure features where rules are found not just in regulation per se but also in the governance of partnered and levered funding; and its gateway/spatial focal points for both strategy, regulatory governance and potential innovation outcomes.

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