

GRAFT CASE STUDY:

GOVERNMENT OF CANADA

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[An Overview of GRAFT](#) was published by the Global Risk Institute in October 2017, found on our website, this article should be read before the Government Case study to provide the overview of the concept of GRAFT. This **Government Case study** provides the process, implementation, and outputs of GRAFT. The complete GRAFT process, including automated tools and a full suite of case studies, will be released later in 2018.

GRAFT CASE STUDY:

GOVERNMENT OF CANADA

This Case Study provides a detailed example of the GRAFT process and its outputs as applied to the Canadian Government. The goal is to help the government achieve its country objectives while managing risk within acceptable tolerances.

Here, a fictitious government senior civil servant, Mary D. Morrison, uses the GRAFT process to help refine the government's strategies, as set out in the December 2015 Federal Throne Speech, and to develop more targeted monitoring of risk indicators as well as proactive program management practices. Where dates are not provided in the Throne Speech, 2021 has been used by the team as the target date of strategies.

Canada is an important member of the G7 global community, punching significantly above its weight class in global affairs. However, due to its relatively small population, its natural resources based economy, and its proximity to the United States, Canada is often not the master of its own destiny. In the increasingly global context, Canada's leaders need a clear lens to assess the rising tide of Global Risks and Trends in order to protect Canadians.

The Prime Minister and his cabinet are concerned about Global Risks and Trends and how they may impact Canada.

*/Graft / Defined by the Free Dictionary
"To join or unite closely".*

GRAFT brings together the process of strategy setting and risk management.

GRAFT – The Global Risks and Trends Framework – a new and innovative approach designed to help organizations identify, assess and respond to global risks and trends in order to avoid pitfalls that could threaten an organization's long-term survival, or conversely to leverage for the benefit of the organization.

They have asked senior civil servant Mary Gould to identify the implications of recent world events in the context of potential adverse effects on Canada. Mary and her team used the GRAFT Application Wheel (shown in Figure 3, page 3) to outline the nine steps that they went through to address the cabinet's concerns.

STEP 1. ARTICULATE KEY STRATEGIES

The process begins with a review of Canada’s vision and strategic priorities.

Our Vision - A growing, strong economy that creates jobs, strengthens the middle class, and helps those working hard to join the economy.

STRATEGIC PRIORITIES:

1. The Government will foster a strong and growing middle class through¹:

- Tax cut for the middle class;
- Significant new investments in public transit, green infrastructure, and social infrastructure to create and support economic growth, job creation and economic prosperity;
- Enhancements to the Canada Pension Plan to secure retirement;
- Enhanced Employment Insurance system;
- More affordable post-secondary education; and
- A new Health Accord among the federal, provincial and territorial governments to support the health and well-being of all Canadians.

2. The Government will deliver a fiscal plan that is responsible, transparent, and suited to challenging economic times.

3. The Government will prove to Canadians and to the world that a clean environment and a strong economy go hand in hand:

- The Government will continue to provide leadership as Canada works toward putting a price on carbon and reducing carbon pollution.
- The Government will make strategic investments in clean technology, provide more support for companies seeking to export those technologies, and lead by example in their use.
- As part of efforts to restore public trust, the Government will introduce new environmental assessment processes.

Figure 1 – Canada



- Public input will be sought and considered. Environmental impacts will be understood and minimized. Decisions will be informed by scientific evidence. Indigenous peoples will be fully engaged in reviewing and monitoring major resource development projects.

4. The Government’s agenda reflects that Canada’s strength is its diversity.

- The Government will undertake to renew, nation-to-nation, the relationship between Canada and Indigenous peoples.
- The Government will make it easier for immigrants to build successful lives in Canada, reunite their families, and contribute to the economic success of all Canadians.
- In gratitude for the service of Canada’s veterans, the Government will do more to support them and their families.
- The Government will support CBC/Radio-Canada, encourage and promote the use of Canada’s official languages, and invest in Canada’s cultural and creative industries.

5. The Government is committed to providing greater security and opportunity for Canadians.

- Canadians are open, accepting, and generous. We know that helping those in need strengthens our communities and makes them safer, more prosperous places to live.

1 Summarized from the Federal Throne Speech.

- *The Government will strengthen its relationship with allies, especially with our closest friend and partner, the United States.*
- *Internationally, the Government will focus its development assistance on helping the world’s poorest and most vulnerable.*
- *To contribute to greater peace throughout the world, the Government will renew Canada’s commitment to United Nations peacekeeping operations, and will continue to work with its allies in the fight against terrorism.*
- *To keep Canadians safe and be ready to respond when needed, the Government will launch an open and transparent process to review existing defence capabilities, and will invest in building a leaner, more agile, better-equipped military.*

6. To expand economic opportunities for all Canadians, the Government will negotiate beneficial trade agreements, and pursue other opportunities with emerging markets.

7. Recognizing that Canada is, fundamentally, a safe and peaceful country, the Government will continue to work to keep all Canadians safe, while at the same time protecting our cherished rights and freedoms.

- *The Government will introduce legislation that will:*
 - *Provide greater support for survivors of domestic violence and sexual assault;*
 - *Get handguns and assault weapons off our streets; and*
 - *Legalize, regulate and restrict access to marijuana.*

Canada’s goal is to provide a collaborative approach to achieve the UN’s Sustainable Development Goals (SDGs) by 2030. The SDGs are a major theme at the General Assembly in 2017 and call on countries to adopt 17 sustainable-development goals focused on ending poverty, fighting inequality, and tackling climate change over the next 15 years.

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STRATEGIC PRIORITIES TABLE:

Step 1 of GRAFT requires ensuring key strategies are articulated with objectives that:

- *Define the ends that the strategy is designed to achieve within a specific period;*
- *Outline the scope of the political landscape in which the government operates; and*
- *Highlight the country’s competencies which underpin the government’s ability to achieve its objectives.*

As per the GRAFT process, we recorded Canada’s key strategy objectives in the table below to provide context as to timing, political landscape and competitive advantage.

Table 1 – Canada’s Strategy

Strategy	Timing	Political Landscape	Competencies
1. A strong and growing middle class	Grow the Canadian middle class by 5% by 2019; maintain and reduce unemployment from 6.9% to 6.4% by 2021.	Canadian nominal GDP growth of 4.1%;	1st in the OECD with the most highly educated workforce.
		NAFTA still in place;	1st in the G7 for overall business cost competitiveness.
		Oil price rose to \$56/bbl.; unemployment at 6.9% in 2017, projected to fall to 6.4% by 2021.	2nd in the G7 for openness to trade and investment.

Table 1 – Canadian Bank Strategy - con't

Strategy	Timing	Political Landscape	Competencies
2. A fiscal plan that is responsible, transparent, and suited to challenging economic times.	2016 Deficit: \$35B	Combined federal and provincial net debt has increased from \$833B in 2007/08 to a projected \$1.4 Trillion in 2016/17. This equals 67.5% of the Canadian economy, or \$37,476 for every man, woman and child living in Canada. Debt:GDP has risen to 116%, 9th highest in OECD countries, behind Spain at 117% and the US at 120%. Collectively, Canadian governments (including local governments) spent \$62.8B on interest payments in 2015/16, 8.1% of their total revenue that year, representing \$1,752 for each Canadian. ²	Canada focused on growing the economy
	Projected Deficits:		
	2017: \$28.5 billion 2018-19: \$27.4B 2019-20: \$23.4B 2020-21: \$21.7B 2021-22: \$18.8B		
3. The integration of a clean environment and a strong economy	Implement price on carbon emissions by 2018. Reduce carbon pollution by 2% by 2020.	Stalled Paris Accord signing with US backing out.	Canada held steady at 1.6% of global greenhouse CO2 emissions from 2005 to 2013
4. Canada's strength is its diversity: Prime Minister Trudeau is committed to immigration, the arts, and to reconciliation with the Indigenous peoples, as supported by his UN speech in 2017.	Renew, nation-to-nation, the relationship between Canada and Indigenous peoples by 2021.	2016 aboriginal population 1.4M, or 4.3% of Canadians. ³	Demonstrated will to have better collaboration with the Group of Educated First Nations Leaders able to address weaknesses of the past.
		Currently dealing with a history of forced migration, broken treaty promises, and family separation through residential schools.	

 2. <https://www.fraserinstitute.org/studies/cost-of-government-debt-in-canada-2017>

 3. https://www.statcan.gc.ca/eng/dai/smr08/2016/smr08_209_2016

Table 1 – Canadian Bank Strategy - con't

Strategy	Timing	Political Landscape	Competencies
<p>con't</p> <p>4. Canada's strength is its diversity: Prime Minister Trudeau is committed to immigration, the arts, and to reconciliation with the Indigenous peoples, as supported by his UN speech in 2017.</p>	2017: Roll out \$800M in compensation for Sixties Scoop, up to \$50,000 per person.	Food insecurity in some regions > 50% ⁴ .	
		Hospitalization rates for First Nation & Inuit youth (2011- ages 10-19) was 3.6 – 3.8 times greater than non-First Nations & Inuit youth ⁵ .	
	Make it easier for immigrants to build successful lives in Canada by 2021.	Immigration for 2016 increased to 300,000; the target for 2017 is the same as 2016.	<p>Canada's historical success in including and assimilating various waves of immigrants (European, Asian, etc.)</p> <p>Immigration of skilled workers will bolster Canada's labour force and could be a competitive advantage for Canada.</p>
		Federal Skilled Worker (FSW) program selects immigrants based on their ability to become economically established in Canada. There were 48,744 FSW admissions in 2015.	
		The Family reunification program admitted a total of 15,489 parents and grandparents with a Super-visa for 2 years, extendable to 10 years.	
Increase support veterans and their families by 2021	Increase in disability payments, increase in loss of income payments, increase family support payments, and re-opening of 9 previously closed VA offices.		
Support investment in Canada's cultural and creative industries, specifically CBC/ Radio-Canada, and the use of Canada's official languages by 2021.	Increase of \$1.9B for Arts & Culture including \$675M increase for the CBC, and \$550M for the Canada Council for the Arts		
<p>5. The Government is committed to providing greater security and opportunity for Canadians.</p>	The Government will strengthen its relationship with allies, especially with our closest friend and partner, the United States continuing through 2021.	Defense and security spending budget for 2017 remains flat. Slight increase in budget for Canadian Air Transport Security Authority of \$125M, \$62.9M to provide better legal aid to asylum seekers and \$29M over 5 years to vet asylum seekers. ⁶	Canadians are open, accepting, and generous people. We know that helping those in need strengthens our communities and makes them safer, more prosperous places to live.

4 <http://www.statcan.gc.ca/pub/75-006-x/2017001/article/14774-eng.htm>

5 <http://www.statcan.gc.ca/pub/82-003-x/2017007/article/14844-eng.htm>

6 https://www.canada.ca/en/department-national-defence/news/2017/06/canada_unveils_newdefencepolicy.html

Table 1 – Canadian Bank Strategy - con't

Strategy	Timing	Political Landscape	Competencies
Con't 5. The Government is committed to providing greater security and opportunity for Canadians.	Internationally, the Government will focus its development assistance on helping the world's poorest and most vulnerable through 2021.	Canada's official development assistance, which stood at US\$3.9B in 2016, was down by 4.4% compared to the previous year and accounted for about 0.26% of gross national income versus an international average of 0.32%. ⁷	Canada has a history of successful collaboration and mediation in interstate dispute settlement.
	To contribute to greater peace throughout the world, the Government will renew Canada's commitment to UN peacekeeping operations, and will continue to work with its allies in the fight against terrorism through 2021.	In 2016 saw Canada committed 600 troops and 150 police officers for UN peacekeeping operations, plus \$450M over 3 years on peace and stability projects.	
	To keep Canadians safe and be ready to respond when needed, the Government will launch an open and transparent process to review existing defence capabilities, and will invest in building a leaner, more agile, better-equipped military through 2021.	As of publication, the task force has not yet been funded	
6. To expand economic opportunities for all Canadians, the Government will negotiate beneficial trade agreements, and pursue other opportunities with emerging markets.	Canada's 3 largest trade agreements are: 1. <i>NAFTA – signed on January 1, 1994, and currently in renewal negotiations.</i>	For 2016, Canada's exports of goods and services were \$654B, or 31.6% of GDP. This is based on seasonally adjusted and annualized Q4 2016 export figures and using calendar year 2016 GDP of \$2,068 billion.	Canada has a history of collaboration with other countries and has been successful in negotiating trade agreements.
	2. <i>Comprehensive Economic and Trade Agreement (CETA) with the European Union – signed on October 30, 2016 and entered into force on September 21, 2018.</i>	The political environment in the US, Canada's largest export market, has become increasingly protectionist, and has stalled negotiations on the NAFTA agreement.	If NAFTA is not renewed, the FTA that was previously in place with the US could be reinstated or renegotiated.
	3. <i>Trans-Pacific Partnership (TPP) – 12-nation agreement signed on February 4, 2016, but not yet in force.</i>		

⁷ <http://www.oecd.org/development/development-aid-rises-again-in-2016-but-flows-to-poorest-countries-dip.htm>

Table 1 – Canadian Bank Strategy - con't

Strategy	Timing	Political Landscape	Competencies
<p>7. The Government will continue to work to keep all Canadians safe, while at the same time protecting our cherished rights and freedoms.</p>	<p>Introduce legislation by 2021 that will:</p> <ul style="list-style-type: none"> • Provide greater support for survivors of domestic violence and sexual assault; 	<p>Half of all women in Canada have experienced at least one incident of physical or sexual violence since the age of 16.⁸ Aboriginal women are killed at 6 times the rate of non-aboriginal women.⁹</p> <p>Cyber violence, which includes online threats, harassment, and stalking, especially age 18-24.¹⁰</p>	<p>For the past 3 decades, Federal-Provincial-Territorial (FPT) Ministers responsible for the Status of Women have shared a common vision to end violence against women in all its forms. The FPT Status of Women Forum has worked with Statistics Canada to add to the body of evidence on gender-based violence.¹⁴</p> <p>The 2015 elections lifted female representation in the House at 26%, a 1% increase over 2011.¹⁵</p>
	<ul style="list-style-type: none"> • Get handguns and assault weapons off our streets; 	<p>The estimated number of firearms (legal and illegal) in the hands of civilian owners in Canada is about 10 million, about 31 guns per 100 people. Between 2009 and 2013, Canada, tallied 977 firearm homicides. The US has far more guns: about 310 million, almost one gun a person. If Canada were part of the wider European region, it would rank fourth in terms of gun-homicide rates. “In Canada, about 80% of firearm-related deaths are suicides.”¹¹</p>	<p>Canadians must hold a license— which varies based on the gun’s classification — to own a firearm.¹⁶</p>
	<ul style="list-style-type: none"> • Legalize, regulate, and restrict access to marijuana. 	<p>Proposed legislation will legalize the possession of small amounts (<5g) of cannabis.¹²</p> <p>There were 109,000 police-reported drug offences under the Controlled Drugs and Substances Act in 2013 alone, with two-thirds involving cannabis.</p> <p>Currently, cannabis is a Schedule II drug under the Controlled Drug and Substances Act, and, unless otherwise regulated for production and distribution for medical purposes, is subject to offences under that Act. Possessing and selling cannabis for non-medical purposes is still illegal everywhere in Canada.¹³</p>	<p>Legislation to legalize marijuana is aimed at reducing the role of criminal organizations in the marijuana market and limiting the availability of the drug to youth.¹⁷</p>

8, 9, 10 <http://www.canadianwomen.org/sites/canadianwomen.org/files//FactSheet-VAWandDV%20August%202017%20edit.pdf>

11 <https://beta.theglobeandmail.com/opinion/why-canada-has-a-gun-problem/article29642837/?ref=http://www.theglobeandmail.com&>

Footnotes con't next page

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- 12 <https://www.thestar.com/news/canada/2017/07/07/canadas-crime-rate-is-falling-but-drug-charges-are-rising.html>
- 13 <http://www.justice.gc.ca/eng/cj-jp/marijuana/law-loi.html>
- 14 <http://www.statcan.gc.ca/pub/85-002-x/2013001/article/11766-eng.pdf>
- 15 <https://beta.theglobeandmail.com/life/we-have-a-record-number-of-female-mps-but-hold-the-applause/article26887164/?ref=http://www.theglobeandmail.com&>
- 15 http://www.huffingtonpost.ca/2016/07/08/canadian-gun-ownership_n_10887140.html
- 15 <https://beta.theglobeandmail.com/news/politics/liberals-table-marijuana-bill-that-includes-crackdown-on-impaired-drivers/article34696586/?ref=http://www.theglobeandmail.com&>

STEP 2. IDENTIFY STRATEGIC ASSUMPTIONS

In risk modeling, it is important to identify the assumptions that the model is based upon, ensuring they are reasonable for the purpose of the model, and that they are updated as circumstances change so that model outputs remain useful. Similarly, in strategy setting it is important to identify the assumptions that the strategies are based upon and the critical factors for their strategies to be successful. Analysing the underlying strategic assumptions in concert with the changes in global risks and trends allows organizations and their leaders to identify, discuss, and model the implications of changes to the underlying assumptions. In these discussions, it is important to articulate how different scenarios of an event or trend could positively or negatively affect the underlying assumptions, and thus the level of success of the organization's strategy.

As part of the GRAFT process, Canada's leaders would need to identify the assumptions that were made for their key strategies to be successful. For the case, Mary's team identified a suggested (but not exhaustive) list of assumptions, which is provided in Table 2. Primary

considerations include factors affecting world economic assumptions, debt levels, geopolitical factors, Canada's demographic factors, and environmental factors, all in the Canadian context. Other factors, considered less relevant in the current Canadian context, were also considered to ensure a thorough analysis.

Explicitly identifying the underlying strategic assumptions is typically a new exercise for most organizations (assumptions are more often implicitly embedded in the planning process rather than explicitly stated and reviewed).

Identifying the directionality of strategic assumptions opened the team's discussion to areas that Canada maybe vulnerable to changes in the underlying assumptions that are the foundation of the Canadian Governments strategy. Much of the discussion focused on the continued assumption of open free trade with the US under the NAFTA agreement. The validity of this assumption is affected by the increasing US National Sentiments, Instability of National Governance, and Polarization of US Society.

Table 2 – Example Strategic Assumption

Strategic Assumptions		Risk Trend		
Primary:				
1	Stability of Canadian Weather	Declining		Rising
2	Limited Risk of Natural Disasters	Stable		Rising
3	Rate Involuntary Migration	Declining		Rising
4	Absence of Terrorist Attacks	Declining		Rising
5	Security of IT Systems from Cyber Attacks	Not Secure		Stable
6	Rate of Climate-Change Mitigation and Adaptation	Failing		Succeeding
7	Frequency & Severity of Water Crisis	Failing		Rising
8	Frequency & Severity of Interstate Conflict	Declining		Rising
9	Rate of Unemployment	Declining		Rising
10	Frequency & Severity of Man-made Environmental Disasters	Declining		Rising
11	Stability of National Governance	Declining		Rising
12	Level of Sovereign Debt	Declining		Rising
13	Level of Asset Bubbles	Declining		Rising
14	Energy / Commodity Price Levels	Declining		Rising
15	Stability of Critical Infrastructure / Information Infrastructure	Unstable		Stable
16	Rate of Deflation or Inflation	Deflation		Inflation
Secondary:				
17	Level of Income & Wealth Disparity	Declining		Rising
18	Impact of Climate Change	Decreasing		Increasing
19	Rate of Population Aging	Decreasing		Increasing
20	Percent of Population in Urban Centres	Decreasing		Increasing
21	Percent of the World Experiencing a Degraded Environment	Decreasing		Increasing
22	Level of Chronic Diseases	Decreasing		Increasing
Other:				
23	Access to Free Trade with the US	Certain		Uncertain
24	Level of GDP	Declining		Rising
25	Degree of Volatility and Liquidity in FX Markets	Volatile		Stable
26	Stability of Credit Rating	Unstable		Stable
27	Directionality of Interest Rates	Declining		Rising
28	Degree of Stability of the Regulatory Environment	Unstable		Stable
29	Degree of Volatility and Liquidity in Equity Markets	Volatile		Stable
30	Stability and Liquidity in Bond Markets	Unstable		Stable
31	Access to Skilled Workforce	Limited		Free

STEP 3. REVIEW AND UNDERSTAND GLOBAL RISKS AND TRENDS

The next step is to review the Global Risks and Trends using the World Economic Forum’s Global Risk Report for 2017.²

The Top Global Risks from the World Economic Forum’s 2017 Global Risks Report are listed in Table 3 (below) and the Global Trends are listed in Table 4 (next page). They are colour coded to reflect The World Economic Forum’s classification into five risk clusters:³

- Geopolitical
- Societal
- Economic
- Environmental
- Technological

To gain context for understanding the Global Risks and Trends, more detailed information regarding each of these risks and trends will be included in the full GRAFT process documentation (to be published later in 2017/18).

From the World Economic Forum’s Global Risk Report:

A “**Global Risk**” is an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next 10 years.

A “**Global Trend**” is defined in the World Economic Forum’s Report as a long-term pattern that is currently taking place and that could contribute to amplifying global risks and/or altering the relationship between them.

Unlike risks, trends are occurring with certainty and can have both positive and negative consequences. Trends can alter how risks evolve and interrelate, and they inform efforts at risk mitigation.

Table 3 – Global Risks

TOP GLOBAL RISKS	
 1. Extreme weather events	 16. Asset Bubble
 2. Natural disasters	 17. State Collapse or Crisis
 3. Large-scale involuntary migration	 18. Biodiversity loss and ecosystem collapse
 4. Terrorist Attacks	 19. Profound Social Instability
 5. Cyberattacks	 20. Failure of Financial Mechanism or Institution
 6. Failure of climate-change mitigation and adaption	 21. Spread of Infectious Diseases
 7. Water Crises	 22. Failure of Regional or Global Governance
 8. Interstate Conflict	 23. Illicit Trade
 9. Unemployment and underemployment	 24. Energy/Commodity Price Shock
 10. Man-made environmental disaster	 25. Failure of Critical Infrastructure/ Information Infrastructure breakdown
 11. Failure of national governance	 26. Deflation and Inflation
 12. Fiscal Crisis/Sovereign Debt	 27. Adverse affects of technological advances
 13. Food Crises	
 14. Weapons of Mass Destruction	
 15. Data Fraud or Theft	

2 <https://www.weforum.org/reports/the-global-risks-report-2017>

3 A review of the Global Risks and Trends is included in Appendix 1 of A Riskier World: It’s Here, to be used to gain a common definition, factual backup for risks and trends, and insights. Use the information provided in Appendix 1 as input to the ranking and determination of the correlations between risks and trends. When reviewing the global risks and trends please keep in mind the key assumption the impact that the changing global risks and trends will have on your strategy.

STEP 4. RANK AND PRIORITIZE GLOBAL RISKS AND TRENDS

PRIORITIZE AND RANK GLOBAL RISKS

After reviewing and assessing each of the Global Risks set out in Table 3, Mary and her team started the prioritization process by rating each Global Risk as High, Medium, or Low impact based on their assessment of relevance for the organization. The team then considered likely timelines and assigned a timing or urgency factor (<1 yr., 1 – 5 yrs., 5 – 30

yrs.) for each. After this initial assessment, the team then proceeded with a more granular ranking, ranking each of the Global Risks from 1 to 27 based upon impact to Canada’s strategies, from highest to lowest. Table 5 shows the output, highlighting the risk of a fiscal crisis and inflation as the top concern.

Table 5 – Global Risks Ranking

Global Risks	Magnitude/ Impact <i>Low, LM, Medium, MH, High</i>	Timing <i>Immediate, Mid 3-5 yrs., Future > 5yrs</i>	Prioritization <i>1 - 25</i>
1. Extreme weather events	H / M	M	12
2. Natural disasters	H	I	6
3. Large-scale involuntary migration	L	M	22
4. Terrorist Attacks	M	M	14
5. Cyberattacks	H	I	4
6. Failure of climate-change mitigation and adaption	M	F	26
7. Water Crises	M	F	20
8. Interstate Conflict	M / L	M	17
9. Unemployment/underemployment	M	I	15
10. Man-made environmental disaster	M / L	I / M	16
11. Failure of national governance	H	M	10
12. Fiscal Crisis/Sovereign Debt	H	I	1
13. Food Crises	M	M	21
14. Weapons of Mass Destruction	H	M	9
15. Data Fraud or Theft	H	I	6
16. Asset Bubble	H	I	2
17. State Collapse or Crisis	M	F	23
18. Biodiversity loss and ecosystem collapse	M	F	25
19. Profound Social Instability	M	M	18
20. Failure of Financial Mechanism or Institution	M	M	19
21. Spread of Infectious Diseases	M	M	13
22. Failure of Regional or Global Governance	M	F	24
23. Illicit Trade	H	I / M	8
24. Energy/Commodity Price Shock	H	I / M	7
25. Failure of Critical Infrastructure/Information Infrastructure breakdown	H / M	I / M	11
26. Deflation / Inflation in major economy	H	I / M	3
27. Adverse affects of technological advance	L	F	27
28. Other Global Risk Specific to Organization			

PRIORITIZE AND RANK GLOBAL TRENDS

Next, the team reviewed each of the Global Trends to ensure that they understood and considered each, then rated each based-on impact of High, Medium, or Low on the organization. They also assigned a timing of immediate (I), medium term (M) or future (F) and then refined the

ranking to order the Global Trends from 1 to 13 based upon impact for Canada given its strategic priorities. The results are documented in Table 6. Note the circled top three trends: income and wealth disparity; urbanization; and aging population.

Table 6 – Global Trends Ranking

Global Trends	Magnitude/ Impact <i>Low, LM, Medium, MH, High</i>	Timing <i>Immediate, Mid 3-5 yrs., Future > 5yrs</i>	Prioritization <i>1 - 25</i>
1. Rising Income and wealth disparity	H	I	1
2. Changing climate	H	M	5
3. Increasing polarization of societies	M	M	8
4. Rising cyber dependency	H / M	I	6
5. Ageing population	H	I / M	3
6. Increasing national sentiment	H	M	7
7. Growing middle class in emerging economies	H	M / F	13
8. Changing landscape of international governance	M	M	10
9. Rising Urbanization	H	I	2
10. Degrading Environment	M	F	12
11. Shifting Power	H / M	M / F	9
12. Rising Geographic Mobility	M	M	11
13. Rising Chronic Diseases	H	I / M	4
14. Global Trend specific to Organization			

STEP 5. MAP GLOBAL RISKS AND TRENDS ON TO GRAFT

The team then used the GRAFT mapping tool to populate the GRAFT map, the output of which is shown in Figure 2. The GRAFT map illustrates risks and trends that have been prioritized both as urgent and high impact. This facilitated a discussion of the events on the horizon that may have the most significant impact on CB’s portfolio in both the immediate and long-term.

The GRAFT mapping tool uses the rankings assigned to each of the Global Risks and Trends, completed in Step 4, to create a visual portrayal that reflects the timing (current vs. future) and impact level (low to high). This visual mapping also helps users identify combinations and correlations that could amplify risk levels.

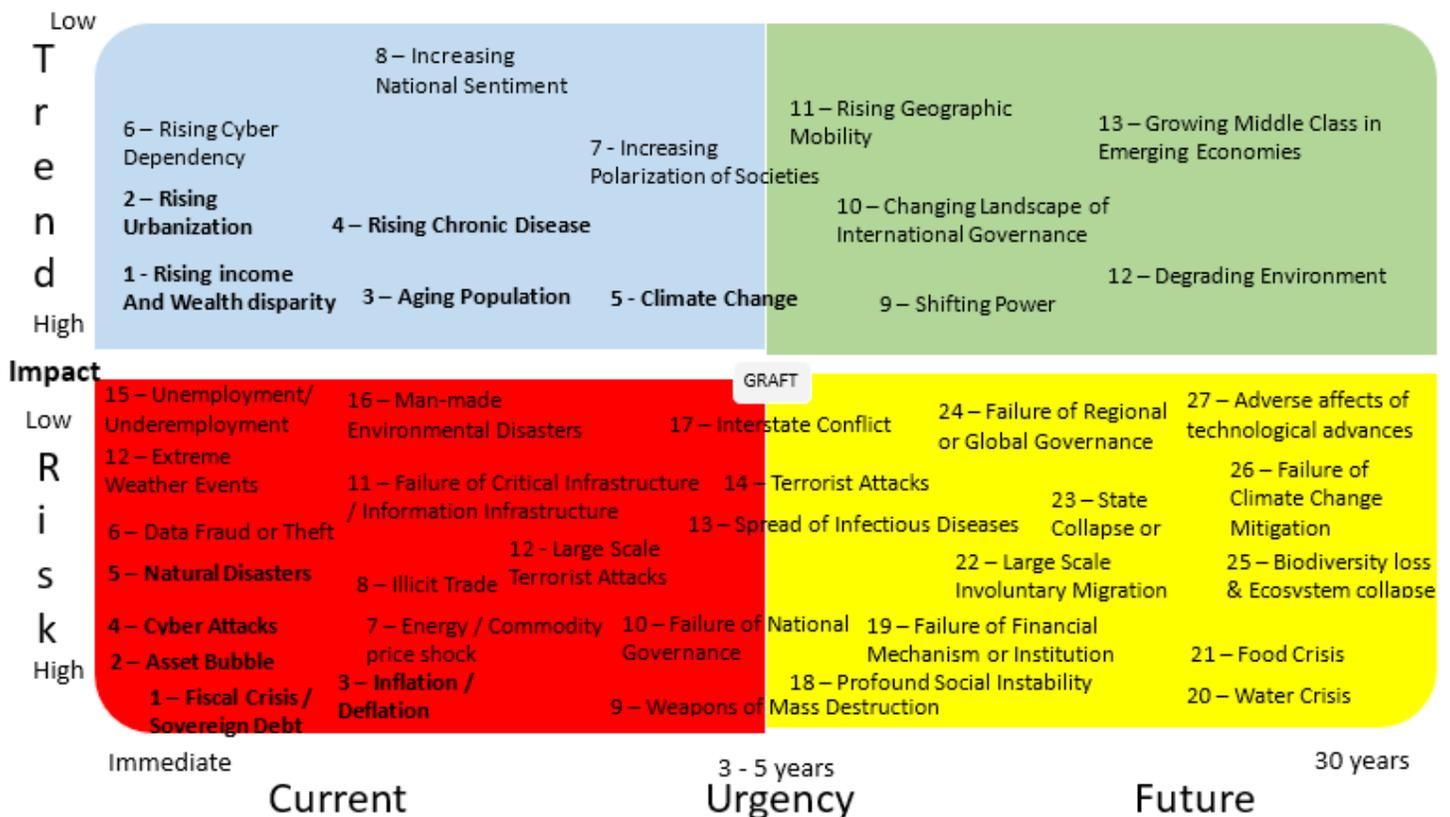
The lower left corner of the **RED** zone, you can see the urgent and immediate ranking of the global risks:

In the lower left corner of the **BLUE** zone, the ranking of the urgency and immediate ranking of the global trends:

1. Asset Bubble
2. Inflation / Deflation
3. Unemployment / Underemployment
4. Illicit trade
5. Data fraud or theft

1. Rising income and wealth disparity
2. Rising urbanization
3. Aging population
4. Changing landscape of international governance
5. Increasing Polarization of societies

Figure 2 – GRAFT Map



STEP 6. IDENTIFY GLOBAL RISK AND TREND CORRELATIONS, MAGNITUDE, IMPLICATIONS, AND ORGANIZATIONAL KEY INSIGHTS

With the ranking and prioritization of the Global Risks and Trends completed in Step 5, the next step is to compare and discuss the top trends and their interaction with the top risks in the context of key strategies and goals. Next, the team would identify correlations between the Global Risks and Trends, assisted by the GRAFT Correlation matrix tool, shown in Figure 3 (next page). The GRAFT Correlation matrix tool is populated from the Global Risks rankings (Table 5) and Global Trends rankings (Table 6).

Through their discussions on correlations, the team concluded that unforeseen forces outside of their home market could have a material impact on Canada. This led to the inclusion of a larger set of risks and trends for analysis in the context of Canada’s vision and key strategies.

For example, when discussing inflation, the team identified that rising inflation outside of Canada may necessitate

increasing interest rates in Canada even if inflationary pressures within Canada remain low. This in turn will impact the government’s fiscal situation (through higher debt servicing costs) and may also heighten the risk of deterioration in real estate and stock market prices (i.e., risk of Asset Bubbles). They also discussed the impact of extreme weather events on the economy generally and critical infrastructure more specifically, noting that the recent hurricanes and volatile weather are providing ideal conditions for this season’s forest fires.

The Mary’s leadership team discussed the correlation network that identified the impact that risks of the Rising Deficit and Sovereign Debt, reduced Oil and Gas Prices, Inflation (which influenced the recent decision to increase interest rates), Extreme Weather Events (with the recent hurricanes and volatile weather providing ideal conditions

Figure 3 – GRAFT Correlation Matrix Tool

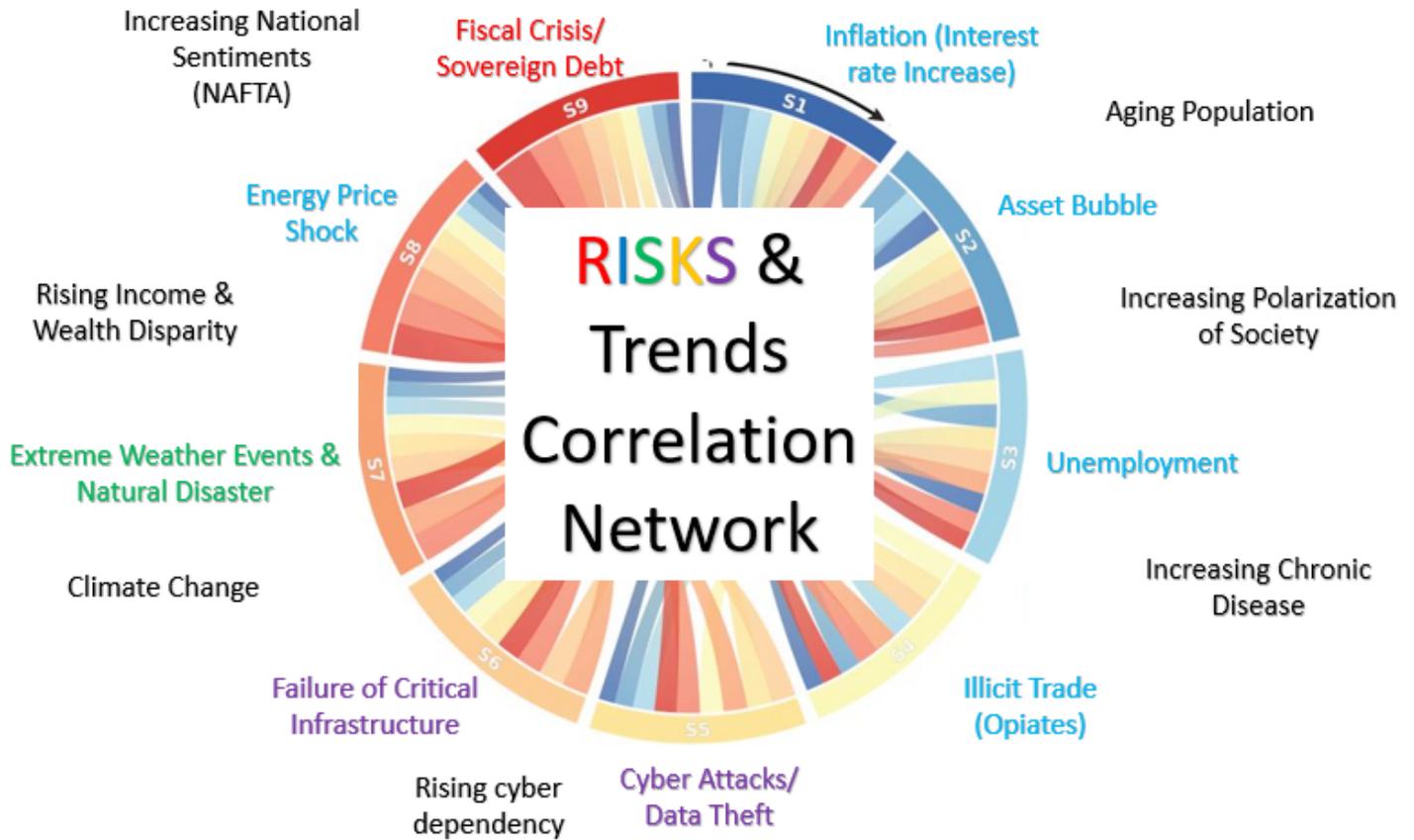


for this season’s forest fires), the Asset Bubble (in both the housing and equity markets, which are at all time highs), Rising Unemployment & Underemployment, Increasing Frequency & Severity of Cyber Attacks, as well as increases in Illicit Trade (facilitating the epidemic in opiate overdoses), and the potential Failure of Critical Infrastructure.

The team also discussed the adverse impact of Increasing National Sentiment and the Increasing Polarization of Society (especially in the US), Canada’s Aging Population and Increasing Level of Chronic Diseases, the Rising Income & Wealth Disparity, Climate Change, and Increasing Cyber Dependency. These are illustrated in Figure 4.

Looking forward, the team is considering the impact that developing global issues (such as the political developments in the United States, the Brexit EU discussions, Saudi Arabia including OPEC oil production, North Korea missile testing, power shifts in several countries including Syria, Spain, Brazil, South Africa, Myanmar, Venezuela, and Turkey) will have on the Global Risks and Trends they identified as affecting Canada, and how these developments impact their rankings and prioritizations. Step 7. Re-assessment and Challenge Ranking

Figure 4 – Risk and Trends Correlation Network



STEP 7. RE-ASSESSMENT AND CHALLENGE RANKING

Throughout the process, the Mary’s leadership team assessed and challenged the rankings and correlations through discussion sessions to ensure the prioritization assignments were well placed thought out the process. As a result of the challenge process, the trend of Increasing National Sentiments was increased in prioritization.

STEP 8. IDENTIFY KEY INSIGHTS AND COMPARE INSIGHTS TO STRATEGY

The next step is to consider how the identified correlations among the prioritized risks and trends could affect the ability to achieve desired objectives, giving consideration to the probability, severity and timing of these risks. The team can then proactively consider how to manage material risk combinations.

In our Case Study, Mary’s team compared a sample of the correlation relationships to the government’s strategic objectives as outlined in the Throne Speech (see Step 1). The exercise of comparing the GRAFT relationships

to the strategies facilitated a discussion confirming and contradicting some of the participants’ previous views. The team next compared the prioritized risks and trends to their underlying strategic assumptions to identify the key relationships and potential event drivers that would impact the country’s ability to achieve its goals. The outcomes of those discussions are summarized in Table 7 – Correlation Implications and Key Insights Table. Table 7 serves as a simplified example of output gained from the correlation and strategic assumption integration process.

Table 7 – Correlation Implications and Key Insights Table

Primary Risk or Trend	Identify Correlated Risk or Trend	Magnitude of Correlation and Implication	KEY INSIGHTS - Events or Potential Events Stemming from Correlation of Trends and Risks
Fiscal Crisis / Sovereign Debt	Inflation/Interest Rate Hikes	<p>Combined federal and provincial net debt is about \$1.4T in 2016/17.</p> <p>Canadian governments (including local governments) collectively spent \$62.8B on interest payments in 2015/16.²⁰</p> <p>Each 25 basis point (bsp) interest rate hike translates into an estimated \$3.5B increase in interest payments when debt is issued into the market.²¹</p>	<p>Increasing deficits and debt levels, together with interest rate increases, will increase the cost of debt servicing which will further constrain the ability to provide services to constituents.</p> <p>Recognition of the importance of a balanced budget and the requirement for surpluses to pay down the sovereign and provincial debt become even more important going into an increasing interest rate environment.</p> <p>Discussion with the Department of Finance and Treasury slated to implement further hedging of forward interest rates, and increasing the duration of the underlying debt portfolio.</p>

20. <https://www.fraserinstitute.org/studies/cost-of-government-debt-in-canada-2017>

21. [Based on floating rate debt exposure.](#)

Primary Risk or Trend	Identify Correlated Risk or Trend	Magnitude of Correlation and Implication	KEY INSIGHTS - Events or Potential Events Stemming from Correlation of Trends and Risks
Inflation/ Rate Hikes	Asset Bubble	<p>Increasing inflation could lead the Bank of Canada to further increase interest rates.</p> <p>While inflation has been low, Q2 2017 Canadian GDP increased by 4.5% and in September 2017 gasoline prices increase by 10 – 20 cents per litre.</p> <p>Inflation above the 3% mark has historically been a “toggle switch” for markets. Below 3%, rising prices are typically associated with higher stock market valuations. But for every percentage point above that, the US price-to-earnings multiple falls by 2.69 points. The bond market is even more vulnerable. Below a 3% inflation rate, a percentage point increase pushes up bond yields by about 88 bsp. But for every 1 percentage point rise in inflation above 3%, bond yields climb by almost 150bp.²²</p>	<p>Discussion with the Department of Finance and Treasury slated to implement further hedging of forward interest rates, and increasing the duration of the underlying debt portfolio.</p>
	Asset Bubble	<p>Each 25 bsp rise in the lending rate equates to approximately a \$50 increase in interest payments on the average Canadian mortgage. Some 30% of borrowers cannot afford even a 1% increase in interest rates, increasing likelihood of loan payment arrears or defaults.</p>	<p>Negative equity combined with inflation-driven interest rate increases that strain overextended borrowers’ capacity to make payments could result in higher default rates. This would lead to increased losses for government guaranteed loans.</p>
	Asset Bubble	<p>Housing prices have increased by over 30% in the last year in major markets. A foreign buyers’ tax implemented in April 2017 is cooling the Greater Toronto Area market and is increasing the risk of a significant decline in housing prices. High ratio loans extended in the last year are at risk of negative equity if prices fall by more than 10%.</p>	<p>Consider further regulation to reduce exposure to high ratio mortgages, and increased provisions to cover the increased probability of default on government guaranteed mortgage loans.</p>

22. <https://www.ft.com/content/1335cd6a-bfd6-11e7-b8a3-38a6e068f464>

Primary Risk or Trend	Identify Correlated Risk or Trend	Magnitude of Correlation and Implication	KEY INSIGHTS - Events or Potential Events Stemming from Correlation of Trends and Risks
Fiscal Crisis / Sovereign Debt	Unemployment / Underemployment	Announced increases in Ontario provincial minimum wage may lead to layoffs and closing of some small businesses.	<p>Minimum wage earners that are laid off, and small business owners, are at increased risk of defaulting on their government guaranteed loans, as well as having a negative effect on potential tax revenue, and increasing the burden on government services.</p> <p>To assess the potential impact, stress test the estimated effects of the increased minimum wage hike on unemployment, business closures, use of government services, and tax revenue.</p>
	Energy Price Shock	<p>Energy prices remain low, however, many geopolitical event risks in the USA, the Middle East, Venezuela, Turkey, and Russia are leading to supply constraints and a potential energy price spike.</p> <p>Recent events in the middle east have increased political uncertainty around the stability of the region and driven oil to \$64/bbl. Saudi's latest implementation of crackdowns on corruption, and Saudi's accusation that Lebanon had declared war on it.</p>	<p>Increasing oil prices would benefit oil companies and employees in Alberta and lead to lower unemployment there and increased tax revenue. However, the rising dollar and increased input prices could lead to layoffs in manufacturing in Ontario and Quebec, resulting in increasing unemployment and a decrease in other exports.</p> <p>Develop scenarios to test the potential impacts of a variety of potential outcomes.</p>
	Increasing National Sentiment	<p>Increasing national sentiment in the US could directly affect Canada with the renegotiations that are currently taking place for the NAFTA agreement.</p> <p>The strain on resources along with the unknown outcome of involuntary migration into Europe and recently into Canada across the US border has increased national sentiments.</p> <p>Beyond the recent Brexit vote, similar European votes may lead to further protectionism in the EU.</p>	<p>Increasing national sentiment outside Canada may lead to fluctuations in currencies and further inflationary pressures, decreased GDP, lower exports, lower tax revenue, increased unemployment, exacerbating concerns regarding asset bubble / negative equity and loan default risks.</p> <p>Increased illegal immigration into Canada has strained resources to deal with refugee claims to over 1 year to process. This increased demand on resources puts a budgetary strain in a time of when a reduction in spending is required.</p> <p>Include these possible impacts in scenario testing.</p>

Primary Risk or Trend	Identify Correlated Risk or Trend	Magnitude of Correlation and Implication	KEY INSIGHTS - Events or Potential Events Stemming from Correlation of Trends and Risks
Fiscal Crisis / Sovereign Debt	Increasing Cyber Attacks / Data Fraud & Theft	Increased cyber attacks on both private enterprises and government departments demands an increase in both preventive and detection of cyber attacks at all ministries.	<p>This is a new non-budgetary cost that cannot be dismissed without an unknown and extreme level of privacy risk to users of government services.</p> <p>Budget allocations to computer security for hardware, software, and training is money that is not available for other services or for debt servicing (or debt reduction).</p> <p>Ensure appropriate spending allocations are included in budgets. Recognizing the interconnectedness of computer networks, work with industry domestically and other governments internationally to develop a comprehensive cyber security plan, including a crisis response plan, to mitigate potential damage from a major cyber security threat.</p>
	Rising Urbanization	<p>Increasing urbanization has fueled inflation in the housing sector, disproportionately increasing house prices in large urban centres versus smaller cities and rural communities.</p> <p>Rising urbanization has increased the demand for government services in urban centres, increasing the cost of provision of services.</p>	<p>Rising urbanization and higher house prices may lead to increases in nonperforming loans being disproportionately concentrated within urban centres.</p> <p>Government facilities in urban centres are fixed over the medium term, and expansion must be build into a medium to long-term capital plan. This puts a further strain on the current fiscal deficit and long-term debt.</p> <p>There is no one interest rate policy that appropriately addresses Canada's diverse needs. Consider the impacts of policy at more local levels in addition to the overall level.</p>
	Aging Population	Many seniors and new seniors living on fixed incomes remain exposed to inflation due to remaining unpaid high debt levels.	Non-performing loans and loan defaults may increase for borrowers who are seniors. A program to work with seniors on debt management is required before interest rates push seniors into default.

Primary Risk or Trend	Identify Correlated Risk or Trend	Magnitude of Correlation and Implication	KEY INSIGHTS - Events or Potential Events Stemming from Correlation of Trends and Risks
Fiscal Crisis / Sovereign Debt AND Inflation / Asset Bubble	Increase in Chronic Diseases	The aging population puts an increased demand on government services, while at the same time reduces the tax revenue due to moving out of the full-time workforce.	<p>Increasingly long lead times for securing places at long-term care (LTC) facilities is increasing the burden and cost faced by hospitals, which are the waiting rooms for placement in LTC.</p> <p>There is an immediate need to increase the availability of low cost housing and home care for seniors to reduce the future demand on LTC facilities and the demand for hospital beds.</p>
	Rising Wealth & Income Disparity	Many new home buyers may be priced out of the market as the income gap continues to widen and housing and rental property prices continue to stay high.	<p>New home owners are even more at risk of rising interest rates as well as a fall in house prices as they are stretched to take higher loan to value mortgages, and have higher payment to income ratios.</p> <p>Rent controls may lead to a reduction in new rental building starts and lack of affordable housing for those with lower incomes.</p> <p>Public/Private partnerships are vital to ensure availability of low cost housing, especially successful with the not-for-profit sector.</p>

Senior civil servants acknowledged the growing array of factors, both domestic and international, that could potentially result in higher interest rates, increased unemployment, and spikes in energy and commodity prices. They concluded that certain areas of their portfolio (e.g., tax revenue, unemployment, cyber attacks, medical costs, and housing), would be more at risk than others, and that more granular portfolio monitoring, isolating the higher risk segments, would be beneficial. Segmenting the portfolio by vulnerability would facilitate a better understanding of the level of risk in the portfolio, and would allow for stress testing these segments to quantify potential downside

impacts. It would also allow for implementation of Early Warning Indicators designed to flag when risk factors reach a designated level of concern so that pro-active steps (e.g., more active and early prevention efforts) can be taken to reduce the demand on government services.

STEP 9. ADJUST THE ORGANIZATIONAL STRATEGIES AND ACTION PLANS FOR THE IMPLICATIONS OF THE GRAFT MAPPING AND CORRELATION INSIGHT

Figure 5- Map out an action plan to prepare for changes in the Global Risks and Trends



The GRAFT review highlighted the fiscal crisis / sovereign debt risks associated with a potential increase to inflation and underlying interest rates in concert with lower house prices and high debt levels, as well as the potential compounding effects of rising unemployment/ underemployment, potential cyber attacks, energy price changes, widening income disparity, urbanization and an aging population.

The government team reviewed these considerations in the context of their strategy for deficit and debt growth within the current risk appetite. They concluded that service level

limits would have to be set in conjunction with the overall government risk appetite function. A stress testing tool would allow them to review potential budget scenarios. A collaborative solution working with public-private partnerships and not-for-profit agencies to identify high risk segments, and to put in place a plan that addresses the long and short-term risk profile.

As a result, the government team modified their budget strategy to specifically target seniors on a test basis by linking them with not-for-profit partners in more vulnerable sectors. These strategy modifications are summarized below in Table 8.

Table 8- Sample Revised Canadian Government Strategy

Strategy	Timing	Business Landscape	Competitive Advantage
2. A fiscal plan that is responsible, transparent, and suited to challenging economic times	<p>Deficits \$35B in 2016, projected deficit in 2017- \$28.5 billion, \$27.4B in 2018-19,</p> <p>Develop a holistic Government Risk Capacity identifying risk factors based on both standard of living and quality of life implications. Draft a Risk Appetite Statement and supporting metrics to implement with the budget process for 2019-2020. Identify both target and downside levels for risk tolerance.</p>	<p>Combined federal and provincial net debt has increased from \$833B in 2007/08 to a projected \$1.4T in 2016/17.</p> <p>Develop a collaborative strategy among the federal, provincial, and municipal governments to set joint risk appetite levels, and stress-test both interest rate increases and increased government service levels.</p> <p>Canadian nominal GDP growth budgeted at 3%, but running at 4.1%; NAFTA still in place; Oil recovery budgeted at \$54/bbl but recently priced at \$57/bbl.</p>	<p>Canada focused on growing the economy.</p> <p>Implement a joint government collaboration between public/private/ and not-for-profit agencies.</p>

Strategy	Timing	Business Landscape	Competitive Advantage
1. A strong and growing middle class	<p>Grow the Canadian middle class by 5% by 2019; maintain and reduce unemployment from 6.9% to 6.4% by 2021.</p> <p>Increase focus of NAFTA negotiations; stress-test the implications on the Canadian economy for changes to the agreement for 2018.</p> <p>Focus funding on full-time early years education and child care.</p> <p>Implement a rolled in mandatory co-op placement to graduate high school, similar to the 40-hour mandatory volunteer program for high school students.</p> <p>Shift funding to 1- and 2- year trade and technology training programs.</p>	<p>Canadian nominal GDP growth of budgeted at 3% but running at 4.1%;</p> <p>NAFTA still in place,</p> <p>Oil recovery to \$54/bbl.; unemployment at 6.9% in 2017, reducing to 6.4% in 2021.</p>	<p>1st in the OECD with the most highly educated workforce.</p> <p>1st in the Group of Seven (G7) for overall business cost competitiveness.</p> <p>2nd in the G7 for openness to trade and investment.</p>

CONCLUSION

Prior to implementing GRAFT, the senior civil servant leadership team had an “as required process” to identify and evaluate the impact of risks that were external to their departments. The government’s enterprise risk management framework focused mainly on internal operational risks, without an explicit focus on integrating global risks and trends with strategic risks and opportunities.

By following the GRAFT process, the team of senior civil servants completed a systematic and thorough review of risks and opportunities. They confirmed their intuitive concerns surrounding Canada’s potential for a fiscal crisis and asset value deterioration in a rising interest rate environment.

More importantly, use of GRAFT stimulated awareness and discussion of a broader range of risks, leading to:

- *developing a Risk Capacity and Risk Appetite statement that would cross government department boundaries and be supported by risk factors, metrics, stress testing and scenario analysis;*
- *supporting a budgeting strategy that would identify the assumptions that would be key to Canada achieving the goals outlined in the government’s Throne Speech;*

- *a plan to develop enhanced, segmented department monitoring, along with downside analysis to quantify the magnitude of costs under a variety of downside assumptions; and*
- *implementation of early warning indicators to prompt early action in the face of actual service deterioration.*

As demonstrated in this Case Study, by implementing GRAFT, government leaders both elected and civil servants can enhance their approach to both government strategies and to the execution of risk management.