



**CANADIAN GLOBAL AFFAIRS INSTITUTE**  
**INSTITUT CANADIEN DES AFFAIRES MONDIALES**

# **Conference Report— 'Deliverology for Defence Procurement'**

by Ehren Edwards  
November, 2016

# CONFERENCE REPORT

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## **‘DELIVEROLOGY FOR DEFENCE PROCUREMENT’**

November, 2016  
by Ehren Edwards

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## Introductory Remarks

*The Honourable John McKay, Parliamentary Secretary to the Minister of National Defence*

Deliverology is results; it's evaluating the performance of initiatives against our stated defence procurement goals. We do this through applying three government-established criteria: Did we deliver the right equipment? Did we leverage purchasing power? Did we streamline so to be cost effective, transparent, and efficient? Public consultations for the Defence Policy Review (DPR) have shown Canadians desire better procurement performance. Most smaller procurement projects are completed on time and on budget, but the few large, expensive, and complex projects are challenging. This is because, by their very nature, they are risky projects done through risk averse processes by risk averse people. There are problems in Canadian defence procurement, but they are not unique to Canada, and they are being addressed through the Defence Procurement Strategy (DPS) solutions of increased staff, streamlined low-value projects, streamlined internal procedures to reduce approval times, and increased costing expertise. Industry has also expressed a desire for more dialogue with government. This is an important opportunity to ensure procurement success and is currently sought through the Defence Acquisition Guide (DAG) by means of, timely and explicit information, industry consultations prior to requests for proposals (RFPs), and increasing simplicity, transparency, and competitiveness throughout. Proper lifecycle management creates business opportunities in sustainment and supply; both of which represent billions of dollars in revenue and well-paying jobs, however, these benefits are compromised by unpredictable procurement processes.

### Q&A

Q. What's your view on proposals for reforming the decision-making structure for defence procurement Canada; particularly the argument for replacing the current shared authority model, where at the highest level it is shared between the three ministers: Nation Defence (ND), Public Services and Procurement Canada (PSPC), and Innovation, Science and Economic Development (ISED), with an individual minister of defence procurement?

A. All three ministers and departments are seized with the gospel of deliverology, which has little time for excuses and is results based. We're starting to get it right and the correct roles for the participant ministers. It is a workable solution; personalities are a big factor.

Q. So far, the focus has been on jets and ships. Once the new review is out, is that model of a couple key files going to continue or will it be piecemeal all at once?

A. DND is spending \$6 billion per year on procurement. There are problems, but they are being addressed with the aim that the DPR will help guide these big projects. DPR will need to be ever evolving because the threat environment is always moving, and we must adjust accordingly. The DPR consultation process has revealed that Canadians want back into peacekeeping; if that is one of the big takeaways, it will have a big impact on how we train, operate, and procure.



**Panel 1: Establishing a Robust Government IP Regime for Defence Procurement:  
Where are we today; where do we need to be tomorrow?**

*Lisa Campbell, Assistant Deputy Minister, Acquisitions Program, Public Services and Procurement Canada*

Intellectual property (IP) is about competition and innovation. Decision making now is more complex, more integrated, and more connected than the 20th century, involving procurement projects with shorter lifecycles. Historically, price and output factors were the focus of procurement analysis, while innovation and competition were largely neglected. Measuring these factors is difficult, but oversight and review agencies are increasing focus on the role of competition and innovation. The relationship between innovation and competition is tightly entwined, requiring government and industry to cooperate in creating the conditions for innovation. IP is a critical asset for firm profitability and growth, and is a strategic risk for competition. Therefore, the protection of IP stimulates technological development and economic growth. IP and competition laws have treated IP like other private property, seeking to incentivize innovation and ensure lawful competition. The Canadian government has published guidelines to inform industry in what circumstances it will intervene on issues of competitive conduct. Public Services and Procurement Canada (PSPC), Department of National Defence (DND), and Innovation, Science, and Economic Development Canada (ISED) are all examining the treatment of IP and innovation with the aim of clarifying which IP approach will be applied in which circumstances. As part of this effort, the Canadian Association of Defence and Security Industries (CADSI), industry partners, and various government department representatives recently formed a working group with the objective of producing guidelines by evaluating different IP models, contract structures, and durations. Procurement guidelines provided by the Treasury Board Secretariat (TBS) are relevant and applicable to this work, but their guidance is limited by defence procurement's unique requirements, environment, sustainment, and IP. These guidelines and engagement projects will assist in finding balance between access and ownership of IP, for the government purchaser, the original equipment manufacturer, and potentially the third-party in-service supporter.

*Yan Cimon, Professor, CIRRELT, Université Laval*

While incomparable to the United States, Canada and its defence industry matters in the world of defence procurement because of the size and spending involved. In the past, the Canadian government's approach to IP involved full-spectrum management of the platform, parts, and service; this is no longer the case. The growing presence of industry partners in the in-service support sector of defence procurement necessitates IP strategies for government and industry, particularly in volatile and uncertain markets. US data on patents and copyrights, where the volume of submissions has slowly declined since 2014, is indicative of changing IP strategies. In fact, many subsectors of defence are not patenting at all, and are instead using the trade secrets approach. This may be due to a patenting paradox, the process protects IP, but requires its disclosure to do so; thus, the trade secret approach is more attractive and secure. IP strategy evolution is also evident in cooperation by defence firms to generate IP, thus sharing cash flows



either through co-development or simultaneous patenting and license exploitation. A predominant trend among prime contractors' IP strategies is the desire to collaborate with competitors in non-competing markets, target sectors, or in open innovation. Government IP strategy has largely manifested in a choice between local and hybrid IP ownership models; where ownership and production are either domestic or shared with the company (i.e. Rafale vs. Saab). Example strategies include France's progression from a state-heavy local to an increasingly hybrid approach; United Kingdom's hybrid approach involving the retention of IP within its national boundaries; US' trade-secret system with control exercised by the Department of Defense and Department of Justice; Germany and Sweden's hybrid model where IP and cash-flows are shared between government and industry; and Australia's approach which relies on US patenting as a means of guiding strategic investment.

*Brian Mersereau, Chairman, Hill+Knowlton Canada*

The Canadian Patrol Frigate (CPF) project is a case study of a procurement IP strategy aimed at supporting the fleet over its lifetime, not with the aim of acquiring IP for sale to other markets. The contract negotiation for CPF followed the CF-18 acquisition, out of which came a shortfall in the necessary data and IP assets, thus the CPF needed to do something different. The CPF process benefitted from a 'clean sheet' on everything that wasn't in an act or regulation; whatever the policy was, didn't apply. Therefore, customized forms and proprietary processes were developed with the major requirements that: the project must be built in Canada; must develop a Canadian capability for large systems integration; and must include the development of two major electronic subsystems in Canada. The mandated IP strategy was that the negotiators must secure all data rights to maintain the fleet. The case study provides a cautionary note in dealing with background data in that sufficient access is necessary to support fleet; if the owner could or would not support the fleet, Canada had limited options to provide this to a third party for in-service support (ISS).

#### Q&A

Q. How does one identify the IP 'problem'?

A. Given the complexity of what goes on the platforms, government doesn't desire to own it all because it can't maintain it, therefore it's about choice and competition down the road.

A. Accessing, sharing, and managing IP is about money and cash flows. Canada's industrial base is small globally, so it's important to configure it to be in a value-added subsector by focusing on what can be used to generate cash flows and sustainability.

A. There is confusion around ownership and access, what do we need the data for and under what conditions; we don't need ownership if we have sufficient conditions for access. The essential question ought to be: in major procurement contracts, under what conditions does government acquire IP for anything other than fleet support?



Q. In securing and protecting IP, to what extent are these efforts undermined by hacking/espionage, are we enhancing protection or is it just a matter of time until IP is compromised and no longer secret?

A. It is a race against time, that requires coordination among allies, to ensure we are ahead of the game interoperability and IP wise.

A. Big Pharma isn't patenting anymore; they're publishing in journals to gain ownership and proceed knowing that a 12-18 month window will exist afterward because it takes so long for competitors to replicate.

Q. In the security regime, is there a difference between ownership and access?

A. No, all you have is rights to use it in some circumstances, but if you own it you're getting leapfrogged or you're buying IP that is near obsolescence and exposure.

Q. We are building a structure that is creating two opposing demands; on the one hand, the military needs a lifecycle program, while on the other, industry wants sustainment and industry flourishing. If we're going to create the conditions where Canadian industry can be sustainable and grow, demand must come from more than the Canadian Armed Forces (CAF).

A. Canada is a small player, so sustaining businesses by buying IP is not feasible, equilibrium requires innovation in a niche sector globally, not full-spectrum locally.

Q. Considering a traditional perspective on military procurement and its impact on IP, what is the impact of defence innovation spinoffs and the new trend of industry innovating faster than defence procurement, how do we deal with IP when this relationship is reversing?

A. IP is the lifeblood of private companies, so negotiation can only go so far, renting through partnerships can be an option.

A. Innovation is driven by sustained investment and risk taking over time, therefore, it is skeptical that the 'traditional' model is valid, perhaps only in specific sectors.

Q. Is the description of Canada as a small market accurate? Canada is 7th in NATO and 19th in the world.

A. Canadian industry covers all three services, but isn't dominant in any to sustain a market in the long term.

A. Software, subsystems, etc. are doing fine, but we're still spread thin.

A. Engagement of Canadian companies is key, including sector v full-spectrum.



Q. Procurement has become a search for the Holy Grail, what determines success depends on where you sit. What does deliverology success look like in 5 years?

A. Sustainment, much of the longer-term items won't be visible in that time-frame.

A. Decisions should be politicized, but once it's made, hold true to that and hold delivery to account.

A. Coordinate as a federation to ensure public spending, exports, and trade policy are done right. There's a lot of procurement that goes well by incentivizing industry to put the best foot forward for Canadian economic development, the NSPS is an example of this.

Q. The majority of companies are SMEs in defence procurement and innovation has been key to their survival in niche areas, thus IP is critical for them. How do we foster innovation and competition against US and European firms? It's difficult for SMEs to compete and innovate when regulations and processes favour larger firms.

A. SMEs in Canada perform 40% of procurement, but is it sector specific or broad? Modernization means streamlining and removing risk aversion on simple projects, making it faster to buy less complex projects. Complex projects represent 10% of contracts and 80% of money. To focus on SMEs requires foresight and discussions with allies on how our export strategy will support SMEs.

A. Risk sharing mechanisms should be developed for SMEs to pool risk when innovating, allowing them to leverage universities and NRC for specific questions/areas.

Q. There's a risk that if too much ownership is sought, government may spend and acquire much more than is needed, particularly when access alone is sufficient. Recently, issues have arisen where IP thrust has gone far beyond the need to access, why is this?

A. The government is seeking to own only what's needed, through access and licensing, which permits choice and competition down the road.

A. Risk-sharing mechanisms are critical to this, in defence sector; government can assume much of the risk and build these conditions into the contract.

A. Taxpayers are willing to spend \$35-100 billion on shipbuilding in the next 30-50 years, taxpayers deserve more than the ability to maintain their ships for this amount.



## Keynote Address

*Leona Alleslev, Parliamentary Secretary to Minister of Public Services and Procurement*

Defence procurement requires partnership across government departments, which is why it is in each of the three ministers' letters. Defence procurement is conducted with three objectives:

- Ensure the Forces get what they need in a timely manner;
- Provide the best value for Canadians through open, transparent, and competitive processes;
- Secure economic benefits and development for Canadians.

Achieving these objectives requires early engagement and relationship-building among public and private stakeholders through efforts such as information requests, engagement days, lifecycle management discussions, etc. The new 2-step process for bid evaluation has improved competitiveness, engagement, and innovation by providing bidders with preliminary evaluation. This system allows bidders to improve and update submissions with additional information on price, technology, and socio-economic merit; ultimately fostering dialogue, transparency, and competition in less time.

The National Shipbuilding Strategy (NSS) is a long-term commitment to ensure consistent work and a sustainable business environment, through the retention of human and physical capital necessary for the shipbuilding industry. In May 2016, changes to the NSS improved performance, progress, and outcome tracking. The Cabinet Committee on Defence Procurement has helped align departmental activity with government policy, while increased resources and maritime sector personnel is helping to ensure timely delivery. Further standardization of the budget, its processes, and inputs, is also under review to ensure streamlining, effectiveness, and efficiency. The continued involvement of small and medium enterprises (SMEs) in the project aims to empower women and indigenous peoples, create sustainable jobs, and assist SMEs entering the global supply chain. Through these and other changes to the NSS, the Next Generation Warships project will undergo a single competitive process to select an existing design, allowing for a delivery time of up to 2 years earlier.

### Q&A

Q. To what extent are we confident that after the next 30 years, Seaspan will have the capacity to become competitive and relevant for the global marine industry?

A. Government is working to support them in the long-term.

Q. The government recently involved a shipbuilding expert in the review process, is he still involved and what's the value he's contributed?



A. Yes, he has been retained in an advisory capacity. He's been valuable but I can't provide specific examples.

Q. Is there a sense, one year after the election, of how much affect the new government has had?

A. Measurement and tracking is the key focus, but changing processes and performance metrics take time to implement and realize.

Q. What are we doing to make the financial administration act more flexible and enabling?

A. Government is looking for a balance between compliance regulation and enabling industry.

Q. How do we view promoting innovation, while maintaining long-term ISS partnership between industry and government?

A. Ensuring ISS is fiscally responsible and timely is dependent on innovation by industry; this means incentives for innovation on ISS.

### **Panel 2: Procuring for Long Term Affordability: Do we have the right data and policies on 'lifecycle' for long-term capital projects?**

*Bill Matthews, Comptroller General of Canada, Treasury Board of Canada Secretariat*

Lifecycle costing is essential to supporting the estimation of incremental resources (new money) needed for the initial budget as approved and allocated by the Treasury Board Secretariat (TBS). The TBS considers departmental capacity and risk management when approving projects, for example, if a contract's value exceeds the Minister's fiscal authority. Complex projects frequently go over budget because of changes to estimates and requirements; therefore, using ranges and probabilities is more desirable than specific figures. Transparency and public announcements can complicate this approach, overcoming these challenges requires knowledge of the key assumptions and key factors (i.e. labour and steel costs). Further to this, establishing common rules and standards for the approval process is hugely important, and encompasses much of the work of the Parliamentary Budget Office (PBO) in creating an effective and efficient environment.

*Doug Dempster, Executive in Residence, Centre for Executive Leadership, Telfer School of Management, University of Ottawa*

Data-driven, performance-based logistics (PBL) has been proven to work. It was first implemented by the US in 2001 and found by a 2010 evaluation to have increased readiness and lowered costs. Longer-term contracts work when cost and incentive structures are well-written and designed for PBL project management. In Canada, antiquated conditions, processes, and regulations initially developed for a different economy and strategic environment now limit the



competitiveness of Canadian firms abroad (i.e. Standard Acquisition Clauses and Conditions 1031-2). Capital lifecycle management and costing involves three critical dimensions for success: the age of systems, commonality with other nations, and the tandem relationship between digital and mechanical equipment. The age of systems is important because the cost of maintenance and activity increases with age. Given its history of carrying old systems, Canada should aim to have more systems in mid-life rather than running them long. Commonality and interoperability with other nations can make ISS more affordable in the long-term, as shown in examples like the CC-17 and CC-130J. The current pace of digital technological innovation, compared to that of mechanical technology creates challenges for ISS and operational requirements.

*Al Conrad, Vice President, Business Development, IMP Aerospace & Defence, IMP Group International Inc.*

Experience from the CF-18 Hornet, CH-124 Sea King, and CP-140 Aurora projects provide useful lessons for affordability, IP, and defence procurement reforms. The CF-18 demonstrates the importance of independently training and deploying an operational capability in accordance with government policy/regulations. The performance of the CF-18 also shows how the successful management of fleet and subsystem lifecycles, autonomous in-country support, infrastructure, and IP strategies can truly benefit government and industry. Procurements should always consider Canada's individual and sovereign requirements, by pursuing a platform capable of operating in our unique fatigue environments. The CH-124 shows how, in a matter of days prior to Operation Desert Storm, industry and government can cooperate quickly and effectively to implement urgent modifications to an existing platform. The local capacity and IP strategy combined with a strong network of stakeholders meant a quick and effective fix adding flares, electronic warfare, and machinegun systems in just 210 hours. Lastly, the CP-140 is an informative case of incremental modernization. Through refitting and development, the Aurora is now a state of the art capability in terms of system integration, achieved without the demands of procuring a new platform. In sum, what does innovation in ISS look like? It involves life extensions that provide business case opportunities for the user allowing timely and cost-effective updates to mission critical systems. ISS innovation can also take the form of employing existing platforms in new and innovative ways, possibly involving the addition of new subsystems and capabilities.

## Q&A

Q. With regards to the cost of maintenance for aging systems argument; old stuff is expensive but new stuff is more expensive. How do you balance not being in the global supply chain, and the economic benefits to Canada?

A. There is a need to establish an approach through an industrial strategy, though the number of platforms and systems made and used in Canada is limited. The market is highly consolidated so we must be conscious of working within the system.



A. Updates are critical to keeping long-term costs down and to maintaining operational relevance, i.e. Aurora wings and avionics.

Q. Various key capabilities have been available from industry for some time, why is there an open and competitive process at all costs when available products are proven and credible?

A. It's still necessary to have a policy and mechanism for selecting best options.

A. Budget cuts and the human capital costs in the 90s meant that their ability to analyze and decide were similarly cut (i.e. Industry Canada).

Q. Could PSPC or ISED bear more of the costing accountability burden from DND?

A. Currently, the sponsoring minister must sign off but a few big projects require one minister only.

A. The challenge function of TBS exists and is working but, but the role of third parties is on the agenda to be reviewed.

A. Costing was at the heart of the bottleneck in the past few years, as few ministers wanted to sign off when costing credibility was so low. Costing is only truly known when you have the bid from the provider.

Q. The DPR will lay out Canada's combat requirements for the next 30 years; this will yield serious questions about affordability. When the DPR lands, some cost estimates need to be provided by government to get a range of the various capabilities required.

A. The response could be by envelope (this much), or by capability (this requirement).

A. Modelling by the Chief of Force Development has looked at contingencies and scenarios, ultimately, building option packages and giving projections on capability requirements.

Q. Is there a NATO state that does costing well? What do they do that Canada doesn't or could?

A. No, but differences arise around assumptions/variables; others may be more open about these things than Canada.

A. Costing isn't about getting a 'right' number; it's about getting the right considerations and assumptions in place. Americans do this well but not without decades of refinement.

Q. The UK has a more open business case and solution process in the capital-heavy sectors; it's generally prepared by technical experts outside government. Will more of this external expert involvement improve Canada's deliverology?



A. This model is prevalent among infrastructure projects in Canada, but the predictability is still limited when looking 30-40 years out. Simply put, small parameter differences at the outset mean big costing changes later.

### **Panel 3: Deliverology for Defence Procurement**

*Francis Bilodeau, Assistant Secretary to the Cabinet, Results and Delivery, Privy Council Office*

The 'deliverology' concept was coined in the early 2000s in the UK by the Blair government. At the time, the aim was to improve the implementation of various public policies (education, health care, policing, etc.) by applying rigour and scientific method. The Trudeau government's use of deliverology methods is the first time the concept has been applied to a federal context, this means adapting its tenets to our approach and our desired achievements. In doing so, government wants to decide and operate based on results, not by envelope or program. This focus will improve the accountability of ministers and their deputies, holding them to the results they deliver and requiring them to focus more on the 'how' than the 'what'. In support of this process, the Privy Council Office has sought to develop a results-based ecosystem, fostering data and evidence to express results in the form of quantifiable outcomes. This involves hardwiring results into the common tools and processes, as found in the prominence of delivery indicators in Memoranda to Cabinet and TBS submissions. These changes signal the deliverology intent, but also that the real work is happening at the departmental level through new reporting requirements like the Departmental Results Framework (DRF).

*David Perry, Senior Analyst, Canadian Global Affairs Institute*

By examining DND's publicly available Reports on Plans and Priorities (RPPs), it's possible to analyze the Department's activity in adhering to its stated schedules and timelines. Through an analysis of procurement project performance per their various milestones, we can determine how well DND is sticking to these commitments. Key findings thus far have shown that every project has missed at least one milestone, but also that demonstrable performance improvement has been achieved in the past year. My analysis considered the 'realism' of various projects, thus the focus is on those projects that are actively funded, rather than the 'hopeless dreams' on the CAF wish-list. Quantitative analysis shows that of 72 projects, less than 50% are slower than their established timeline, while 28% are on schedule. Overall, the Royal Canadian Navy (RCN) has performed particularly well in accelerating and meeting milestones. This type of tracking can be quantified and used for critiquing the department's focus; ultimately, reinforcing its successes and failures, flagging those projects that are exceeding expectations.

*Robert Ferguson, Director Approval Process, Department of National Defence*

Catalysts for change are critical, and deliverology is no different. The credibility of DND in Ottawa circa 2012-14 and the consequent negative feedback was a catalyst for change to the



defence procurement process. One outcome has been the Capital Investment Plan Review (CIPR), which provides focus during the options analysis phase by improving the selection outcome and its resourcing afterward. Further improvements have come from reforms to DND's governance, accountability, and delegation of authority, as well as an independent review panel for defence acquisition which provides advice early in the procurement process. Further to this, the new Departmental Reporting Framework (DRF) will improve reporting and communication, and will also provide a better tool to manage levers in procurement process. Because of the catalyst for change, the centre of gravity for defence procurement moving forward is the credibility of DND.

*Patrick Finn, Assistant Deputy Minister (Materiel), Department of National Defence*

By looking at scope, budget, relevance, timeliness, value for money, supportability, availability, as well as schedule, deliverology can be evaluated using a more complete perspective than by focusing on schedule alone. Doing so provides a more optimistic analysis in terms of scope and approved budget, where 95% of projects are on target; however, 70% of projects are experiencing some amount of schedule slippage. Setting the schedule aim and sticking to it is often an issue of risk adversity. Often a failure to meet scheduling requirements is caused by unrealistic milestones at the outset, the consequences of which are knock-on effects to cost and operation. On the issue of project realism, it's true that some items in the Defence Acquisition Guide are aspirational for the three branches and not necessarily the intent of the government. So, the question is: with what projects and capabilities do we want to proceed? Second to this, are the fundamental questions of how do we proceed in terms of approval, risk management and schedule adherence? Many of these issues can be resolved through collective agreement among government and industry stakeholders about meeting dates, criteria, and conditions. In sum, schedule is the key and its adherence requires fulfilling the collective shareholder responsibilities by industry, government, and military partners.

#### Q&A

Q. Industry focuses on the production line; they know whether the individuals along the line are contributing value or not to the outcome. Is PCO going to measure the lost buying power due to delays, red tape, and approvals?

A. TBS is doing this (somewhat) already, but a lot of this relates to trust and capacity to trust. Do ministers have the scope to act and the right information? Being clear about expectations and definition of success up front is as important.

A. Doing a better job of setting and measuring schedule and schedule contingency with the aim of measuring such that we can be prepared to accept or address the impact and delay that occurs.



A. Yes, Project Approval Process does just this; we want to streamline but not measure to a fault and impede the process.

A. This would be useful to analyze; staffing, HR, and opportunity cost of resource allocation (i.e. billions of dollars for a project, but few people tasked to it).

Q. What is being done to manage or address re-profiling of funds across fiscal years?

A. The forecasting and approval process has incentivized over-estimates such that money is added unnecessarily; therefore, more comprehensive forecasting is needed and can be seen in different ways in the TAP-V and Cyclone projects.

A. Innovative processes are being developed but they require changes and buy-in from TBS and others to operate.

Q. What is the number 1 thing you need from other sectors in the room?

A. Reporting and dialogue about what's working and what's not is essential (balanced communication), to ensure that we focus on and understand what we're achieving and not.

A. Passion, persistence, patience.

Q. The law of unintended consequences, focusing too much on schedule (industry building flexibility for these contingencies into their process), makes a rush to decide and to meet the schedule. How do you balance schedule with the other elements, to avoid the unintended consequences?

A. Deliverology embraces the movable target and schedule is only a part of that, reasonable measures of success are the real focus.

A. Schedule is where we're furthest behind, hence the fixation on it at ADM (Mat). When we examine the schedule of a 4-year mandate, the opportunities and hoops are many; thus, driving schedule means we have more time for the remaining pieces.

Q. Are risk and confidence levels on estimates and ranges a way forward to address the costing issues?

A. We must ensure we articulate things in a range for schedule and costing estimates, anything else is ridiculous.

A. The negative impact of surprise cannot be understated; the efficient flow of information should allow for better managed dialogue between ministers and Canadians.



A. The Parliamentary Budget Officer (PBO) operates within ranges, and it does so through transparency.

Q. Given the importance of schedule, are we applying the same techniques and discipline to schedule as we are to costing?

A. We are not, it's in the works at ADM Mat, but schedule is also tied to external factors like elections and the government's calendar.

Q. From the politicians' perspective, procurement always under-estimates to get approval, then increases cost estimates once they're locked in.

A. We're not 'locked in' until an implementation contract is signed, even though projects may be more mature.

A. We're not going to pursue something without a cost and schedule, so when does procurement actually begin? These two things must first be informed by options analysis etc.

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