Programme Management in Defence Capital Acquisition

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Capital Acquisition Scenario in India

The Indian acquisition canvas in these times is exemplified more by its failings than its accomplishments. Two accidents, one of them fatal, involving utility helicopters in February 2015, have yet again brought to the fore the grim reality of the material readiness in the Indian armed forces, the reluctant clients to a sub-optimal acquisition apparatus. Defence capital acquisition the world over, by its very nature, is a highly rigorous, time consuming and resource intensive domain. In India, acquisition involves multifarious directorates in the Service Headquarters, the Acquisition Wing in the Ministry of Defence (MoD) and the Department of Defence Production (DDP) embodying India's burgeoning Military Industrial Complex (MIC). Regrettably, India's armed forces, despite being the biggest arms importer in the world, endure hollowness of critical military equipment. Multiple high level committees since independence have recommended a slew of acquisition reforms, with little realisation on the ground.[1] India's defence modernisation has often been described as a parochial Army effort without the benefit of strong political direction.[2]

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Army, among others include wheeled artillery guns, utility helicopters, battle tanks, missiles, bullet-proof jackets, night vision devices and even items of clothing and basic equipment. The Army's entire ammunition holdings presently are woefully inadequate to sustain prolonged operations.[3] The fact that the Army's war wastage reserves are being diverted to equip new formations has not infused any sense of urgency in defence procurement.[4] The Indian Air Force (IAF), on its part, is battling a rapidly depleting strength of fighter aircraft and with the Rafale deal now showing signs of falling through,[5] the Air Force has been pushed years behind in acquisition of fighter aircraft.[6] The Navy's critical capital projects are also way behind schedule, leading to a loss of more than Rs 29,000 crore to the exchequer in time and cost overruns.[7]

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A number of welcome initiatives in the policy domain ushered in by the new government at the Centre have helped create a positive environment in the acquisition eco system.[8] The Raksha Mantri (RM) has recently announced a new version of the Defence Procurement Procedure (DPP) to be in place by March 2015 which expects to address a number of contentious procedural issues. However, like the previous versions, process refinements alone are not enough to facilitate acquisition unless the underlying structures are addressed. Certain structural changes, to facilitate acquisition best practices in the system, are urgently required in order to accrue the desired benefits from the policy initiatives. The Defence Acquisition Council (DAC) has approved projects exceeding an

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unprecedented Rs one lakh crore since June 2014, of which, going by past trends, every single capability will take six to eight years to acquire and deploy.[9] In contrast are the advanced Armies e.g. the Australian Defence Forces (ADF) with 7,000 personnel under the Defence Material Organisation (DMO) which on an average manages approximately 300 acquisition projects worth US$ 20 million each covering over 100 ADF fleets, platforms and weapon systems with *minimal time and cost overruns.*

Acquisition Budget

Three issues stand out in an analysis of the budgetary aspect of capital acquisitions. Firstly, the allocation for capital acquisition is substantial. In the 11th Army Plan, a total of 180 contracts with a cumulative value of approximately Rs. 63,000 crore were concluded;[10] and in the 12th Plan, 57 contracts, with a cumulative value of Rs. 26,000 crore had been concluded till Quarter 4 (Q4) of 2014 only for capital acquisitions of the Army which would exceed the budgetary outlay for certain smaller ministries in the Government of India. Secondly, the allocation has been steadily declining as there has been a huge gap between the amount projected by the Army and that allocated for capital acquisitions. The allocations in real terms have not increased since 2010-11 and actually recorded a reduction in 2012-13.[11] There is also an issue of approximately Rs. 5,000 to 7,000 crore being transferred to sustain a straining revenue budget every year with Rs. 13,000 crore having being pegged for transfer in the current fiscal.[12] Thirdly, the Army has not been able to utilise its allocation in the last five years, with surrenders due to slippages or other procedural issues to the tune of approximately Rs. 2,460 crore in 2008-

09, Rs. 1,500 crore in 2009-10, Rs. 667 crore in 2010-11, Rs. 3,380 crore in 2011-12, Rs. 2,850 crore in 2012-13 and Rs. 2,900 crore in 2013-14.

Capital Acquisitions and Programme Management

The Bernard Gray reforms to the acquisition system of the United Kingdom (UK) implemented in 2009, covered in great detail the entire spectrum from capability building to acquisition of equipment. The Bernard Gray report specifically recommends that the delivery arm of the UK MoD i.e. the Defence Equipment and Support (DE&S), among others, needs greater levels of skills in programme and project management. The report brings out that the DE&S management structure lacks focus on the core area of project management for equipment procurement and support and that the organisation is not structured in the most suitable way to deliver a programme of 1.2 billion pounds per annum on equipment procurement and support. The report says that the head of the project organisation for acquisition should have extensive experience in running project-based organisations of similar size and complexity. Enforcing such a requirement renders it unlikely that such an individual could be recruited from within the armed forces.[13] A similar review for the ADF was carried out in 2008 which specifically pointed at inadequate project management resources in the Capability Development Group (CDG) as one of its major concerns.[14] Project management the world over has been established and accepted as the only credible way for efficient capital acquisition which, unfortunately, finds no presence in the Indian system. Little wonder then, that the Indian system has failed to meet the aspirations of the users. In fact, all stages of the existing DPP are most amenable and can easily be aligned to a typical project as is also being followed in advanced Armies. The establishment of a defence capability can be divided into four phases *viz.* the *concept* phase, *planning* phase, *execution* phase and *transfer* phase which correspond to various phases of a typical project.

Concept Phase

Technical and sustenance functions play a key role in the concept phase. Key DPP milestones achieved in this phase are finalisation of the Services Qualitative Requirements (SQRs), accordance of the Acceptance of Necessity (AoN), and floating of the Request for Information (RFI) and the Request for Proposal (RFP). These specialist functions are typically performed by the Service Headquarters (HQ) spearheaded by the Deputy Chiefs through teams of Service officers interfaced with the MoD through the Defence Acquisition Wing (DAW). To a limited extent, the production function is in the form of Public Sector Units (PSUs) and Ordnance Factory Board (OFB), Defence Research and Development Organisation (DRDO), and Defence Offsets Management Wing (DOMW) which participate in the creation of a Technical Project Report (TPR) under the chairmanship of the Defence Acquisition Wing. This project report, however, is usually aimed at coordinating the finer details of technical specifications in order to ensure execution by the production function and alignment of offset proposals to the technology roadmap, if any. The following emerge from an assessment of the concept phase provisions of the DPP. Firstly, the approvals for various specialist decisions are at the apex level i.e. the DAC and Cabinet Committee on Security (CCS) with no traditional programme managerial functions other than the limited coordination currently performed by the Headquarters Integrated Defence Staff (IDS). Secondly, there is limited or no contribution of the Director General of Quality Assurance (DGQA), technology management and production management specialists at this stage of a proposal. The concept phase is extremely amenable to programme management whose application at this stage will have a beneficial effect on the timely completion of the project.

Planning and Design Phase

This stage leads to the contract award. The key project milestones

achieved during this phase are technical evaluation, field evaluation and staff evaluation of the various proposals received from the vendor at the end of the previous stage i.e. the initiation/conception stage. Depending on the size of the project, various guidelines of categorisation of the project, evaluations and commercial negotiations are provided by the DPP. The various specialist functions under the DAW are through the Acquisition Manager for the contracts function, Technical Manager for the operational function and Finance Manager for the commercial function, who are closely assisted by the concerned specialists in the Service Headquarters' joint cross-functional committees such as the Services Capital Acquisition Plan Categorisation Committee (SCAPCC), and the Services Capital Acquisition Plan Categorisation Higher Committee (SCAPCHC) and are catered for in the DPP for categorisation and acquisition process definition for equipment. In-service structures, typically under the Deputy Chiefs, finalise technical evaluation and field trials. The following emerge from the an assessment of the planning and design phase provisions of the DPP. Firstly, as in the previous phase, the approvals for various specialist decisions are at the apex level i.e. the DAC, CCS, with no traditional programme management functions other than the limited coordination currently performed by the IDS. Secondly, there is limited or no contribution of quality assurance specialists at this stage of a proposal. Thirdly, the maintenance management function is conspicuous by its absence at this stage. This function is crucial to ensuring in-service sustainability planning for the inducted capability. This centralised function would typically manage the establishment of maintenance capability with both Service and industry based options for the echelons of maintenance above the operational level. This function will also need to consolidate the stocking policy and infrastructure, the lack of which causes hollowness in the first place.

Execution Phase

This is practically the on-contract phase which commences with the award of a contract and finishes with the receipt of all contractual deliverables. While shown as a discrete phase, this phase usually telescopes into the closure phase as deliverables to the recipient Service may be spaced in time and closure may be simultaneously happening in respect of certain deliverables while others may still be under production/delivery according to a mutually agreed programme. Any design and development of systems/production tools, their productionisation, production and delivery takes place during this phase. If produced indigenously, the PSUs/OFB play a major role and quality assurance is monitored by DGQA and its equivalent for airborne and maritime systems. In pursuant of an offset agreement, the DOMW would facilitate delivery of any production technology to indigenous industry while the DRDO would manage technology induction into its fold if provided for in that manner in the offset agreement. The following emerge from an assessment of the execution phase provisions of the DPP. Firstly, the DPP as in the previous phases, does not recognise the need for a suitably empowered formal programme management structure to ensure that the deliverables reach the recipient organisations involved, in accordance with the contract. Secondly, the arrangement assumes that the contractual obligations would be completely satisfied by both internal and external contractors, and protective clauses in the standard contractual document would be adequate to ensure timely deployment of capability.

Closure Phase

The closure phase is an important phase in which both contractual and non-contractual actions necessary to ensure the operational and maintenance capability establishment for sustenance of the weapon system are carried out. A project team typically spearheads this with each specialist function confirming that the contractor has achieved contractual deliverables and

contractual payments have been completed. The DPP currently does not explicitly address this aspect.

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Refinement in Structure

The apex of the current procurement structure implied by the DPP is the DAC headed by the Raksha Mantri (RM) and in which the Rajya Raksha Mantri (RRM), Service Chiefs, all the Secretaries of the MoD and the Deputy Chief of Integrated Defence Staff (DCIDS) are members. The body, akin to a company board of directors, holds significant strategic and financial authority vested in it. The three main functional verticals involved in establishment of capability for the armed forces are the Defence Production Board controlling all DPSUs and the OFB, the Research & Development (R&D) Board controlling DRDO, and the Defence Procurement Board which encapsulates all specialist functions of the three Services and IDS required for carrying out procurements. The Defence Production Board owns the production function for indigenous and licence builds, the R&D Board owns the National Defence Technology roadmap and the procurement specialist functions viz contracts, commercial and technical or operational, are owned by the Defence Procurement Board. This structure is a functional organisational structure with limited formal cross-functional interactions except when specifically called for by the DPP in the case of categorisation of proposals viz. SCAPCHC and the SCAPCC. All project decisions are centralised at the organisational apex and the bandwidth available at that level would, therefore, be limited. A failure by one of the sister boards, i.e. Production Board or the R&D Board to deliver a capability on time is only resolved at the organisational apex with no cross-communication or collaborative problem solving at the functional level. The key point to note is that the organisational apex is

ultimately responsible for any failure in schedule or cost of establishment of a capability. The above analysis shows that there is a pressing need to formalise organisational structures that would own programme, portfolio and project management functions. Reorganisation of specialist functions within each functional vertical for each of the specialities i.e land, sea and air systems would greatly help in developing groups of excellence for joint capability development structures as well as providing effective functional support to a projectised organisation through a project management vertical. The project management vertical is not an entirely new concept in the DPP which mandates Integrated Project Management Teams (IPMT) in the ship-building guidelines and 'Make' procedure of the DPP. IPMTs are cross-functional teams that are formed for management of individual or small groups of homogenous projects. These teams typically function under the direct control of the programme management groups of each Service and are required to create project plans authorising detailed milestones to be met in a given timeframe.

Capability Development Through an Ideal Planning Process

Higher Defence Planning

The mandated process for higher defence planning for the armed forces is a complex iterative process involving a large number of agencies. The National Security Strategy (NSS) articulated by the CCS is the starting point for the process of the formulation of the Long-Term Integrated Perspective Plan (LTIPP). The NSS, however, is too broad based to identify or enable any real capability development. Hence, the vital document which would provide the basic guidelines for formulation of the LTIPP is the Strategic Defence Planning Guidance (SDPG) which articulates the contingencies that the armed forces may be called upon to respond in 15-year time horizon. The contingencies would be prioritised and funds availability duly earmarked for the same time span. The SDPG

would be the key input for formulating the Defence Capability Strategy prepared by Headquarters IDS which would enumerate each type of capability required for each type of contingency laid down in the SDPG. Thereafter, it would establish the gap in these capabilities and prioritise bridging of such gaps. The next stage would be the Defence Capability Plan (DCP) prepared by the IDS which is the government plan for investment in equipment for development of future capabilities in the Indian armed forces. This plan too would have a horizon of 15 years and would list the capabilities required with the associated timeframe, along with options for achieving the capabilities envisaged, with a broad nature of each project and the impact of each project on the budget. This, along with the funds, as indicated in the SDPG, would facilitate the formulation of a meaningful and achievable LTIPP. The DCP would be reviewed annually to cater to the changing strategic environment, improvement in technology, and adjustments, if any, in priorities. The LTIPP would flow out of the DCP and would essentially list out programmes and projects required to be taken up to achieve the capabilities listed therein. The three Services would prepare their respective Long-Term Perspective Plans (LTPPs) which would be compiled by IDS under the Chief of Defence Staff after the force levels, force structures and force accretions have been studied and inter-Services priorities have been accorded. The LTIPP would be approved by the Defence Planning Council headed by the RM and finally by the CCS with specific reference to force structures and equipment profile of the three Services. Acquisition will be affected based on the Services Capital Acquisition Plans (SCAPs) and Annual Acquisition Plans (AAPs) which will flow out of the LTIPP. All this is a very complex process and involves identifying the capability needs of the armed forces, establishing *inter se* priorities, examining options for meeting these capabilities, managing projects and programmes that flow out of the plan and providing life-time support, and the LTIPP contains a number of components e.g. *research and development and infrastructure*

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development plan and *equipment procurement* plan. Owing to the constraints of a developing economy and given the Indian strategic culture, the Indian armed forces at present are not carrying out the mandated higher defence planning based on the capability based model described above and LTIPP formulation does not follow the mandated top-down process. The maintenance of '*forces in being*' or accretions is worked out on a stand-alone basis albeit through a consultative sequence at the Service Headquarters and forms part of the Five-Year Defence Plans. An assessment at a tri-Service level is not carried out to ascertain whether *Capability A* is more desirable than *Capability B*.[15] Such analysis was, at one time, a mandate of the erstwhile Defence Planning Staff before its merger with the IDS in the early 2000s.

Programme Management in Indian Defence Acquisition

In accordance with the provisions of DPP 2013, the acquisition of weapon systems and equipment for the armed forces flows from the LTIPP over 15 years duration. The LTIPP is translated into specific assets to be acquired, in the form of the SCAP, covering a five-year period. A list of equipment and weapon systems required to be procured immediately is given in the form of the AAP. The AAP covers a period of two years and rolls over to the next financial year derived from the SCAP. The AAP is prepared and prioritised in consonance with the budget allocation for capital acquisitions. Presently, the AAP 2014-16 is in vogue and consists of schemes from the approved Army SCAP 2012-17. At present, no project management is carried out in the acquisition in the Services except in the case of a 'Make' procedure where a loosely constituted IPMT has been prescribed in the DPP. However,

till date, not a single substantial 'Make' case has fructified since its inception. DPP 2013 is also silent on risk management in all categories of acquisition except for a fleeting mention in the case of the '*Make Procedure'*. In capital acquisitions, there is a variety of external and internal risk factors that need to be assessed. A precondition to overall risk management is risk assessment. Risk assessment involves analysing the probability, the impact, and the effect of every known risk on the achievement of established objectives, as well as the corrective action to be taken should that risk occur. The risk assessment is, therefore, a prerequisite for determining how the risks should be managed and mitigated. Mitigation seeks to put measures in place to lessen the severity of a risk event, should that event occur. To realise the maximum benefit of risk management, the management and communication of risks need to be an integral part of existing procurement and organisational functions.

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Programme Management in Corporate Sector

The corporate sector in India is driving highly complex projects worth millions of dollars annually using state-of-the-art technology and project management best practices. A typical multinational vertical with a single domain specialisation would be handling approximately 200 projects annually with an outlay of US $ 15 billion which roughly equals the Rafale deal. Any new project undertaken by a corporate entity in India today is first examined by an apex committee akin to a Project Initiation Forum (PIF). The PIF consists of Subject Matter Experts (SMEs) from different verticals such as telecom, banking, finance,

and media. The PIF accords the *first pass* to a project post initial risk analysis. Thereafter, the project is allotted to a Programme Manager rather than the domain specialist, hence, making the Programme Manager responsible for execution of a particular project from the very beginning. The Programme Manager, in turn, has a number of Project Managers under him and assigns this particular project to one of them. The Project Manager so detailed interacts with the all the verticals required in the project called the Delivery Project Executives (DPEs) and asks them to assign resources, namely, line function executives to fulfill the project requirements. Line function executives are assigned by DPEs who also work out detailed time and cost estimates, detailed risk analysis and detailed requirements of resources. The *second pass* approval is accorded somewhere at this stage. These line function executives will report to the Programme Manager in addition to their vertical head, thus, ensuring that a *projectised organisation* is in place. In case there is a risk of time and cost overruns, the Project Manager will know exactly what the problem is, and will resolve it. If the resolution is beyond the Project Manager, the Programme Manager will be informed who will interact with the senior delivery manager of the concerned vertical for resolution and the escalation loop continues till the risk is mitigated. Mid-course corrections are carried out by the project team as the project progresses and milestones are charted through a in-house software. These project management models are commonly practised in India and seldom suffer time and cost overruns and comprise the only way to enhance the effectiveness of the defence capital acquisitions.

Capability Programme Management in the Australian Defence Forces (ADF)

The capability development programme of the ADF is an apt case study identical to Indian conditions as the ADF also sources a sizeable content of its high-tech weapon systems ex import. Australia has one of

the most evolved capability and acquisition management organisations in the form of the CDG and the DMO. Capability planning in the ADF has a life cycle that begins with the shortfall between what the government wants the ADF to achieve and the capacity of the ADF. This is then progressively translated into a new capability system or an upgrade of the existing system. The ADF, on an annual basis, presents a submission developed by the CDG to the government laying down the capability gap. The most concrete expression of the government priorities for development of the ADF is the DCP, which unlike the Indian LTIPP is a duly costed ten-year roll-on plan of the yet unapproved capital acquisition projects. Before a project is included in the DCP, it is clearly defined as to what the project will deliver at what cost, and in what schedule as also the initial risk inherent with the project. CDG is responsible for informing the government of the capability, cost and schedule and the risk inherent in each project so that the government can take an informed decision. Prior to seeking entry into the DCP, formal agreement is documented on the cost schedule and capability requirements of the project as well as the *acquisition strategy*. This agreement is signed by the chief of the CDG and the Capability Manager who is usually a Service Chief and Chief Executive Officer (CEO) of the Directorate of Military Operations (DMO). The ADF devotes 10 to 15 percent of its project funds for complex projects before the first pass for detailed analysis and project definition. Risk analysis in the beginning would benefit from the initial investment in terms of technical risks, integration and commercial risks. Thereafter, the capability is transformed into costed and defined requirements. The approval for acquisition of a capability is accorded by the government through a tailored *two pass* process which accords a greater rigour to high cost and technologically complex projects while simple projects are cleared in a smaller timeframe. In the first pass, funding for approved options is fully analysed through detailed

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studies, analyses and industry studies and, at this stage, no commitment is given by the government to acquire the capability. Care is taken that most of the capital acquisitions are carried out off the shelf as, in their experience, setting requirements beyond "off the shelf" generates disproportionately large increases to the cost and schedule, and risk to projects. To facilitate accountability between stakeholders at this stage, namely, the CDG and DMO, IPMTs are formed and a draft Material Acquisition Agreement (MAA) is developed which reflects the expected capability required by the Capability Managers and the business acquisition strategy developed by the DMO. The MAA ensures that all stakeholders understand their respective responsibilities throughout the acquisition. This results in the DMO achieving most of its project before time. An unclassified version of the DCP is published every two years to inform the industry of the specific nature and size of each project. The DCP provides the description and background, likely acquisition strategy, through life support considerations, planned year of government decision and entry into service, anticipated cost range and opportunities for industry.

Project Management in Acquisitions: Future Imperatives

Acquisition and support for the Indian armed forces will subsume more than US$ 100 billion in the coming decade, thus, its competent expenditure is cardinal. The prevailing acquisition environment, encumbered by a bottom-up aggregation process, precludes effective control of expenditure through top-down strategic guidance. The size and budgetary demands of acquisition plans and the low availability of resources dictate prioritisation of projects which eventually leads to

time and cost overruns in their eventual fructification. A need for clarity of roles and accountability is, thus, of immense value in managing defence acquisition programmes. The policy dimension of defence acquisitions is being addressed adequately with yet another version of the DPP on the horizon. The private sector too is upbeat with the recent pronouncements on the policy front which has spurred greater representation of players, major and minor, into the defence manufacturing sector. This would no doubt go a long way in reducing India's import dependence for its defence requirements in the long term. What remains unaddressed is the structure that underpins this policy. The Service Headquarters and the various wings of the MoD involved with acquisition need to operate in unison to realise the common objective of excogitating capabilities for the Indian armed forces in an acceptable cost and time frame. This can only be achieved by inducting Capability Managers at the planning stage and heralding a project management vertical in the existent acquisition structure. The project managers will have to possess state-of-the art programme management operating and monitoring skills and the requisite authority to report to the organisational apex in the MoD. Such Programme Managers will need to be inducted from the corporate sector or academia where these roles are being routinely performed. In the absence of a programme management initiative, as described above, any prospect of reforming defence capital acquisition in India will remain a mirage.

The Service Headquarters and the various wings of the MoD involved with acquisition need to operate in unison to realise the common objective of excogitating capabilities for the Indian armed forces in an acceptable cost and time frame.

Notes

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