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Complex Project Delivery Capability Matters

by Ian Mack
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POLICY PERSPECTIVE

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Much has been written about the federal government's failed modernization of its payroll system – a project known as Phoenix.

According to public documents, planning started before 2010 to modernize a 40-year-old pay system which relied heavily on compensation advisors (pay clerks) in every department to ensure over 150,000 federal public servants were paid properly (the right amounts and on time). Concurrently, services would be consolidated under Phoenix in the new location of Miramichi, N.B. Early on, IBM was awarded a contract to deliver the new IT-based system.

Within a couple of years, the project office chose to take control of the transition rather than leave it in IBM's hands. As the work proceeded, reports were that IBM recommended delaying the implementation schedule. Then, with the Miramichi site up and starting to pay the first of three waves of public servants, numerous complaints about pay issues began to appear in late 2015.

In early 2016, as the planned implementation approached key 'go live' milestones, two independent reports by external companies produced differing conclusions and recommendations. One concluded that the project should proceed despite what would be a challenging transition, and the other offered many warnings. Both highlighted the need for a fallback plan in case the transition bogged down. With the idea of reaping pre-determined savings by laying off pay clerks beforehand, the only other option (continuing to run the existing system in parallel until the new system was proven) would be problematic without pay clerk expertise to ensure it could function if required. The project office recommended proceeding.

Reports indicate that over the two-month period of February and March 2016, pay clerks were laid off and the first major payday for the first wave of public servants (over 100,000 personnel) went live with the new system.

Public reports indicate that almost immediately there were thousands of pay issues. Nevertheless, within two months the second wave was implemented, so that over 200,000 employees would then be paid under the new system. The pay complaints grew with each passing payday and are reported to have reached 80,000.

By summer 2019, pay issues continued and work was underway to replace the Phoenix pay system. To this day, issues in paying public servants continue. By every measure, the project has been assessed as a failure – it failed to perform and will cost multiple factors of the original budget and schedule before achieving effective standards with a replacement system. The second-order effects on morale, on many people's financial stability and on employees' trust of the corporate leadership were considerable.

Much has been written about this failure, and the government has accepted an independent public review by Goss Gilroy Inc. Management Consultants, who produced a report containing 17 lessons.



The Canadian government's response indicates it admits to paying insufficient attention to, among other things, its project management capabilities as employed with the Phoenix pay system. But this note suggests that it goes further than implementing the 17 recommendations.

Canada's experience with the Phoenix pay system is not just a pay problem. It points to wider problems in Canada's management of complex major projects. Learning from Phoenix is important for the Government of Canada as a whole and the Department of National Defence specifically, the latter arguably responsible for the largest portfolio of complex projects – both for weapon systems platform and information technology initiatives.

Fortunately, it appears that the Liberal government has taken notice. In the most recent Mandate Letters to Ministers, the Treasury Board President has been directed to 'improve project management capabilities so that all major projects in government are led by a certified professional with at least five years of experience'. Additionally, the new position of Minister of Digital Government was tasked to 'lead work to create a centre of expertise that brings together the necessary skills to effectively implement major transformation projects across government, including technical, procurement and legal expertise' (and to lead in the replacement of the replacement pay system).

This paper attempts to shed some light on the matter of pursuing complex projects and the enormity of the task at hand. I say "enormity" because complex projects are difficult to deliver at all (let alone on time and budget), as in evidence by the number that continue to fail in the private and public sectors, regardless of the complex project capabilities of those responsible for delivering them.

Background – Complex Project Delivery

About a decade ago, an international realization developed that particularly complex projects required a different approach in their execution than traditional projects. During this period, the International Centre for Complex Project Management (ICCPM) was created, with its headquarters in Canberra, Australia. Since then, the focus on navigating complex endeavours has caught fire across the globe. Implementation had become much more problematic for such projects that were typically international as they were commonly executed with expertise in many nations.

Aside from creating awareness of a metamorphosis in project management challenges, ICCPM has also focused on tracking and creating awareness of emerging practices and research. As well, ICCPM has focused on education in two ways. The centre worked with the Australian Department of Defence to create an executive master's in complex project management at Queensland University – a curriculum that was subsequently imported to Ottawa University's Telfer School of Management and Telfer is now on its own Canadian-unique development journey. ICCPM and Telfer have also created short courses and offer seminars.



Since ICCPM's creation, other organizations have introduced more of a focus on the complex end of the project spectrum. My assessment is that project management associations have created new capabilities in this domain. These associations include the Project Management Institute's Global Executive Council, the Major Projects Association and various chapters of the International Project Management Association, along with others involved in critical aspects of delivery, such as the International Association for Contract and Commercial Management. As well, very advanced risk treatment systems are now commercially available to better address complexity, and greater effort is applied to employing the more advanced approaches to cost estimating prescribed by the International Cost Estimating and Analysis Association. Also noteworthy, the importance of collaborative relationships in complex procurement projects is now internationally accepted, as evidenced by the development of the new ISO 44001 series and by the recent identification by Public Services and Procurement Canada (PSPC) as an often recognized best practice – this in its latest version of its Practitioner's Guide for Procurement Pricing dated September 2019.

Opinions differ on the definition of complexity, but complex projects are typically large-scale (expensive), technology-focused initiatives spanning many years to plan and implement, involving large numbers of stakeholders (and their unique cultures) and multiple recursive and interconnected activities or lines of business delivery. Many of the endeavours of democratic governments are complex by their very nature, as governments typically tackle projects that are national in scope, exceptionally expensive and scrutinized by thousands of citizen stakeholders.

As an important aside related to complexity, for over a decade, the Treasury Board has required that project complexity be assessed using a point system. The higher the point score against a number of factors, the higher the complexity level. Using this set of protocols, the most complex projects are categorized as project complexity risk assessment (PCRA) level 4 transformational projects. Most other nations have tied such assessments to specific competency levels of project leadership. Canada has not yet taken that extra step government-wide, but at least one department (Defence) has created a project competency development program and notionally tied PCRA's to achieved competency levels for assigned project managers. (Although when I retired three years ago the competency standard at Defence had yet to embrace the emerging leadership capabilities for truly complex weapon system platform acquisition projects, experience in the business significantly mitigated the related challenges.)

Complexity was recognized globally as the third industrial revolution dawned, introducing computers and clever software into every facet of business and personal life in the Western world. IT projects were the first to confront such degrees of challenge in virtually every case. Out of necessity, project management involving such technologies has over the past decade or so developed techniques to better assure their success. In Canada, the Treasury Board and all departments instituted chief information officers with defined governance responsibilities for IT projects, this dating back over a decade. As a result, it can be argued that the IT sector has routinely faced complex projects, especially when these were government-wide in scope and transformational in terms of the way work is done – as in the case of Phoenix.



I am more familiar with acquisition projects for weapon system platforms for Canada's Department of National Defence (DND), having held a related portfolio leadership position over a decade. In that role, I first became interested in the emerging discussions and practices in complex project management, and in ICCPM's efforts to create awareness.

I have used that lens to consider the findings of the Goss Gilroy report and what has been reported otherwise. Goss Gilroy identified much that follows, but this note's purpose is to look at the domain of lessons beyond Phoenix, based admittedly on my now dated experience (I retired in 2017).

Supplemental Observations

It is useful to dwell a moment on the invitation to two companies in early 2017 to review the project and offer suggestions. This is a common occurrence in government projects and is often referred to by project management practitioners as "commoditized support" – support treated as a commodity that one can obtain on occasion but is not dedicated to the entire project journey. As a result, such reviews often are delivered late in project life-cycle stages and based on only part of the picture; having not been intimate throughout the life of the project, they often do not understand important context nuances and the dynamics within stakeholder communities. In response to their recommendations as projects arrive at milestone points, project leadership – this term includes the project execution team leader and the equivalent to project sponsor and so forth up to the deputy minister level – frequently dismisses the disconcerting recommendations of such reviews as "not understanding the project context". Hence, one can observe a common guideline when conducting complex projects: Avoid commoditized support.

As a follow-up to the previous discussion regarding PCRA's, the Goss Gilroy report suggests in its summary that the project's level of complexity was underestimated from the start. One must assume that Phoenix was classified as a PCRA 4 transformational project as it was launched but was subsequently downgraded. If true, this suggests that the Treasury Board PCRA definitions and the methodology applied to 'transformational' PCRA Level 4 projects may need to be reviewed.

The Goss Gilroy report highlighted a shortfall within the project to identify the many business lines of the endeavour to achieve the desired outcome. The apparent almost most exclusive focus of the project management team for Phoenix was on the pay system's modernization – replacement with a customized IT solution – and the service's consolidation centralized in Miramichi, plus staff downsizing to deliver forecast savings. From the Goss Gilroy report, there were also requirements for business process simplification as well as significant changes in HR systems, the pay performance model and the culture of working with an automated pay system instead of pay clerks for all involved. These affected all government departments (84) and over 200,000 pay system users. One of the most critical aspects of all projects and especially complex ones is that they are pre-disposed to failure from the outset if they are not properly launched.



Front-end preparations cannot be hurried and must (among many things) ensure full identification of the requirement set and its attributes – clarity is absolutely essential.

Without identifying the full set of business lines, the project office would not have appreciated the interdependencies. Instead, these additional requirements would have been treated as discrete and independent projects to be pursued by others. The leadership must treat complex initiatives holistically and as a single system throughout their execution. Disaggregating and allocating responsibility for them to others would most likely fail to deliver the desired outcome.

The Goss Gilroy report contained much on Phoenix’s lack of effective governance, and the comments to some extent mirror my own as discussed in other papers. Goss Gilroy identified lessons related to the lack of clear accountability (many different bodies participating, but no clear lead), the failure to effectively engage all stakeholders (across all departments involved and at the levels of authority to make meaningful input and decisions to get results) and the inability to appropriately challenge the project office’s fateful decisions. The leadership appeared to have had insufficient knowledge and expertise in the domains involved in this complex transformational project to question the project office effectively in exercising their oversight responsibilities.

Weak governance can significantly affect complex projects. Leadership’s role involves oversight, decision-making, redirection where necessary and support of the project office. My own experience over many years was that the approach of the Defence Procurement Strategy to governing complex projects with frequently changing generalist members was more often than not of minimal value to the outcome of such projects.

The best practices Goss Gilroy identified are routinely prescribed for those governing complexity. Adding my own observations, one can suggest the following guidelines when faced with such complexity:

- One single high-level governance body must be fully invested in the project so as to feel responsible and accountable;
- The governance needs to be tailored to the task, from the terms of reference to the selection of members with the specific background to deliver meaningful insight and challenges (and/or including full-time independent expert advisors who are not treated as ex-officio members);
- Such governance needs to be cascaded appropriately to ensure a meaningful dialogue is maintained with the right representatives of the entire stakeholder community (unions and all key lower tier suppliers, too);
- Governance members need to ensure they have ground truth by periodically “walking the ground”, and especially so before major milestones like going live – and they must resist the desire to rely on dashboards that quite often provide little of value at best or mask reality at worst;



- Comprehensive on-boarding of new members is equally important for projects spanning many years in development and then in implementation; and
- Periodic performance benchmarking of governance and its processes for effectiveness (especially agility) by external and independent experts is equally important.

Goss Gilroy reports that early in the project's life, the project office understood the demand for strong change management and even developed the plans to put it in place. However, these apparently were not executed for various reasons, including cost. Complex projects (especially including such procurements) are fundamentally major change projects.

My experience in government was that the implementation teams for internal transformational projects often lacked sufficient attention and support from busy senior leaders to achieve advertised objectives. Deputy and assistant deputy ministers had little capacity available to escape the excessive processes, meetings and bureaucracy created by reams of policies and perceived failures. And only on rare occasions were such senior positions created to focus solely on complex transformational initiatives.

Most government officials within the leadership are experienced enough to have taken a change management course in their careers, but they are typically not aware of the latest emerging research and approaches. Government officials are expected to be individually adaptable, but organizational support to enable resilience is less of a priority. Change fatigue is common as are transformational initiatives that seem to launch in large numbers but then fade away. And where the culture has come to mistrust internal transformational initiatives because of a perception that they regularly fail (as in the case of Phoenix), the effort to enable change will need to be exceptionally well led, resourced and nuanced. It is difficult for employees to respond to the new priority's burning platform amid many smoldering ruins.

As the Goss Gilroy report pointed out, where Phoenix's clients were vast and within so many stovepipe organizational units, a network of committed change agents with influence were needed to drive the change process before, through and after the transition. The project leadership needed to better value the change agent network and carry on a continuous conversation with its members as one more critical factor to enable the desired outcome.

All complex projects are now encouraged in the literature to master the execution of the change element within the client community with:

- continual, visible and authentic leadership from the top;
- employment of modern change enablement theory that is embedded in the organization's culture as an important value and attribute;
- reliance on a strong change agent network where appropriate in the client community to control the transition;



- ensuring the creation of a back-up Plan B if/when the transition stumbles;
- completion of product testing before launching transition; and
- pacing the transition to reflect the size of the adaptation required and the degree of acceptance of the transition by, and the degree of unit stress on, those needing to adapt.

The thinking and techniques around the project leadership of complex initiatives have changed quite dramatically in the past decade, although the degree of interest and effort the federal government applied to develop the capacity to understand and embrace such emerging practices did not reflect this during my tenure. Areas of importance follow:

- religious reliance on the “iron triangle” of cost/schedule/scope;
- decision-making amidst significant uncertainty;
- project risk treatment and the inevitable issue management;
- response to dissenting perspectives from any and all stakeholders;
- acceptance that there will be “news not expected or likely to be easy to stomach”; and
- expectation management with transparency as a high priority among all stakeholders, including citizens as the ultimate clients of government programs.

These are best managed very differently within the domain of emerging practices for use amid complexity. There clearly is an urgent need government-wide to invest realistically in a new set of capabilities to deal with complexity.

The one other important element highlighted in the Goss Gilroy report related to the project’s budget and the project office’s capacity, both of which appeared to be insufficient for the work required. Such concerns in Phoenix led to execution challenges in implementing the initially intended change management plans due to budget impacts, and in the communications with the change agent network. Complex projects require acceptance that the initial budget will require a sizeable contingency to deal with emerging costs and schedule slippage. In addition, the project office will need depth in capacity and a surge capability which is frequently on board throughout the project, based on careful contracting from industry, to concurrently grow the project’s knowledge base.



Where to Next

The government has committed to embrace the lessons that the Goss Gilroy report identifies:

‘The government welcomes and agrees with the 17 lessons outlined in the report. They provide foundational guidance for current and future initiatives, particularly those that have government-wide implications ... In fact, that change is already underway. The government is committed to building capacity in key areas such as project, information and technology management; revamping its approach and policies for project management and procurement; excelling in service delivery for the benefit of Canadians; and, supporting a culture change across the public service that encourages agility, openness and effective communication.’

This is a very tall order, and the educated observer can be excused for being skeptical. Culture change “across the public service” is transformational, and all of the tenets of modern change management come into play in that one element alone, with emphasis on the leadership. But few public servants seem to have had the opportunity to gain an awareness of the globally emerging practices in mitigating the unique challenges of complex endeavours.

My own journey was somewhat privileged. It started with developing an awareness of where the rest of the world was going. Three assistant deputy ministers (materiel) in DND allowed me to travel and learn, but this has not been the norm. I was able to brief a previous Clerk of the Privy Council on the importance of approaching complexity differently and studying the program the U.K. launched to embrace enhanced project management capability at all levels of government. And I observed how often our allies employed a wide diversity of different, tailored procurement approaches to complex acquisitions that seemed to have substantially gone unnoticed within our government during my 10-year tenure in acquiring weapon system platforms.

Until recently, Treasury Board and the Canada School of Public Service had expended most of their effort on traditional and less complicated project management knowledge, arguing that few departments execute complex projects. When a decision was made to assess what the U.K. has done in this area, it is my understanding that a group of officials were dispatched but their report appears to have achieved little impetus for change. (The necessary insights to build the needed momentum would likely have required a visit at the level of Assistant Deputy Minister or above.) And since I retired, it seems that funds were denied at least once to invest in a capability to manage complex initiatives.

Perhaps it will be different this time. My skepticism causes me to recommend that the government can change its stripes only with external help in the complex and transformational project management arena. In addition to the lessons Goss Gilroy offers (golden gems, each and every one), I would offer the following guidance in execution:

- run this initiative out of the Privy Council Office under the Clerk’s direct accountability to ensure its reach is across all government departments;



- treat the development of a complex project management capability as a complex project in itself – as per the comments provided previously in this note;
- at a senior level, with officials who have been involved in executing complex projects, spend weeks at a minimum studying the U.K.’s evolution and program to address complex project management;
- provide greater access to complex project leadership education as available at the Telfer School of Management for select leadership candidates at all levels; and
- engage smart and independent agents with knowledge of the emerging approaches to executing complex projects to develop and implement training and coaching.

It would be brazen of me to suggest that what the auditor general of Canada has called the “incomprehensible failure” of Phoenix would have been avoided if addressed with the emerging practices now commonly employed when leading complex projects. But until the federal government changes its culture and embraces continuous learning as a mantra, transformational projects such as Phoenix will have greatly reduced probabilities of success.

Let me leave you with one chilling perception of mine. Risk management is a core skill of virtually everyone who is employed and perhaps one of the most critical aspects of complex projects. An internet search turns up only one association focused on risk management – the Society for Risk Assessment, which does not focus on projects but on “risks to human health and the environment ... [from] threats from physical, chemical, and biological agents and from a variety of human activities as well as natural events”) – but none specifically on project risk management. I was also able to find only two institutes focused on strategic risk policy – one in Australia and one with the European Union. One also notes precious few graduate degrees in project risk management – and such degrees typically related to environmental, financial, insurance and crisis risk treatment. In such a vacuum, it is not surprising that risk treatment in complex project delivery was not at an advanced level. As I stated in the introduction, complex projects are tough to deliver and avoid failure – there is no magic sauce yet for these.

As mentioned earlier, the Treasury Board has now been charged with leading the effort to develop complex project leaders. Given the apparent paucity of effort being applied internationally to risk treatment for complex projects, it is not surprising that so many stumble and fall. This is an area requiring more attention broadly and the Treasury Board should pay ongoing attention to this aspect of emerging practices for major projects. This will reduce the government’s foundational level of ‘baked-in’ vulnerability and create more space to address the emerging risks on the project’s journey – the “known unknowns”, the “unknown unknowns” and the “black swans” – which are inevitable when navigating complexity.

▲ About the Author

*After a 38 year career with the Royal Canadian Navy, **Ian Mack** (Rear-Admiral Retired) served for a decade (2007-2017) as the Director-General in the Department of National Defence responsible for the conception, shaping and support of the launch and subsequent implementation of the National Shipbuilding Strategy, and for guiding the DND project managers for the Arctic Offshore Patrol Ships, the Joint Support Ships and the Canadian Surface Combatants. He also had responsibility for four vehicle projects for the Canadian Army until 2015. Since leaving the government, he has offered his shipbuilding and project management perspectives internationally. Ian is a longstanding Fellow of the International Centre for Complex Project Management. He also is allied with Strategic Relationships Solutions Inc. He is married to Alex, and has three grown children. With few accommodations for impaired mobility, he remains active. Upon retirement, he founded a small business, Xi Complexity Consulting Inc. in Ottawa Canada.*

Canadian Global Affairs Institute

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