FIRM FIXED PRICE CONTRACTING FOR DEVELOPMENT— AN INDUSTRY VIEWPOINT

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You can all help me illustrate a point by participating in a Gallup-type poll. Will you please raise your hand if you've stopped beating your wife? There must be lots of sore wives at home! A simple answer is not always the correct answer and this topic of fixed price contracting for development does not readily lend itself to a simple answer. That appears to be my task, however, so I will try to resolve this topic into basic and simple issues which even I can understand. I'm reminded of President Calvin Coolidge who was noted for his brief and simple observations. He had just come home from church one Sunday morning and was resting on the porch in his rocking chair. His wife joined him and asked, "Did you enjoy the sermon, Cal?"

"Yep," said Cal.
"What was it about, Cal?"
"Sin."
"What did the preacher say about it, Cal?"
"He's agin it."

And that's really what I'm going to tell you today about fixed price contracting for development. I'm 'agin' it. The theme of this conference is a most appropriate backdrop - cost effective training devices - and, in my view, should shed considerable light on the problems and limitations of fixed price development contracts. These limitations can hurt you in your mission.

The key issue, of course, is the term "Development." What does it mean? In the context of this conference I think it means this - "to bring out the possibilities and capabilities, to advance and promote growth." In our business, development is usually characterized by an objective or specification. Typically, the project or goal has not been successfully performed before. This is the key point - the element of uncertainty. The very nature of development must permit the possibility of failure. It is just as important to find out what is <u>not</u>, as it is to find out what <u>is.</u> All this requires risk - high risks for big payoffs or low risks for no payoffs. In a word, then, my "Calvin Coolidge," or brief, definition of development is "to remove uncertainty through a risk venture."

I'm afraid the ASPR definition of development is far from lucid. The term is broken down and classified several ways mostly for budget reasons - Exploratory development, Advanced development, Engineering development, and Operational Systems development. Except where these terms include guidance as to types of appropriate contracts, I find little value in ASPR's definition for shedding light on our topic today. I certainly don't agree with the guidance given and it really doesn't help buyer and seller in their day-to-day problems.

Based on my definition of development, let's turn to the question of contracting for development. How should we go about preparing a statement of work, soliciting bids, negotiating, and drawing up a written agreement, all aimed at "bringing out the possibilities and removing uncertainty?" ASPR talks about Negotiated procurement and Advertised procurement at great length and at first glance you'd suspect that Negotiation is the only way to buy development. It isn't so. Contracting for development by Advertised procurement is quite legitimate. I mention Advertised procurement because I intend to return to this point shortly. But first let's look at Negotiated procurement. I'm sure that most development procurement actions are negotiated - some sole source - and some competitive - as encouraged by ASPR 3-102.

Selection of the type of contract ought to be a key step. ASPR 3-402 provides some guidance but allows lots of interpretation. It's interesting to note, however, that 3-402(b) does recognize "uncertainty" in contract performance and "unrealistic" pricing data as a basis for avoiding fixed price contracts. Unfortunately, this concession is a minor melody of short duration compared to the dominant and recurring theme in the symphony - and that theme is, "Go fixed price." Why is this? To find out, let's track the rationale and process required by ASPR to justify negotiation.

First - Fixed Price contracts are preferred (3-402). Why? "Motivate the contractor to make a large profit." I must challenge this. Contractor motivation is more complex than winning fixed price contracts or maximizing single contract profits. Many sophisticated studies on this subject point to long term sales growth (even at the expense of short term profits) and market place survival as more influential than maximizing profits. At the risk of over-simplifying, I think that ASPR's analysis of profit motivation is far from complete, accurate, or current.

Second - Some kinds of development should be fixed price (3-403). Total Package Procurement is a major example. The rationale here is that competition will automatically make the price right. However, note that uncertainty remains.

Third - The description of a fixed price contract (3-404.1) does not discourage the use of this type of contract for "uncertainty" situations. It merely says if you can get a contractor to accept the risk of these uncertainties, then go at it.

Fourth - The description of cost type contracts (3-405) permits their use "only where the uncertainties involved are of such magnitude that cost cannot be estimated reasonably." I think this guidance discourages anything but fixed price.

Fifth - Almost all negotiated procurements require D & F's as specified by Appendix J. Try to work your way through one of these. Frankly, I'm glad I don't have to. If a buyer finds it necessary to use a cost plus contract, he must justify this in fine detail. If he elects to use a fixed price contract, no real justification is needed.

I think it's obvious from this little trip through ASPR that the ASPR boys have stacked the deck in favor of fixed price contracts for development. And this is obvious also in the real world of RFP's. I speak from personal experience with many recent RFP's in which fixed price development is specified, some with fixed price production options!

It's time to step back and look for the real motivation behind this pressure for fixed price contracting. I think it's obvious and simple. Old Calvin Coolidge would tersely sum it up this way, "Don't ask for more money." Government procurement people have limited dollars - no reserves for overruns. Cost plus contracting means overruns. The risk of completion rests with the government. If this risk can be passed to the contractor, no overruns will happen. This is the real issue and I think both government and industry must face it. The concepts of Hitch packages in the early 60's, cost effectiveness, program controls, have set firm budgets for development efforts. This is a fact of life. The natural consequence is for buyers to avoid budget overruns by fixed price contracting. The buyers no longer feel they have the freedom to contract any other way. Let's look in on a couple of government planners faced with this dilemma. Here's the dialogue:

Sam says: "We really need a lighter weight framus and I bet we can do it using the turboencabulator principle. It ought to cost $100,000 for a working model."

Joe says: "You're right, but you know that changes and growth will raise that to $200,000, and that's about the most you can sell upstairs for this."

Sam says: "I agree. Let's contract for this on a fixed price basis and give total cost responsibility to the contractor. Even if we have to pay $200,000, we know that's the end of it - no risk of overrun."

Joe says: "The boys in industry will bellyache but they're big enough to handle a job like this."

Time passes and a contractor gets the fixed price job for $200,000. Now, what's likely to happen? He's motivated to do all the wrong things! He'll use a low risk approach. He'll try to find a solution within the money.

He may be one of these profit happy guys that does the cheapest job he can. Is this development? Will the reduction in weight be what's really possible? If he's any kind of a contractor, he'll be alert to changes and will "nickle and dime" our friends Joe and Sam. The all-too-frequent result is an unhappy cutomer, maybe a loss contract, and no real development. Maybe a default termination is being considered. Fixed price development programs are facing these kinds of problems. Read the papers and learn that the Cheyenne doesn't work, that the SRAM missile fails to perform, that the C-5A is going to cost twice as much as expected. These are fixed price development programs. The basic fault lies with the way the uncertainties were treated. Dictating the form of contract did not erase the unknowns, did not solve the problems. If anything, this type of contract probably motivated the contractor to such low risk approaches that the real technical problems were never faced or uncovered. Before a technical problem can be sized for pricing, it must be observed, identified, and understood. The lack of definition of the technical problem and lack of a technical baseline on which to base the development invariably causes a divergence between what the customer was hoping to get and what the contractor finally delivers. I'm trying to say there's a kind of senselessness in FP contracting for development. The form of contract does not assure performance. Profit motivation does not alter any laws of physics. One of the strongest proponents of budget control in recent years is Dr. Robert Anthony, former DOD Comptroller. In his recent testimony before Senator Proxmire's committee he said, "I record my doubts about the practicality of increasing the proportion of fixed-price contracts. The cost of a new house, a new office building, or a new automobile model can be closely estimated in advance because the new article is similar to articles that have been produced before and whose cost is known. By contrast, most new weapons systems differ in significant respects from anything that has been produced before, and it is accordingly impossible to estimate accurately their cost in advance. Unless both the government and the contractor are confident of the accuracy of cost estimates, there is no reasonable basis for a fixed-price contract. Thus, it seems to me that relatively few contracts for major new weapons systems can be of the fixed-price type, and that the major direction for improving the contracting process is in improving the techniques of cost-type contracting."

And now we begin to see the kernel of the answer to this dilemma.

COST PLUS CONTRACTING MUST BE EMPLOYED

How can this be done with no reserves for overruns? By coupling this form of contract with the right management and goals. Let's go back to our light weight framus and contract for it on a cost plus basis. Tell the contractor he'll get no overrun money. The contractor knows he can't get overrun money but now he's relieved of a default threat and his customer has openly acknowledged and accepted a risk of non-completion. Now the contractor may take a high risk approach - now we've got development as a motivator. We're trying to bring out the possibilities - not do the least possible. If an overrun develops, the need can be assessed in light of new knowledge. If none is justified, terminate. It's likely that we'll have more knowledge this way than by trying to force completion of a FP contract with a very low risk approach. However, overruns should be the exception, not the rule. CPFF can be managed successfully on a no-overrun basis. The Titan III Program was managed exactly like that and many major technical accomplishments were achieved. A fixed price low risk environment would not have been as useful. Similarly, the SPRINT Program required major high risk solutions, but no real overrun is expected. I submit that proper use of cost plus negotiated contracts is the answer.

I promised you a look at advertised procurement of development. The obvious method is two-step procurement. There's little experience yet but my intuitive reaction is still negative. My company is responding to this form and we've won some two-step contracts. So far we haven't progressed far enough to draw any conclusions.

Another kind of advertised procurement of development is the unplanned kind. The contractor finds he has a case of practical impossibility on his hands and he must perform research and development to complete a production contract. The songs are becoming very popular at ASBCA:

> "Contractor did not contemplate R&D."
> "Government impliedly warranted the drawings and specs."
> "Failure to change specs was a constructive change."
> "Acceleration was ordered because C.O. did not grant schedule relief."

The BCA and the Court of Claims are hearing these songs more frequently these days. In too many cases the contracts should not have been fixed price.

Allow me to reiterate. Fixed price does not assure performance. It does motivate low risk approaches which tend to inhibit success. Cost plus does not assure performance either but does encourage high risk approaches. In the long run, high risk approaches are necessary so we can reap the rewards of those that do pay off.

Before I lose you completely, I want to touch on training devices because I firmly believe that this is an area that needs high risk approaches. It's obvious that today our military manpower poses a major man/machine problem to DOD. Weapons are more complex. Skills are more critical. Training for maintenance and operation takes months. The trained technician has less and less time to use his training as a soldier. To compound the problem, the average soldier is a short termer. He plans to get out. Reenlistments are only about 10%. Well trained people to man our complicated machines are just not available. It seems to me that NTDC has a major challenge. You must develop a greater understanding of "man" and the part he plays in the man/machine complex. Here is a "development" task of the greatest proportions - to "bring out the possibilities and to remove the uncertainty." Concurrently, machines are needed (training devices) to be cost effective in terms of rapidly training men. Simple machines may not be the answer. If a complicated machine can train more men in a short time, we may be ahead.

So I close with a simple Coolidge-type observation. Don't spoil this opportunity for real and necessary development by getting hung up in unnecessary fixed price contracts.