



NEWS RELEASE

TRUDEAU'S NEW GOVERNMENT CONFIRMS ANOTHER "CANADA TOWARDS 2030" PREDICTION

QUEBEC CITY, November 9, 2015 Since 2011, Eric Noël, the initiator of the *Canada Towards 2030* project has been wondering not "why" but "when" would Ottawa recognize the speed and complexity of modern science and technology (S&T); reorganize its programs; and centralize and coordinate its efforts within one agency he has named *Science & Technology Canada*. With the Trudeau government appointing on November 4, 2015 a Minister of Sciences (Mrs. Kirsty Duncan) supporting a Minister of Innovation, Sciences and Economic Development (Mr. Navdeep Singh Bains), we may be getting there.

Why rethink the role of government regulation, supervision and programs funding? The increasing pace of S&T discoveries, notably with health applications, already challenges governments' regulatory frameworks here and abroad. For example, the number of molecular genetic tests is growing, with direct-to-consumer tests (and the implications for personalised medicine) coming soon. Advances in several fields are hinting at the possibility of radical life extension and myriad forms of human enhancement (including "designer babies") – raising political debate about what science can or should not do. Stem cell, genetic modification, brain boosters and synthetic bio are the most immediate themes. *"As S&T become even more critical to human well-being and prosperity towards 2030, the pace of technological development will pose challenges to governments' research, assessment and regulatory functions, and a plethora of technological choices will test ethical and funding issues and the political and administrative capacity to manage them, safely, for the common goods and our economic advantage",* wrote Eric Noël more than ten years ago. *"Considering ethical values and government costs, will the NIMBY (not-in-my-backyard) or the ATANA (available-to-all-or-not-at-all) syndromes apply to some technological advances in Canada? This will require some strong techno-governance".*

S&T is getting too fast, important and complex to be ignored. *"As the IT revolution continues its easy progress with the 'every object and person connected to the cloud', a new federal agency named Science & Technology Canada will need to be dedicated to centralising and assisting with research and policy frameworks on more difficult scientific domains; from sensors for the driverless car or truck, megafoods (merging agri- and pharma-sciences for personalised and "naturally" medicated new nutrients), space technologies, gene therapy, artificial intelligence, home robots, to biotech of all sorts -- artificial organs (bio-printing), nano-particles, or brain implants. All of these domains will call for multiple expertise (scientific, legal, risk management, taxation, economics, security, etc.) currently mixed within multiple departments (Health, Industry¹, Agriculture, Justice, National Defence, Transport, Public Safety, Natural Resources, Foreign Affairs, etc.²), and sometime lost in many programs, centers and publicly funded university labs",* noted Mr. Noël in 2011 and at almost every "Canada Towards 2030" event since the official launch of the program in June 2013.

¹ now called Innovation, Sciences, and Economic Development

² a search in the federal government employees database for personnel with "science" in their job titles showed 674 results on November 5, 2015.



“For example, let’s say Amazon Canada wants to use drones for home deliveries. You would think that Transport Canada would manage the file, but this could involve testing and approving it with smart technologies developed at Defence Research and Development Canada or at the Canadian Space Agency, with input from scientists at Environment Canada, Industry Canada¹, Navcan, Public Safety Canada, at least five NRC centers, and more. This would require intense coordination and cooperation that is not always automatic”.

Several other Canadian before Eric Noël have called for such a focus on and proper public administration for S&T in order to maximize the benefits from this important sector.

Good S&T should also be good business. S&T structures are a main source of competitive advantage. Rivalry in sports may seem high, but nowhere is it higher than in science. For example, China can now brag about owning two of the world’s ten most powerful supercomputers. China wants a strong nanotechnology sector and the country is already highly competitive with nano research expenditure that has surpassed the United States. Assuming an R&D growth rate of 4% per year in the US and 11.5% in China for the next years, China will match the United States’ spending by 2022. Soon after the 2008 recession, most countries, including the BRICs, had placed a “strong high tech sector” at the centre of their recovery plans. According to Battelle, the US government’s Federal agencies spent US\$123 billion in 2014 in R&D projects. Total American gross R&D expenditures (public and private) for 2014 may have reached US\$465 billion (or 29% of the world’s total, \$US1.618 trillion), far ahead of China (US\$284 billion) who surpassed Japan (US\$165 billion) for the first time in 2011. *“In 2014, Canada may have spent only \$30.6 billion, and our two top R&D spenders were Bombardier and Blackberry -- hardly “healthy winners” these days. The oil industry was an important R&D investor too. We were surpassed by Brazil, Russia and India. Our high tech exports are already smaller than Belgium’s or Mexico’s”,* said Mr. Noël earlier this year at a retreat of civil servants in Montreal. *“Considering our large geography, aging demography, small population, big resources, and related techno-dependences, it is critical that Canadian S&T play a major economic role, here and in international markets.”*

“For Canada, developing and attracting the best brains will have to do with relatively minuscule means and lucky discoveries by “poor” but brilliant scientists. Whether or not we win another two or three Nobel Prizes before 2030, companies may open R&D centers abroad if experts are missing in Canada; as more Canadians will opt for health tourism if specialised treatments, medical services or medicines become harder to find here. The dilemma of outsourcing or insourcing R&D will be difficult to manage, as the scarcity of talent and eroding expertise will hurt business and government alike and, being dependent on imported services and skills, becomes risky. Immigration can play a role too. Ultimately, if we know where the next Bill Gates or Steve Jobs lives in China, India or elsewhere, can we make him an offer and let him in?”, Eric Noël told a group of Canadian venture capitalists in May 2012.

“Techno risks and prevention will also rise in importance before 2030: from an internet or telecom or electricity grid collapse to fake medications, self-generated threats (such as Y2K+ computer virus, D-difficult bacteria, antiviral resistant flu, GMOs cross-fertilisation, etc.), bio-terrorism, new pandemics, cyber-crime and, surprisingly to some, less affordable and available technologies of all kinds. We will need some “National Science Chief of orchestra” directing a concert of chief scientists and public sector efforts to maximize Canada’s technological investments, talents, inventions and opportunities, and to minimize the risks. A challenge, and a necessity.”

Earlier in the “Canada Towards 2030” initiative, two of the several trends identified via foresight became reality – but sooner than anticipated. One was the “*End of the Commodities Bonanza*” when a super-cycle of demand is no longer a super-cycle of prices (and the subsequent collapse of oil and metals prices, and the knock-on effects on the dollar and public finance). The other was the “*Age of Domestic Shocks*” when Canadians are refocusing on local rather than foreign crisis such as Canadian disasters or social issues and home-grown terrorism (eg. the Calgary floods, the Lac Mégantic oil train wreck, the attack on Parliament Hill, violence to First Nations women, etc.). A third trend discussed since 2013, “*The End of the All-About-BRICs Mirage*”, when the fast economic growth of China, Russia, Brazil, India and other emerging markets were seen as irreversible or guaranteed, is also becoming more credible with the political troubles and economic hardship of several BRICs nations. Other trends are presented on our website: www.canada2030.ca

ABOUT CANADA TOWARDS 2030

The *Canada Towards 2030 Project* is a non-partisan and non-prescriptive foresight research initiative with multiple events and features. It included gatherings in several Canadian and overseas cities and the sharing of long-term research and thinking. The mission of our project is to offer a high quality forward-thinking experience to people interested in exploring the future of Canada, increasing their awareness of long-term trends, helping them improve their ability to anticipate change and to facilitate the creation of or adaptation to the future they want. As of November 9, 2015, more than 4,000 people have attended one of our 23 presentations in 12 cities.

For further information:

Eric Noël, Initiator, Canada Towards 2030 Project.

info@canada2030.ca

www.canada2030.ca

1 866 221 6635