‘Fixed price’ versus ‘cost plus’ Defence contracting

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WHETHER major defence contracts should be awarded as ‘fixed price’ or ‘cost plus’ contracts remains controversial; sadly, both contracting models can result in unsatisfactory results, with unsuitable, non-viable, obsolete equipment often delivered late, and more than often at costs well above initial expectations. Of greater concern is that the debate over contract types obscures fundamental problems in most Western defence acquisition bureaucracies.

In Australia, the long list of problematic or outright failed defence projects indicates that the rhetoric about ongoing reforms and continuous learning in the Defence Materiel Organisation (DMO) is not backed up with improved contracting outcomes. Too many defence contractors seem to exploit weaknesses in the DMO’s management model, and contracting practices exacerbate and perpetuate existing problems.

The Wedgetail AEW&C program ran into difficulties in a large part due to a breakdown in contractor risk management. While the program will result eventually in a viable capability, it is well behind the initial schedule, and will not deliver the full capability and performance specification initially contracted for.

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By the late 1980s, and earlier in the United States, the ‘cost plus’ contracting model became explicable. An increasing number of projects ran late, underperformed, and production examples proved so much more expensive than preceding generations of equipment – to the extent that production volumes collapsed or programs were cancelled.

Nevertheless, the ‘cost plus’ model had become facto institutionalised in the United States, and there was more than often an expectation that all contracts should be managed in this fashion. That expectation persists in many Western nations.

There is clearly a case for the use of this type of contract under special circumstances, but only when it is clear that entirely new technology is being used and it is impractical to exactly predict how difficult it will be to develop and manufacture the equipment. There are almost no current major weapons systems programs in the West today that qualify as such, since nearly all involve the use of mature technologies or more than often, obsolete technologies.

Where inappropriate use of ‘cost plus’ contracts occurs, the procurement organization is generally unable to understand the basic technology involved in the product, and thus cannot perform a proper or competent assessment of whether a ‘cost plus’ or ‘fixed price’ contract should be employed. An unethical contractor under these conditions will have a great many opportunities to instill fear, uncertainty and doubt into the minds of the client, who once the contract is signed, is effectively giving the contractor a blank cheque.

This can be described as a risk assessment failure.

‘Fixed Price’ Contracting Model

The ‘fixed price’ model is the basis of most commercial contracting and indeed the foundation of the modern retail industry. It is widely understood in consumer protection legislation across most OECD nations. If a consumer buys a product, the price is agreed, then paid, and the product is supplied. The supplier offers and agrees to a fixed price for the product, and an agreed rate for customer specified ‘variations’, which amount to changes to the product manufactured by the customer after contract signature. A key caveat is that any ‘variations’ must be well understood by both parties before being agreed. Far too many acrimonious break-downs in commercial contracts arise precisely due to misunderstandings of the agreed terms for downstream ‘variations’.

In the Defence contracting area, ‘fixed price’ contracts often fail for a variety of reasons. A common scenario is when the contractor or contractor team underestimates the risks inherent in the project, and then fails to meet capability, deadline or cost targets. More than often this is a result of the contractor(s) themselves not performing the necessary analytical ‘due diligence’ when bidding on the contract, and thus not understanding what might go wrong in the project and how much it will cost to fix. A related scenario is where the contractor does understand the risks and costs but intentionally understates them when bidding. In the knowledge that once the customer is committed they cannot easily back out, and thus will be forced to change to a ‘cost plus’ contract and pay for the contractor’s shortfalls in order to get the product delivered.

More fundamentally, the problem that underpins most failures in both ‘cost plus’ and ‘fixed price’ contracts is the problem of managing risks.

Risk Management

Risks are a reflection of uncertainties or a lack of prior knowledge, calculated by estimating the likelihood of an adverse event arising, then relating that likelihood to the consequences, or indeed the costs to be borne if the adverse event arises. The model is a result of the contractor(s) themselves not understanding the technology involved in the project, and then fails to meet capability, insurance will be declined.

In Defence contracting a range of risks may arise. The mid-1960s PERT (Project Evaluation and Review Technique) method, first used on the Polaris ballistic missile to meet a then considered unrealistic Initial Operational Capability (IOC) target, is for instance available now in almost every shrink-wrapped project management software tool. It is but one of a number of proven engineering project planning methods developed to allow effective management of uncertainties in projects.

If a risk is identified early, effort can then be focused on ‘retiring’ that risk as quickly as possible, so as to minimise uncertainties in the project’s schedule, cost and performance targets. Competent project managers typically ferret out all risks as early as possible, and make provision for these in initial project estimations. In this way, a realistic and robust estimate of project schedule, cost and product performance can be set as early as possible, before a bid is even submitted.

The necessary process because of failures is to perform risk estimations is an intimate understanding of the technology itself, and the development and production cycles involved. If these are well understood, extremely accurate estimates can be produced. Successful projects are invariably characterised by engineering and project managers who diligently ‘pull the project apart’ at the planning stage and isolate and analyse each and every risk involved. Failed projects are typically characterised by insufficient effort in the planning stage.

This practice is one which is often today expected only of the contractor, yet traditional engineering practice has always been that the contracting party does much the same work concurrently, and in parties’ comparison notes binding before a contract is agreed. This ensures that a consensus is reached on exactly what risks exist and how they should be managed. Agreements can then be reached on exactly who pays for what proportion of the costs which may arise due to expected risks.

Most if not all of the failures observed today in major defence contracts arise because of failures of risk management, permitted to happen by the customer failing to perform a priori risk management tasks before and after both risk management tasks after contracts are negotiated and signed. The root causes of these risk management failures lie invariably in a lack of technological competencies at the customer end, and a deeply held belief that underestimating the technology involved is not required to manage such programs.

The ‘new age’ project management belief system tends to attribute failures in practice and skills sets to effects such as ‘emergent behaviour in chaotic systems’. The cynical view is that the ‘new age’ approach to project management is a byproduct of a lack of awareness by acquisition organisations funding research to justify their failures, rather than spending the funds on actually hiring qualified, experienced personnel. The sorry tale of the Collins, Echidna, Seaspirt and Wedgetail projects are illustrative case studies of the failure of proper risk management processes, and the underlying problem of technological obsolescence. The effort to recapitalise our fighter fleet is showing similar symptoms.

The current shift away from traditional engineering project management practices toward ‘legalistic’ practices will merely exacerbate existing problems further, as the traditional collaborative management of risk is replaced by an adverserial model of attribution and blame. Whether the contract signed is a ‘fixed price’ or ‘cost plus’ then becomes irrelevant, since failure is guaranteed.