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Workshop Proceedings & Analysis: Infrastructure – Risk, Performance and Accountability (January 27, 2016)

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Problématique

Canadian provinces, territories and municipalities own the vast majority (approximately 98%) of the country's infrastructure. However, their ability to finance infrastructure is limited.¹ According to sustainability analysis by the Parliamentary Budget Officer (PBO) (2015), the federal government over the long-term has fiscal room to manoeuvre in contrast to the provinces, territories and municipalities that are projected to have a longer term fiscal gap. How can sub-national governments in Canada sustainably and effectively invest in infrastructure?

Today's economic context may appear bleak: the Canadian economy is struggling; year-over-year estimates to change in GDP are negative; unemployment rates are rising; commodity prices are hitting all time lows; and the Bank of Canada's outlook surveys are not positive. Nonetheless, there is an important opportunity to leverage the federal government's fiscal capacity to invest in infrastructure and encourage economic growth and productivity.

The federal government has pledged to invest \$60 billion in infrastructure spending over the next ten years across three principal areas: social, green and transit. At a policy level, this is good news for Canada's sub-national governments, its economy and its failing infrastructure.

The International Monetary Fund (IMF) estimates (based on a sample of advanced economies) indicate that an increase of 1 percentage point of GDP in investment spending raises the level of output by about 0.4 percent in that same year and by 1.5 percent four years after the investment (see IMF, 2014, chapter 3). This boost from increasing public infrastructure investment has the potential to offset the increase in debt so that the public debt-to-GDP ratio does not rise in a climate of weak growth.

Investment alone however, does not guarantee outcomes. Major projects are prone to failure (see Flyvberg, 2009; Flyvberg et al., 2003) or poor delivery (National Audit Office, 2016). Canada needs an infrastructure plan and responsible performance frame for asset management, targeted investment, transparent reporting and outcome assessment. The workshop addressed sound funding of infrastructure and not financing issues. Mechanisms to disburse funding should follow from the plans and targets established to manage the money.

Precisely how should the new government define and develop its infrastructure plan? What are the gaps in Canada's current approach to infrastructure investment and

¹ In the Canadian federation, the federal government has constitutional authority over matters of national interest, including direct and indirect taxation. This provides the national government with broad capacity for revenue generation. The provinces by contrast, are only able to raise revenues through direct taxation leaving them dependent on federal transfer payments to support their programs. It should also be noted that municipalities are creatures of the provinces leaving them even fewer revenue levers than either the federal or provincial governments. The territories – initially fully administered by the federal government – exercise authorities delegated to them and do not have the same constitutional status or powers as the provinces.

assessment? How can we close these gaps? Have other jurisdictions succeeded in addressing similar issues? How?

To address these questions and to foster debate and discussion of approaches and best practices, Infrastructure Canada jointly with the University of Ottawa's Jean-Luc Pepin Research Chair convened a one-day workshop on January 27, 2016. Global experts, representatives from federal departments and ministerial staff (see participant list) attended the session that followed Chatham House Rules.

The purpose of this brief is to communicate a summary of the workshop's proceedings without attribution. The brief will proceed in three parts: first, a general overview of the state of infrastructure funding and its evaluation (based on the IMF's analysis) will be discussed; second, the challenges of major projects and possible solutions and a case study of the United States' experience with the U.S. Recovery Act will be overviewed, highlighting the good politics of accountability and transparency; third, the brief concludes with recommendations on the way forward.

Part 1: Infrastructure in Canada

In Canada, infrastructure financing from the federal government generally flows through programs allocated on a population basis to provinces and territories. In addition, there are also some programs to support more targeted objectives such as border infrastructure, transit, or the community based Gas Tax Fund. The Gas Tax Fund is a legislated permanent source of funding for municipalities where a portion of the tax is reallocated to support municipal infrastructure development on an annual basis (approximately \$2 billion annually, indexed at 2% per year) (see Infrastructure Canada, 2015, p. 39).

While federal infrastructure funding appears to have increased significantly beginning in 2009, it is due in large part to economic stimulus following the 2008 financial crisis. The new investment follows a decline in public capital investment from 1961-1998, with a gradual increase as of 2002. All levels of government in Canada are merely playing 'catch-up' by focusing spending in an area that suffered from declining spending for over three decades (Statistics Canada, Cansim table 031-0002).

It should be mentioned that Infrastructure Canada is not the only source of federal funding for the infrastructure needs of provinces, territories and municipalities, nor does it represent the full amount of funding that is budgeted for infrastructure investments at the federal level. In fact, a number of other federal departments and agencies offer contribution-based funding related to their respective portfolios. This includes for instance, connectivity infrastructure through Industry Canada, funding for disaster mitigation offered through Public Safety, investment in the cultural sector through Canadian Heritage, First Nations infrastructure investment through Aboriginal Affairs and Northern Development Canada, Transport Canada's investments in safety improvements at non-federally owned small and/or regional airports, as well as various other programs to support community infrastructure through the Regional Development

Agencies. Furthermore, the federal government continues to invest in federally owned infrastructure, including assets such as federal bridges and a small number of highways.

Core infrastructure challenges across Canada may be similar but important regionally specific needs exist in urban, rural and remote communities, as well among Canada's Aboriginal peoples.

There are data challenges within Infrastructure Canada, which makes defining a current baseline difficult if not impossible. Furthermore, asset management suffers from lacunae in data as well as capacity limitations. There are also broader structural issues whereby political cycles which are approximately four years in length (perhaps shorter in a minority context), conflict with capital budgeting and asset management considerations which extend from 20 to 40 years and beyond.

The IMF assessed Canada's infrastructure program performance based on a 15-dimension frame called Public Investment Management Assessment (PIMA) broken down into three main components: planning, allocating and implementing (see Figure 1 for a list of the dimensions).² While the results of Canada's individual country assessment have not been made public, there are important lessons to draw from the IMF's frame.

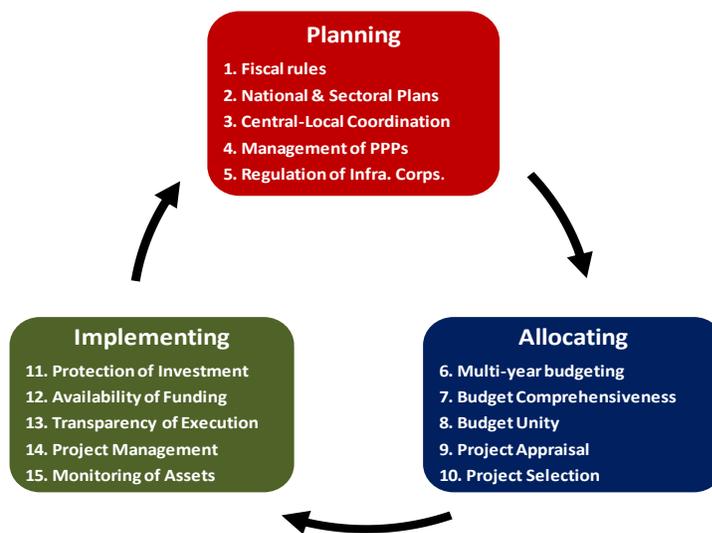


Figure 1: The IMF's Public Investment Management Assessment (PIMA) frame including its 15 dimensions for assessment.

In terms of new spending, the Liberal government has identified three core-funding targets for its \$60 billion infrastructure investment over ten years: social, green and transit. Canada has an opportunity to spend its infrastructure money effectively, efficiently and accountably. Leveraging the IMF's frame, Canada needs to define national and sectoral plans to determine in what to invest and where. A needs assessment to identify current and future needs should drive plans. The government must also

² For a full explanation of the IMF's methodology and the 15 dimensions of assessment, please see: <http://www.imf.org/external/np/pp/eng/2015/061115.pdf>

recognize differing regional and demographic needs and invest accordingly. Crosscutting these dimensions is the need for due-diligence on all investment decisions to ensure return on investment and effective outcomes that contribute to a national plan.

The purpose of the IMF's approach is to serve as an organizing frame for a national infrastructure strategy. It is not meant to provide discreet project oversight or evaluation. By forcing analysis and consideration of investment types, targets and outcomes through the planning, allocating and implementation phases, the frame offers amenability to differing contexts and program types. For instance, in order to ensure transparent execution, project management and asset monitoring from the 'implementing' phase, a project assessment framework is required. One potential evaluation frame is the context, input, output, outcome approach that the Treasury Board of Canada Secretariat currently employs in its program alignment architecture (this frame is discussed in more detail in Part 3).

Part 2: The Challenges of Major Projects and Major Project Failure

The planning, execution and assessment necessary to accountably and transparently deliver on a promise of \$60 billion in infrastructure investment is no small feat. The failure of major projects (such as infrastructure) around the world is well documented (Flyvberg, 2009; Flyvberg et al., 2003; Kerzner, 2014; Kendrick, 2009).

With a career studying and documenting major public project failure, Professor Bent Flyvberg of the Saïd Business School, University of Oxford, concludes that failure can be attributed mainly to inputs. While a lack of data and skills for proper due-diligence and decision-making at the outset of a project can be damaging, as can optimism bias, it is in fact the deliberate "overestimating benefits and underestimating costs when forecasting the outcomes of projects" by politicians and project planners that are the most damaging for infrastructure projects (Flyvberg, 2009, p. 350). Estimates and expectations are skewed because actors are overly enthusiastic about a project and tend to misconstrue cost and feasibility to unlock project funding (Flyvberg, 2009). This leads to "public and private investors, parliaments, media and the general public [that] are routinely inadequately informed and misled regarding the risks involved in megaprojects" (Flyvberg et al., 2003, p. 84).

The results of this behaviour can have serious political and economic consequences for states, governments and citizens. A recent report by the United Kingdom's (UK) National Audit Office (NAO) highlighted the costs and challenges of delivering major projects in government, with a number of recurring issues affecting performance historically including: a lack of data to track and measure performance; poor planning (especially at the project's outset); absence of portfolio management of projects at departmental and governmental levels; a lack of capacity to undertake and manage projects; and a lack of clear accountability and leadership (NAO, 2016, p. 6). Of the 149 major projects in the UK (as of June 2015) with a total lifecycle cost of £511bn, successful delivery of 34% was considered to be "in doubt or unachievable unless action was taken" (NAO, 2016, p. 4).

These challenges and organizational weaknesses are not unique to the UK. Canada has its own list of major project failures, e.g. the F-35, Shared Services Canada, the gun registry, secure channel, the National Shipbuilding Program, etc. Their failures are attributable to problems of capacity, lacks of data and reporting, misalignment of incentives with private sector partners, inadequate due-diligence, lacks in transparent reporting and continued oversight.

While no panacea exists, there is general agreement that proper due-diligence at a project's start and effective governance are crucial to combatting major project failure (see for instance Flyvberg, 2009; Flyvberg et al., 2003) and poor delivery (NAO, 2016). Due-diligence is more than ensuring the project meets funding standards; it should be an assessment of fiscal and execution feasibility based not on the project's proposal but on actual data from other completed projects in the country or from other jurisdictions.

Norway has demonstrated success in managing cost overruns and limiting project failure by using comparative models. Having identified that incorrect cost estimation created major cost overruns, front-end due-diligence was implemented. Drawing on historical project samples from Norway, assessments are performed on project proposals. Parliament only approves projects with a confidence interval of 85% or above. To further insure against overruns, 50% cost surplus is held in reserve for emergency use. The result: 80% of the projects in this system were completed within their estimated margin. This methodology was not an attempt by Norway to approve projects with the lowest cost, but an attempt to work with the most accurate estimate while building reasonable expectations with stakeholders.

The Norwegian example demonstrates that due-diligence is a feasible exercise that can be incorporated into regular decision-making and project assessment. Key controllership criteria (e.g. estimated cost (based on benchmark data), project plan, desired outcomes etc.) must be clearly established at the outset. Without due-diligence on these basic project indicators, there is limited oversight potential over the course of the project. Tacitly, this could also reduce the viability for political success—the probability of poor outcomes increase without due-diligence on a major project—and could be detrimental politically.

The extension of proper due-diligence is effective governance. When a major project is underway, adequate data collection and transparent reporting are necessary to track and assess outcomes, as well as to promote accountability. Good governance means more than having a plan in place—it means executing the plan by regularly reporting on results and supporting the outputs with data.

Tracking production from a project's outset to its completion can be good politics by fostering accountability and transparency. For instance, during the 2008 financial crisis, the United States (US) used the 2009 Recovery Act as a means to boost economic output through stimulus spending across the country. The Act's implementation was premised on reporting and transparency. All agencies (state, local governments, vendors) that

received the funds were required to report to the Federal Office of Management and Budget (OMB) on their activities. The data generated from the reporting was then analyzed and made public by the Recovery Board (the 12 member board was made up of presidential appointees meant to serve as the public face of the Act's governance) (see White House, 2009; Helbig et al., 2009; United States Department of Transportation, 2009).

Regularized data reporting released publicly contributed to the initiative's perceived transparency. Paraphrasing the White House's definition, transparency "involves the publication of information (in as real-time as possible) that demonstrates fiscal accountability in how, where, when and by whom, the money is spent" (Helbig et al. 2009, s. 3.1). In essence, the Obama administration attempted to make good politics out of good governance. It may also be inferred that self-policing of actors that benefited from the stimulus funding was implied since all results and reports were made public.

The US's approach was not without its challenges. Helbig et al. (2009) discuss the difficulties New York State experienced in attempting to meet reporting requirements. There were reporting delays, miscommunications, and capacity challenges at the state level that challenged the governance framework. A lesson from the experience is the need for flexible reporting strategies that accommodate the specific project and its particular outcomes.

Leveraging the experiences and technologies of other jurisdictions could help to develop more viable governance frameworks that have been implemented and tested elsewhere. The US Department of Transportation for instance, highlights best-practices among its states that range from data collection and management, to planning and stakeholder involvement/management. US states have shown willingness to engage with their Canadian counterparts on a host of files; infrastructure governance practices should be no different.

Part 3: Charting the Way Forward

The workshop's informative discussion and debate coalesced around three key ideas. First, Canada needs a national plan and sectoral plans to direct its infrastructure investment. The three target areas of investment defined by the government – social, transit, and green – are useful starting points but precisely to whom and how infrastructure funding will be granted and distributed remains unclear. The government needs to ask itself: what outcome are we seeking? How can that outcome be achieved? Defining a plan to link the answers to what is desired and how it will be realized is a crucial starting point, as funding mechanisms and reporting practices will flow from there.

Second, an assessment framework premised on due-diligence and good governance can help to combat project failure at the program level. Front-end assessment of a project's parameters including cost, timeline, outcomes etc. should be vetted by an independent party or competent government entity. Actual data from comparable completed projects

from other jurisdictions should be used as a benchmark. When it comes to good governance, regular reporting requirements and public reporting of results can serve to implicitly foster improved results among participating governments and agencies. To be clear, the assessment framework is distinct from the performance framework.

The assessment frame is applied at the program level to perform due-diligence on discreet projects. By contrast, the performance framework is a macro-level frame that guides the government’s infrastructure investment decision-making by ensuring targeted investments with economic, political and social returns. While the two frames are complementary, they serve different purposes.

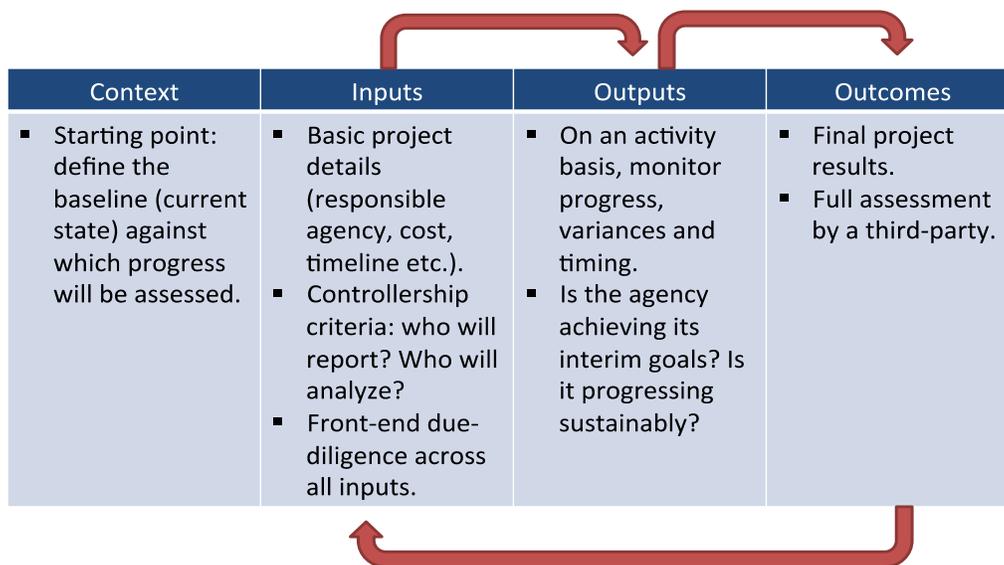


Figure 2: An illustrative performance frame based on context, inputs, outputs and outcomes.

One approach to a project assessment frame would be based on context, inputs, outputs and outcomes (already used for program performance in government). As illustrated in Figure 2, the frame’s components are interrelated. The *context* or starting point is developed by defining a baseline against which future progress will be benchmarked. By establishing the current state of affairs, the federal government and other actors can monitor and assess progress. *Inputs* include the financial and human resources required for a project as well as the overall project plan. Ensuring due-diligence across inputs is a first step in sound project management. *Outputs* are the products developed over the course of the project that contribute to its outcomes. To ensure progress is being achieved, regular reporting is essential. *Outcomes* are the end results of the project. Following a project’s completion, a full assessment should be undertaken by a third party to provide a post-mortem on results and hold relevant parties accountable for the successes and failures. Figure 2 has an arrow creating a full-circle between outcomes and inputs to demonstrate that what happens at a project’s outset impacts its end result. It is difficult to take corrective action once a project has derailed.

The use of a sound performance frame that accounts for project-specific dimensions can be a key factor in overall success. Regardless of the funding mechanism used to disburse

funds, e.g. grant, bank, transfer, fund, investment corporation, a performance framework can be applied and adapted to address contextual specificities and desired outcomes.

A performance frame is also useful for building confidence among private investors and the public. Governments can usefully lower the premium for private sector investors to engage in infrastructure projects by de-risking their participation. This means performing adequate due-diligence and undertaking consultations to ensure the project's viability. Public confidence in the government's capacity can also be fostered through regular public reporting of progress and development. Being transparent and open about progress on infrastructure investment can be good politics and a public confidence builder for government.

Third, accountability and transparency can be good politics. As demonstrated by the case of the 2009 US Recovery Act, requiring regular updates on outputs and reporting on them publicly can be a political win. By framing the infrastructure exercise through the lens of responsibly using public money and promoting outcomes, the government is making a statement in fulfillment of its pledge for more open government in Canada.

The Canadian government is at a crossroads: it can follow old practices of transferring cash without requiring outcomes or it can chart a new course where public money flows to executing governments with outcomes and results showcased through regular reporting. Leveraging the experiences of other jurisdictions, the government has an opportunity to be a leader domestically and globally by investing accountably and transparently in the infrastructure of tomorrow.

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