



1. Target Affordability
2. Incentivize Productivity
3. Promote Competition
4. Improve Tradecraft
5. Reduce Bureaucracy



Incentive Contracting with an Emphasis on Fixed-Price Incentive (Firm Target) (FPI(F))

Part 1: The Basics

This Training Workshop Contains:

- Eight Learning Objectives
- Four Guided Scenarios
- Two Exercises (for 1102s/PMs)
- One Interim Exam, One Final Exam

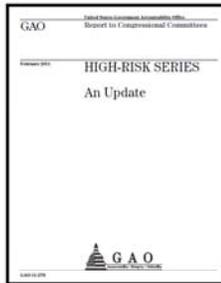
Version 01 – 7 Nov 2011

Student Handout Notes Pages

Notices

- This FPI(F) Workshop contains training and reference guidance for operating personnel. The content of this workshop is intended to provide the DAWIA workforce with a practical application of this subject matter.
- This material is under the configuration control of the Defense Acquisition University, West Region. Any questions or comments concerning this material, including any recommended changes, should be sent to the following individuals via email message:
 - Gary Spohn, Professor of Contract Management
Gary.Spohn@dau.mil
 - Dr. Kevin Carman, Chair, Program Management and Executive Development Department
Kevin.Carmen@dau.mil
 - Rob Tremaine, Associate Dean, Outreach & Mission Assistance
Robert.Tremaine@dau.mil

Why this is Important



DoD High Risk Areas
(GAO-11-278, Feb 2011)

- Congress and the Department of Defense have long explored ways to improve the acquisition of major weapon systems, yet poor program outcomes persist
- DoD must get better returns on its weapon systems investments and find ways to deliver more affordable capability to the warfighter than it has in the past
- Significant aggregate cost and schedule growth in DoD's FY08 portfolio of 96 major defense acquisition programs: \$303B cost growth (FY11 dollars) and 22 months average delay



Other Documented Concerns

2005 GAO Report Found No Connection between Awards/Incentives and Acquisition Outcomes



What GAO Found

The power of monetary incentives to motivate excellent contractor performance and improve acquisition outcomes is diluted by the way DOD structures and implements incentives. While there were two examples in our sample in which the Missile Defense Agency attempted to link award fees directly to desired acquisition outcomes, such as demonstrating a capability within an established schedule, award fees are generally not linked to acquisition outcomes. As a result, DOD has paid out an estimated \$8 billion in award fees to date on the contracts in our study population, regardless of outcomes. The following selected programs show this disconnect.

Program Performance and Acquisition Outcomes	Award-Fee Payments on Selected DOD Development Programs			
	Comanche	F/A-22 Rapier	Joint Strike Fighter	Space-Based Infrared
Acquisition outcomes	attack helicopter	tactical fighter	fighter aircraft	fighter high
Research and development cost	\$3.7 billion	\$10.2 billion	\$15.1 billion	\$3.7 billion
Increase over baseline	41.2 percent	47.3 percent	20.3 percent	55.5 percent
Acquisition cycle time	33 months	27 months	11 months	More than 12 months
Increase over baseline	14.8 percent	13.3 percent	6.9 percent	14 percent
Percentage of total award fee paid to prime contractor	85 percent	91 percent	100 percent	14 percent
award fee paid to prime contractor	\$202.5 million	\$468.7 million	\$494.0 million	\$160.4 million

Source: DOD addresses to GAO, contract documents, and GAO-05-361 (2005) GAO analysis.
 *When calculating the percentage of award fee paid (i.e., percentage of award fee paid - total fee paid to date) (total fee paid - remaining fee pool), we included collect-over fees in the remaining fee pool when those fees were still available to be earned in future evaluation periods.

Despite paying billions in fees, DOD has little evidence to support its belief that these fees improve contractor performance and acquisition outcomes. The department has not compiled data, conducted analyses, or developed performance measures to evaluate the effectiveness of award and incentive fees. In addition, when contracts have utilized different fee strategies to focus the contractor's attention on specific acquisition outcomes, contracting officials have stated that DOD has few mechanisms to share lessons learned and innovative practices outside the local level.

What GAO Recommends

GAO recommends that DOD improve its use of fees by specifically tying them to acquisition outcomes in all new award- and incentive-fee contracts, maximizing contractors' motivation to perform, and collecting data to evaluate the effectiveness of fees. In its comments on a draft of this report, DOD concurred or partially concurred with all of the recommendations.

Fundamental Expectations

- **American taxpayers** have every right to expect that the government is working the best deal which makes most efficient use of resources
- **The Warfighter** has every right to expect they are getting what they need, when they need it, and at the best deal possible to stretch their budgeted dollars
- **Industry** has every right to expect a reasonable profit as long as they meet the schedule and performance requirements and stay within the cost constraints



FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**
- Relate **FPI(F) risk & share ratio to structure & price**
- Know how to **structure an FPI(F) contract**
- Apply **DFARS and PGI guidance**
- Recognize unique **FPI(F) terms and conditions**
- Integrate **what you have learned in various capstone scenarios**



Your Interactive Workshop Objectives

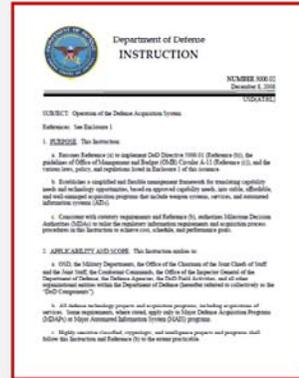
- Understand the **role of Acquisition Strategy**

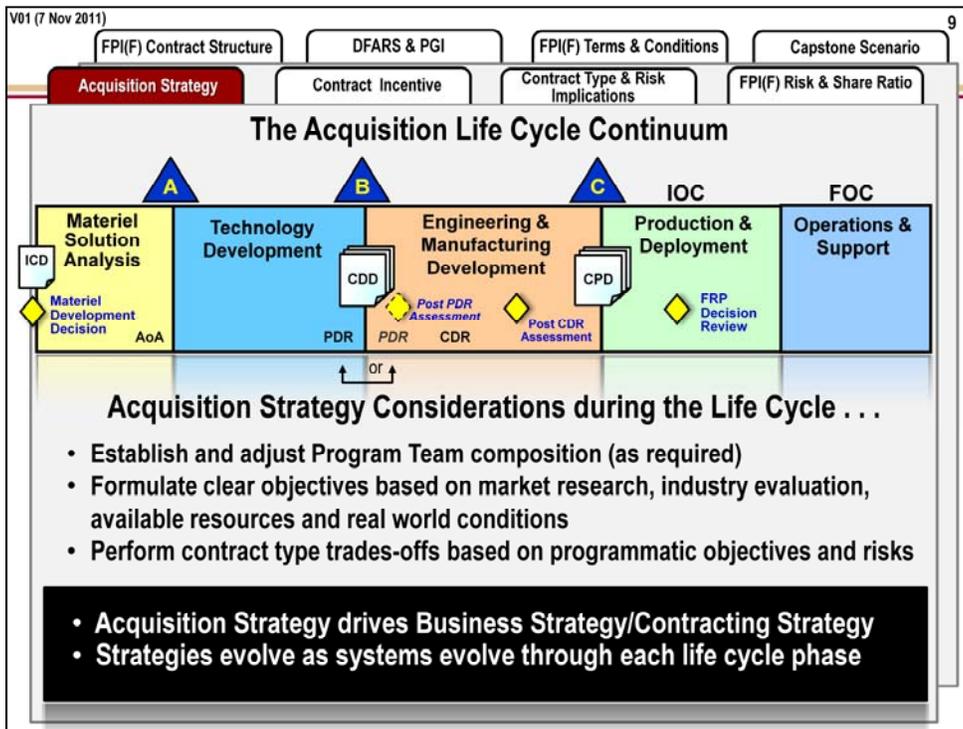
Let's Talk About the Role of Acquisition Strategy...

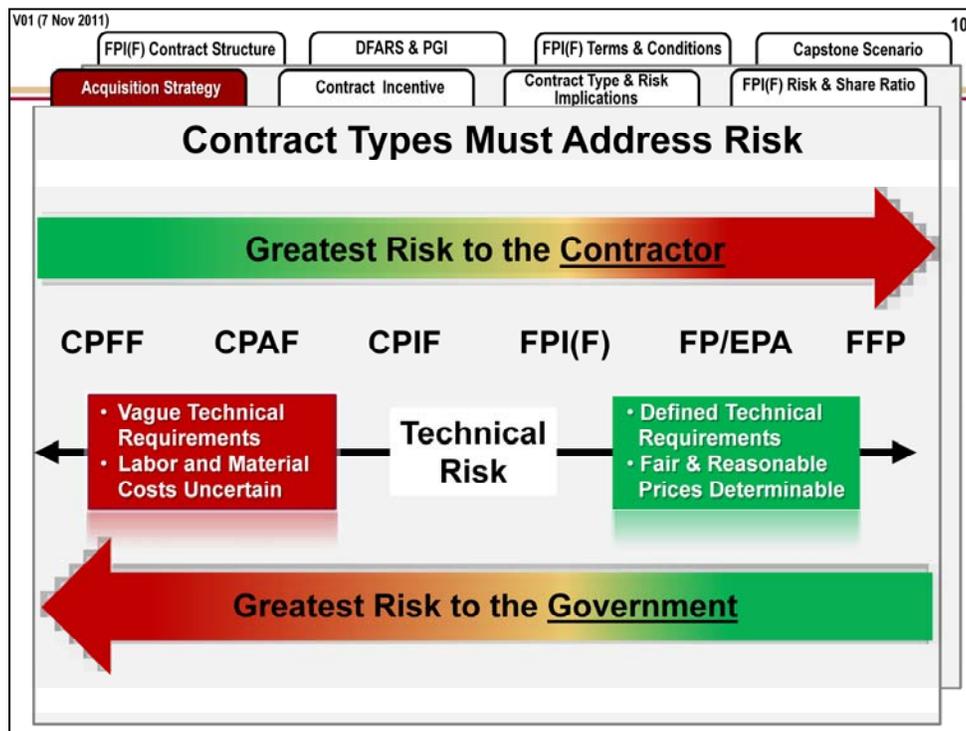
- Apply **DFARS** and **PGI** guidance
- Recognize unique **FPI(F)** terms and conditions
- Integrate **what you have learned** in various capstone scenarios

What is an Acquisition Strategy?

- Establishes the milestone decision points and acquisition phases planned for a program
- Addresses the development, testing, production, and life-cycle support for a program
- Establishes the requirements for each phase, and identifies the critical management events throughout a program's life cycle







When the Government has vague technical requirements along with uncertain labor and material costs the greater the Technical Risk to the government. This would lead to more of a Cost Reimbursable contract environment. However, the Government would expect to receive the Contractor's best effort.

On the other hand, when the Government has well-defined technical requirements and is more confident with price determinations, the government would have less Technical Risk. This would lead to more of a Fixed Price contract environment.

V01 (7 Nov 2011) 11

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

What is Risk?

- **Measure of future uncertainties in achieving program performance goals and objectives within defined cost, schedule, and performance constraints**
- **Associated with all aspects of a program (e.g., threat, technology, maturity, supplier capability, design maturation, performance against plan)—all relate to Work Breakdown Structure (WBS) and Integrated Master Schedule (IMS)**
- **Risks have three principle components**
 1. **Future root cause (yet to happen), if eliminated or corrected prevents a potential consequence from occurring**
 2. **Probability (or likelihood) assessed at present time of future root cause occurring**
 3. **Consequence (or effect) of future occurrence**

Risk will be discussed in the next section



This the Acquisition Guide definition for Risk. For this area we focus on the Likelihood and Occurrence of a Risk.

Incentives should be built to motivate desired outcomes.

After the government determines its acquisition strategy, the parties should jointly develop their acquisition program objectives.

Fixed price contracts give the contractor maximum incentive and flexibility (within scope) and the customer minimum flexibility to reward subjective activities.



Cost reimbursement contracts provide minimum incentive and maximum flexibility to the contractor.

V01 (7 Nov 2011) 13

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio



The contract type should be aligned with the acquisition strategy.

Provide the specific incentive structure. Indicate how the incentive structure will motivate contractor behavior resulting in the cost, schedule, and performance outcomes required by the government for the contract and the program as a whole. Ensure common understanding of incentive structure by Government & Industry.

If more than one incentive is planned for a contract, the strategy should explain how the incentives complement each other and do not conflict with one another.

It is important to note that any incentive structure be carefully constructed and validated within the government team followed by a thorough understanding between the government and industry team.

V01 (7 Nov 2011) 14

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

- **Requirements Analysis**
 - What is the Government buying?
 - Analysis of the requirements and risk assessment
- **Program Manager's Objectives for the Acquisition**
 - What outcomes need to be achieved?
 - What risk will be transferred to the Contractor to manage?
- **Contract Types Vary According To**
 - Degree and timing of the responsibility assumed by the contractor for the costs of performance
 - Amount and nature of the incentive offered to the contractor for achieving or exceeding specified standards or goals
- **Contract Types are Grouped Into Two Broad Categories**
 - Fixed-price contracts
 - Cost-reimbursement contracts
- **The Offeror's Risk can be Viewed from Several Perspectives**
 - **Investment risk** -- the risk in recovering the money invested by the offeror to perform the job
 - **Economic /Market risk** -- the risk in earning a reasonable profit on the investment, especially when compared to other possible investments
 - **Performance risk** -- the risk in successfully performing the work required by the contract



Points to Consider (FAR 16.103). Contract type selection is the principal method of allocating cost risk between the Government and the contractor. There is no single contract type that is right for every contracting situation. Selection must be made on a case-by-case basis considering contract risk, incentives for contractor performance, and other factors such as the adequacy of the contractor's accounting system. Your objective should be to select a contract type that will result in reasonable contractor risk with the greatest incentive for efficient and economical contract performance. Selecting the proper contract type will make the work more attractive to more potential offerors, thereby increasing competition.

You can be assured that, as long as there is a reasonable expectation of success and the profit or other payoff is great enough to warrant taking the risk, there will be contractors available to take on the work. However, if the outcome is too uncertain and the rewards too little for the risk involved, you might NOT find a responsible contractor willing to submit an offer.

Investment Risk. In order to perform on a contract, the offeror may have to plan to make costly investments for such things as facilities, equipment, and materials. The offeror will need a reasonable assurance that these investments will be recouped from contract performance. If the offeror feels that the investments are for facilities, equipment, and materials that can only be used for a specific Government product, then the offeror may conclude that the investment risk is too great. Or, the offeror may choose to avoid such investment risk by proposing a less efficient use of manual labor, instead of investing in more efficient and more expensive facilities and equipment. (One of the reasons frequently given for the high proportion of manual labor in Government contracts, compared to well established and the costs can be reasonably estimated. You should not use a fixed-price contract when the methods required to complete the contract are not well established and costs cannot be reasonably estimated. If you do, the uncertainty will likely have one of two results:

- Competition will decrease, because potential offerors will decline to submit a proposal rather than accept the risk, or
- Costs will increase, because offerors will "pad" their estimates to cover the uncertainties.

Economic/Market Risk. Changes in the marketplace will also affect contract costs. Preferred acquisition practice calls for forward pricing of contract efforts, because forward pricing provides a baseline which you and the contractor can use to measure cost or price performance against contract effort.

- Forward pricing requires the contracting parties to make assumptions about future changes in the marketplace. A volatile market will increase the cost risk involved in contract pricing, particularly when the contract period will extend several years. What will material and labor cost two years from now? Will material shortages occur two years from now? In cases where these unknown costs are significant, contract period risk becomes an important consideration in selection of contract type.
- Fixed-price contracts with economic price adjustment, for example, are designed specifically to reduce this risk for contractors.

Performance risk should be reduced from a high to a relatively low level, as the requirement progresses from vague to well-defined and experience with the product increases. Most contract cost risk is related to contract requirements and the uncertainty surrounding contract performance. The lower the uncertainty the lower the risk. Therefore, your appraisal of cost risk should begin with an appraisal of performance risk. For larger more complex contracts, you will likely need assistance from other members of the Government Acquisition Team (e.g., representatives from the requiring activity, engineering staff, contracting, and program/project mgmt).

- Research and development contracts generally have a rather high performance risk. This is due to the factor of ill-defined requirements that arise from the necessity to deal beyond, or at least very near, the upper limits of current technology (i.e., "the state of the art").
- Follow-on production contracts generally have a relatively low performance risk. Requirements are well known, there is a cost history to draw on, contractors have experience producing the product, etc.
- As performance risk changes, so should contract type. Note that cost-reimbursement, time & materials, or labor-hour contracts are generally associated with higher-risk requirements and fixed-price contracts are generally associated with lower-risk requirements.
- Areas that you consider should include:
 - Stability and clarity of the contract specifications or statement of work;
 - Type and complexity of the item or service being purchased;
 - Availability of historical pricing data;
 - Prior experience in providing required supplies or services;
 - Urgency of the requirement;
 - Contractor technical capability and financial responsibility; and
 - Extent and nature of proposed subcontracting.
- The figure below depicts what happens as the contract requirement becomes better defined.

What are the Objectives of this Acquisition?

The PM Must Consider Several Areas When Looking at an Acquisition

- The Government is seeking what objectives?
- What is the expected value of the risk the Government will assume?
- How do we mitigate risk (Control or Transfer)?
- What are the outcomes the Contractor has to meet to be successful?
- How probable is the Contractor's cost estimates?
- What contract type best fits this acquisition?
- If the contract type is an FPI(F), how do we achieve the objectives and outcomes identified?

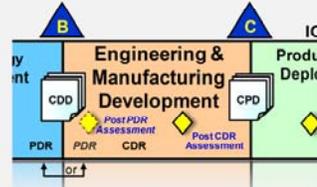


The KO and PM Must Assess the Objectives and Outcomes

What are the Objectives of this Acquisition?

Engineering and Manufacturing Demonstration

- Complete Full Systems Integration
- Technology risk reduction
- Technology that can perform
- Involve production and manufacturing engineering in the design process to develop affordable and executable manufacturing processes and mitigate production risks"
- Operational supportability with attention to minimizing logistics footprint
- Protect CPI by implementing appropriate techniques such as anti-tamper; and demonstrate system integration, interoperability, safety, and utility
- Effectively manage subcontractors to support EMD goals
- Recognize and (when appropriate) reward good performance
- Design objectives and development of design options to achieve readiness and supportability objectives



FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

PM's EMD Scenario

- Firebird II had a successful TD Phase and Integrated Systems Design
 - System maturity is showing great promise, s/w risk is low to moderate; and technical issues identified, funded—events incorporated into schedule
- Program Management Review (PMR) held in preparation for contracting to conduct a down-select to single contractor to support Systems Capability and Manufacturing Process Demonstration (SC & MPD) portion of EMD
- Both contractors stated they have a strong understanding of the FB II System, development of the design for producibility, and ability to manage all subcontract activities are low risk
 - Cost risk appears to be low risk since the contractors have successfully managed cost throughout EMD phase within the budget constraints.

1. What Objectives/outcomes does the PM want to achieve?
2. As the PM, what are your risks and what contract type best suits this scenario?



FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

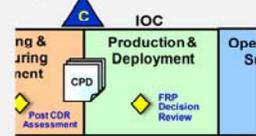
Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

What are the Outcomes of this Acquisition?

Production and Deployment Phase

- Reduces transition risk from development to production
- Government manufacturing strategy translates readily into contractor production and transition planning documents that convincingly show contractors' appreciation of capability
- Industry leverages experience, wisdom, tools, and techniques to successfully manage transition to production process
- Stabilize product design/configurations to minimize negative impact on production rates
- Modernization activities checked carefully against impact on Life Cycle Cost
- Product meets warfighter needs and supports mission requirements
- Effective management of subcontractors to support the production timeline
 - Plans for onsite evaluation of potential subcontractors before source selection
 - Tasks and associated payment plans ensure up-front subcontractor activities are visible
 - Recognize and (when appropriate) reward good performance
 - Quantitative logistics and supportability requirements given explicit weight in source selection



FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

PM Production (LRIP) Decision Scenario

- Firebird II had a successful EMD and the Operational Assessment (OA) proved to be very informative
- In preparation for the MS C Decision, the Acquisition Strategy calls for a Technology Refresh of the processing system
 - Allows for several S/W issues identified during OA to be corrected and equipment upgrade to current day standards
 - Follow-on effort would award Production Contract with LRIP for 12 units—Full Rate Production would be next contracting option



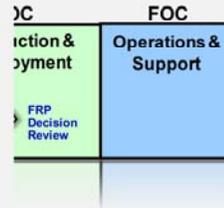
1. What Objectives/Outcomes does the PM want to achieve?
2. As the PM, what contract type would you discuss with the Contracting Officer for these efforts? Why?



What are the Outcomes of this Acquisition?

Operations and Support Phase

- Supports the mature production process
- Ensures the most cost efficient production process is implemented by the Contractor
- Leverages potential shared cost savings
- Incorporates system upgrades and incremental development improvements



FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

FIREBIRD (FB) II Production (FRP) Scenario

- Firebird II had a successful LRIP and IOT&E
 - Successfully executed six production runs under FFP
 - JROC approved requirement to add advanced Intelligence, Surveillance, and Reconnaissance (ISR)
 - Hawkeye ISR system has been installed on two different models of UAVs with success—appears Hawkeye meets your KPPs and warfighter (W/F) requirements
- Technology assessment has been conducted with strong recommendation that Hawkeye can be installed on FB II in a relatively short incremental approach
 - Your Chief Engineer recommends you move forward, gain approval, and seek funding
 - Some low to moderate risks persist with weight, balance, and S/W for this upgrade
 - S/W integration is most important requirement—live video stream must be compressed, linked satellite, & delivered to W/F for analysis in support of short operational windows



1. What Objectives/outcomes does the PM want to achieve?
2. As the PM, what are your risks and what contract type best suits this scenario?



Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**

Let's Talk About Contract Incentives...

- Recognize unique **FPI(F) terms and conditions**
- Integrate **what you have learned in various capstone scenarios**

FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract IncentiveContract Type & Risk
Implications

FPI(F) Risk & Share Ratio

Use of Incentive Contracts

FAR 16.401 – General

- Incentive contracts are appropriate when a firm-fixed-price contract is not appropriate and the required supplies or services can be acquired at lower costs and, in certain instances, with improved delivery or technical performance, by relating the amount of profit or fee payable under the contract to the contractor's performance



FEDERAL
ACQUISITION
REGULATION

FAR 16.401

Monetary Incentives fall within two categories

- Objective incentives: predetermined, formula-type incentives for cost, technical performance or delivery
- Subjective incentives: judgmental, based on evaluation criteria linked to acquisition objectives

V01 (7 Nov 2011) 24

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

What is the Right Incentive?

- The right incentive is a stimulus to a desired action resulting in motivation of the contractor, and value to the Government
- Effective incentive contracting motivates the contractor to achieve performance that is in the best interest of the Government
- Profit motive is the essence of incentive contracting
 - Rewards contractors through increased profit for attaining objectives more beneficial for the Government than expected
 - Penalizes contractors through reduced profit for less than expected levels of performance
- The incentive contract should communicate the Government's objectives to the contractor and motivate the contractor's management to convey the Government's objectives in the contractor's organization

Meaningful and Measurable

Linked to cost, schedule, and performance results

Designed to motivate excellence in contractor performance by making clear distinctions in possible award earnings.

Satisfactory Performance? Excellent Performance?

To be meaningful an incentive must be capable of inducing the generation of some specific and potentially favorable effort that would not otherwise have been initiated by those contractor individuals able to constructively contribute at a point in time so that the added effort can influence the realization of the Government's objectives.

The profit motive is the essence of incentive contracting. Incentive contracts utilize the drive for financial gain under risk conditions by rewarding the contractor through increased profit for attaining cost (and sometimes performance and schedule) levels more beneficial for the Government than expected (target) and by penalizing him through reduced profit for less than (target) expected levels.

This is accomplished by adjusting the contractor's profit in proportion to the value to the Government of the actual completed contract performance in comparison to target profit and performance goals expressed in the contract document.

When contractors maximize profit, it is in the best interest of the Government if in fact, the Government's planned objectives are achieved.

The traditional method of applying reward incentives for cost under target and penalty incentives for cost over target in a cost-incentive-only contract has been the most widely applied incentive arrangement.

(Ref: DoD and NASA Incentive Contracting Guide (1969), p.viii and p.1-2

V01 (7 Nov 2011) 25

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

Why Use Incentives?

- Incentives exist in every business arrangement
- Effective application of incentives is key to building successful business arrangements that jointly maximize value for all parties
- Monetary Incentives
 - Incentive contracts must contain cost incentive*
 - Based on projected or actual costs
 - Must acquire “Cost Knowledge” and conduct cost analysis with due diligence of offeror’s proposal
 - Understand business arrangements within contract and how contractor “spend” occurs
 - Understand details of system design and risks associated with delivery and performance

Section 8 - Part 1 (a)

FEDERAL ACQUISITION REGULATION

Section 8.001-1(a)
GENERAL REGULATION FOR ACQUISITION
DEPARTMENT OF DEFENSE
FEDERAL ACQUISITION REGULATION (FAR) PART 8.001-1(a)
The FAR is the primary regulation governing the acquisition of goods and services by the Department of Defense.

***FAR 16.402-1(a)**

From: Incentive Strategies for Defense Acquisitions, Jan 5, 2001, AT&L Memorandum , J.S. Gansler

Historically, choice of contract type has been the primary strategy for structuring contractual incentives. With the exception of competitive firm fixed-price awards, procurement incentives have predominately been based on protected or actual costs. This practice, while effective where costs cannot be precisely estimated, does not always ensure that contractors maximize efficiencies regarding underutilized or inefficient operations, practices and facilities. Such incentives can have the opposite effect of rewarding industry for the retention of inefficient practices or underutilized capability. When cost-based incentives are used, care should be taken to ensure that these unintended consequences do not occur.

V01 (7 Nov 2011) 26

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

Incentives Always Link to Outcomes

Link incentive arrangements to acquisition outcomes such as cost, schedule, and performance results



- **Requires Government to firmly understand what is most important to them before they engage—this is an entire PM Shop Discussion**
- **Establishes specific performance objectives prior to contract award (e.g. delivering products and services on time, within cost goals, and with expected performance outcomes)**
- **Ties awards to demonstrated results (vs efforts), by meeting or exceeding specified performance standards**

[memorandum](#) issued Dec 4, 2007, Paul A. Denett, administrator of the Office of Federal Procurement Policy at the Office of Management and Budget

V01 (7 Nov 2011) 27

FPI(F) Contract Structure DFARS & PGI FPI(F) Terms & Conditions Capstone Scenario

Acquisition Strategy **Contract Incentive** Contract Type & Risk Implications FPI(F) Risk & Share Ratio

Before you use Incentives...

- Ensure market research is conducted and documented; and acquisition plan sufficiently states desired outcomes, performance requirements, milestones, risks and cost benefits associated with choice of contract type
- Know context of your market research (e.g. industrial base, technology and manufacturing readiness, supply chains, competitive range, etc.)



Do Your homework upfront!

[memorandum](#) issued Dec 4, 2007, Paul A. Denett, administrator of the Office of Federal Procurement Policy at the Office of Management and Budget

V01 (7 Nov 2011) 28

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

Risk and Cost Benefit Analysis

Conduct and document risk and cost/benefit analyses that support use of incentive type contract

- Perform risk assessment and ensure incentive strategies are consistent with level of risk assumed by contractor and motivates contractor by balancing awards with negative consequences
- Determine if administrative costs associated with managing incentive approach exceeds expected benefits
- Ensure sufficient human resources are available to properly structure and monitor contract



[memorandum](#) issued Dec 4, 2007, Paul A. Denett, administrator of the Office of Federal Procurement Policy at the Office of Management and Budget

Quiz

- **What is so important about an Acquisition Strategy?**
- **What factors are important to make a Acquisition Strategy successful?**
- **What are the two categories of monetary incentives?**
- **What key attributes should an incentive contain?**
- **What is the primary driver of incentive contracting and how does it work?**

FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**

Let's Talk About Contract Types & Risk Implications...

- Integrate what you have learned in various capstone scenarios

V01 (7 Nov 2011) 31

FPI(F) Contract Structure
DFARS & PGI
FPI(F) Terms & Conditions
Capstone Scenario

Acquisition Strategy
Contract Incentive
Contract Type & Risk Implications
FPI(F) Risk & Share Ratio

Risk Factors in Selecting Contract Types

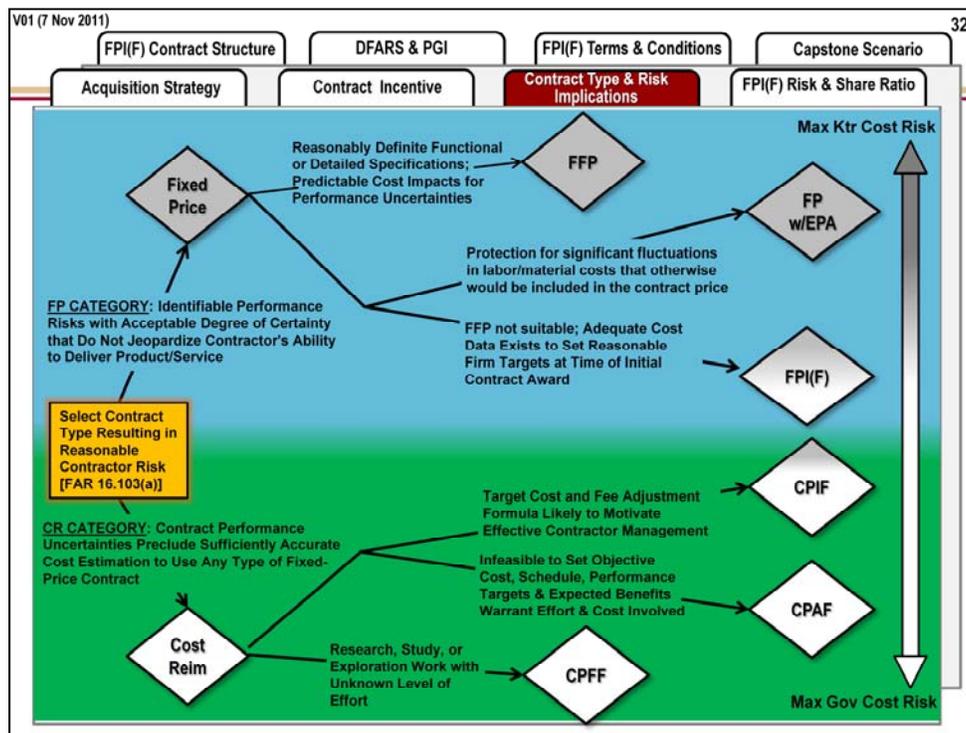
Degree of Price competition	Contractor's technical capability and financial responsibility
Cost analysis of the uncertainties involved in performance and their possible impact upon costs	Adequacy of contractor's accounting system
Type and complexity of the requirement	Concurrent contracts
Urgency of the requirement	Extent and nature of proposed subcontracting
Period of performance or length of production run	Acquisition history

FEDERAL ACQUISITION REGULATION

Section 101-11.600-1 (FAR 101-11.600-1)

(FAR 16.104)

FAR 16.104



CONTRACT TYPE DESCRIPTIONS (Ref. FAR Part 16)

Cost Reimbursement Category

Cost-reimbursement types of contracts provide for payment of all allowable incurred costs to the extent prescribed in the contract. The Contractor uses its best efforts to perform the work specified in, and all obligations under, the contract. Requires an adequate accounting system. [FAR 16.301-2]

Cost-Plus-Fixed-Fee (CPFF). A cost-reimbursement contract that provides for payment to the contractor of a negotiated fee that is fixed at the inception of the contract. The fixed fee does not vary with actual cost, but may be adjusted as a result of changes in the work to be performed under the contract. [FAR 16.306(b)]

Cost-Plus-Award-Fee (CPAF). A cost-reimbursement contract that provides for a fee consisting of a base amount fixed at inception of the contract and an award amount, based upon a judgmental evaluation by the Government, sufficient to provide motivation for excellence in contract performance. [FAR 16.401(e)(1)]

Cost-Plus-Incentive-Fee (CPIF). A cost-reimbursement contract that provides for an initially negotiated fee to be adjusted later by a formula based on the relationship of total allowable costs to total target costs. This contract type specifies a target cost, a target fee, minimum and maximum fees, and a fee adjustment formula. [FAR 16.405-1(b)]

Fixed Price Category

Fixed price contracts require the delivery of supplies or the performance of services within the time specified in the contract, otherwise the contractor may be terminated for default.

Firm-Fixed-Price (FFP). Provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract and places upon the contractor maximum risk and full responsibility for all costs and resulting profit or loss. [FAR 16.202-2]

Fixed-Price with Economic Price Adjustment (FP/EPA). Provides for upward and downward revision of the stated contract price upon the occurrence of specified contingencies. [FAR 16.203-3]

Fixed-Price Incentive (Firm Target) [FPI(F)]. A fixed-price contract that provides for adjusting profit and establishing the final contract price by a formula based on the relationship of final negotiated total cost to total target cost. Specifies a target cost, a target profit, a price ceiling, and a profit adjustment formula. Upon completion of the work, the final price is established by applying the formula to the final negotiated cost. Requires an adequate accounting system. [FAR 16.403]

Risk Assessment Scenario

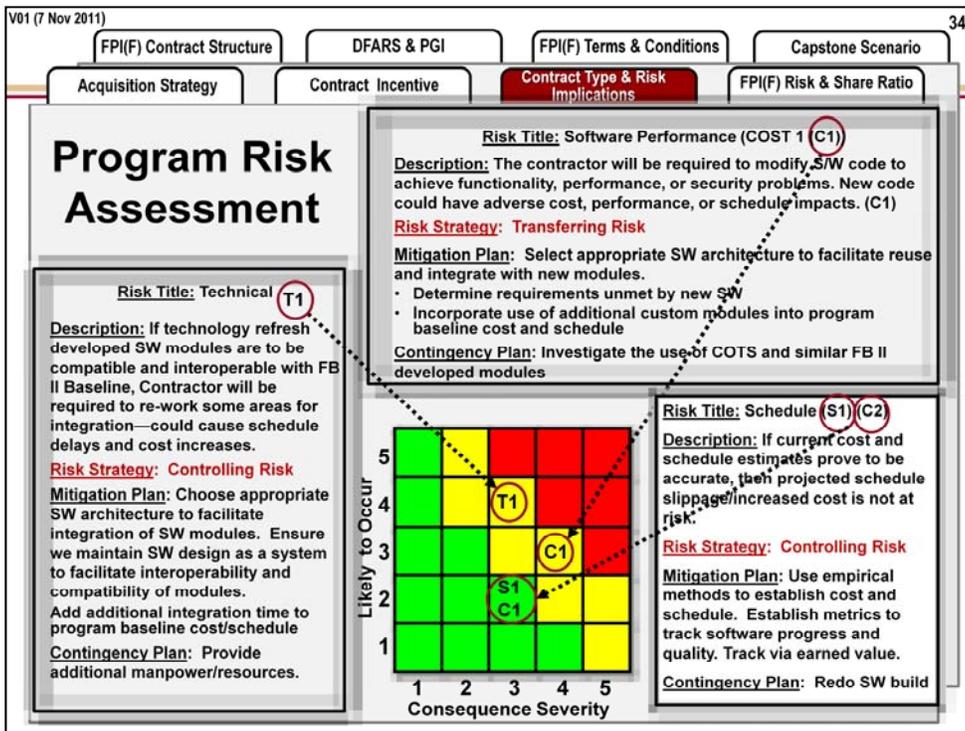
Firebird II had a successful EMD and the Operational Assessment (OA) proved to be very informative. In preparation for the MS C Decision, the Acquisition Strategy calls for a “technology refresh” of the processing system



- Allows for several SW issues identified during OA to be corrected
- Follow on effort would award Production Contract with the LRIP for 12 units; Full Rate Production would be treated as contract option

**Assess the Cost, Schedule, and Technical/
Performance Risks at this point in the program.**

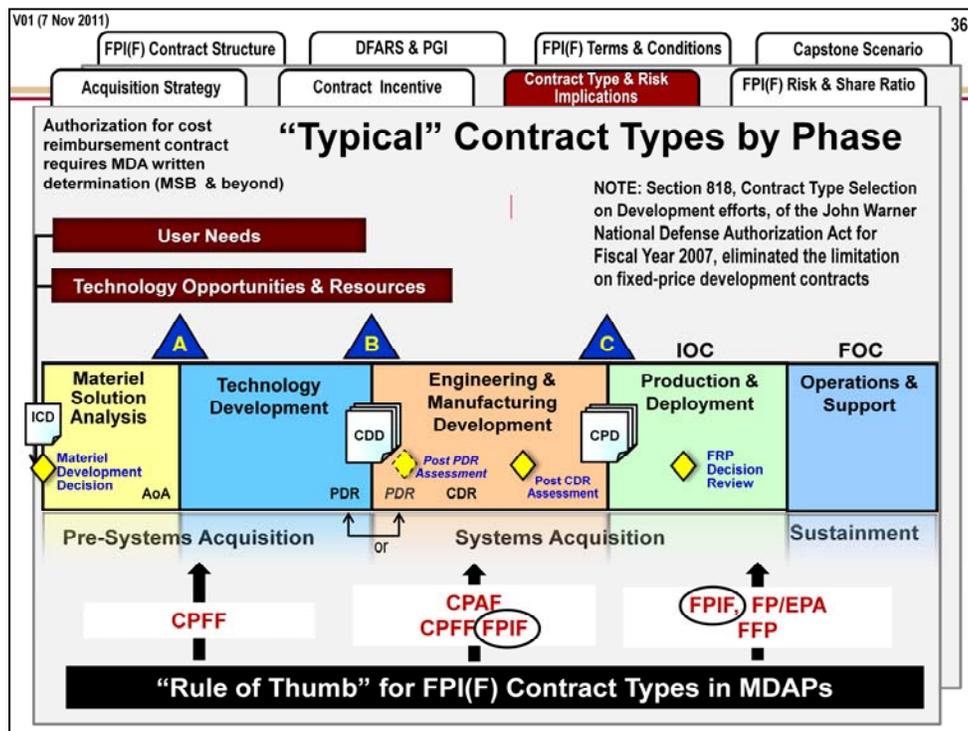




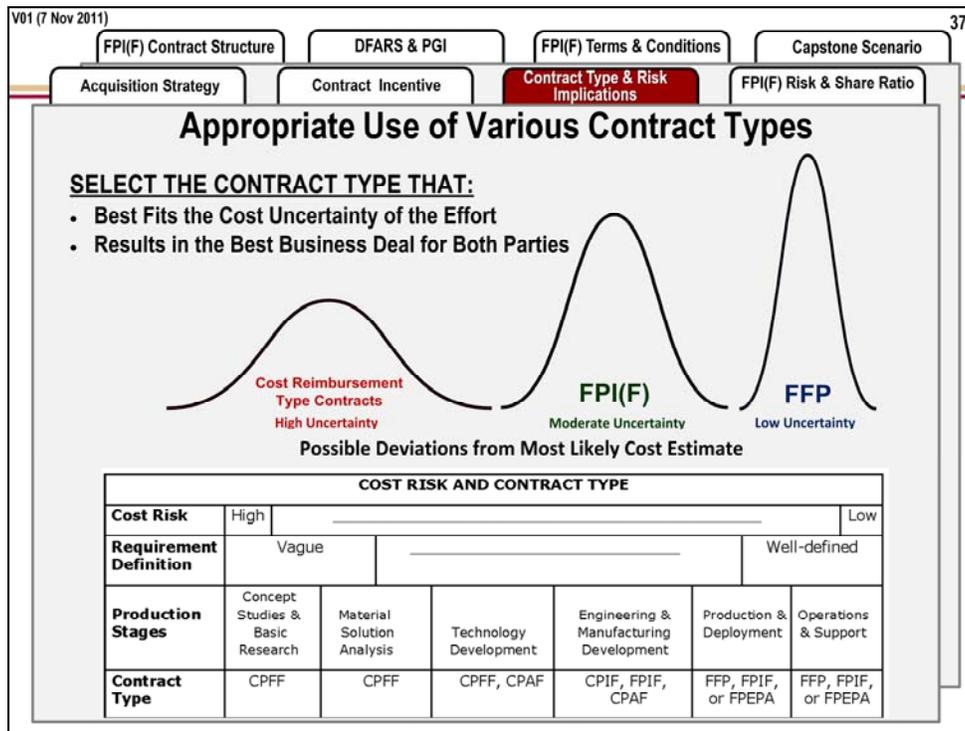
Based on their proposal, the subcontractor has acknowledged the COTS and cost/Schedule issues (software reuse), thus the likelihoods are not high, but the consequences could be significant.

Quiz

- Define risk?
- What are the three components of risk?
- Why should a PM/ KO be concerned with risk?



Looking at the Acquisition Framework, we assess risk for Cost, Schedule, and Technical/Performance and determine which risk best fits for the phase of the acquisition. Our focus will be on the use of FPI(F) in the EMD and Production and Deployment phases.



GENERAL GUIDELINES FOR APPROPRIATE USE OF CONTRACT TYPES (Ref: DoD and NASA Incentive Contracting Guide (1969), pp. 4-5, 67, & 68)

Cost Reimbursement Contracts

Cost-Plus-Fixed-Fee (CPFF). Appropriate where "level of effort" is required or where high technical and cost uncertainty exists.

Cost-Plus-Award-Fee (CPAF). Appropriate where conditions for use of a CPFF are present but where improved performance is also desired and where performance cannot be measured objectively.

Cost-Plus-Incentive-Fee (CPIF). Appropriate where a given level of performance is desired and confidence in achieving that performance level is reasonably good but where technical and cost uncertainty is excessive for use of a fixed-price incentive.

Fixed Price Contracts

Firm-Fixed-Price (FFP). Appropriate where performance has already been demonstrated and technical and cost uncertainty is low.

Fixed-Price with Economic Price Adjustment (FP/EPA). Appropriate when there is a need to provide for upward and downward revision of the stated contract price upon the occurrence of specified contingencies (Ref: FAR 16.203-1(a)).

Fixed-Price-Incentive (Firm Target) [FPI(F)]. Appropriate where confidence in achieving technical performance is high (i.e., there is a reasonable expectation of technical success within stated, measurable limits), and technical and cost uncertainty can reasonably be identified and evaluated in terms of risk to the contractor.

The FPI(F) contract should include relatively firm design, specification and performance requirements which will permit the contractor to operate without detailed control or technical direction. Performance goals and schedule objectives should not be impacted adversely by events or direction outside of the control of the contractor.

Other Considerations:

- Risks should be allocated so that they are motivational.
- Parties should identify their joint aims on the program
- Fixed price contracts give the contractor maximum incentive and flexibility (within scope) and the customer minimum flexibility.
- Cost reimbursement contracts provides minimum incentive and flexibility to the contractor and maximum to the customer

Quiz

- **When should you use a Cost Reimbursement contract?**
- **When should we use a Fixed Price contracting arrangement?**

FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

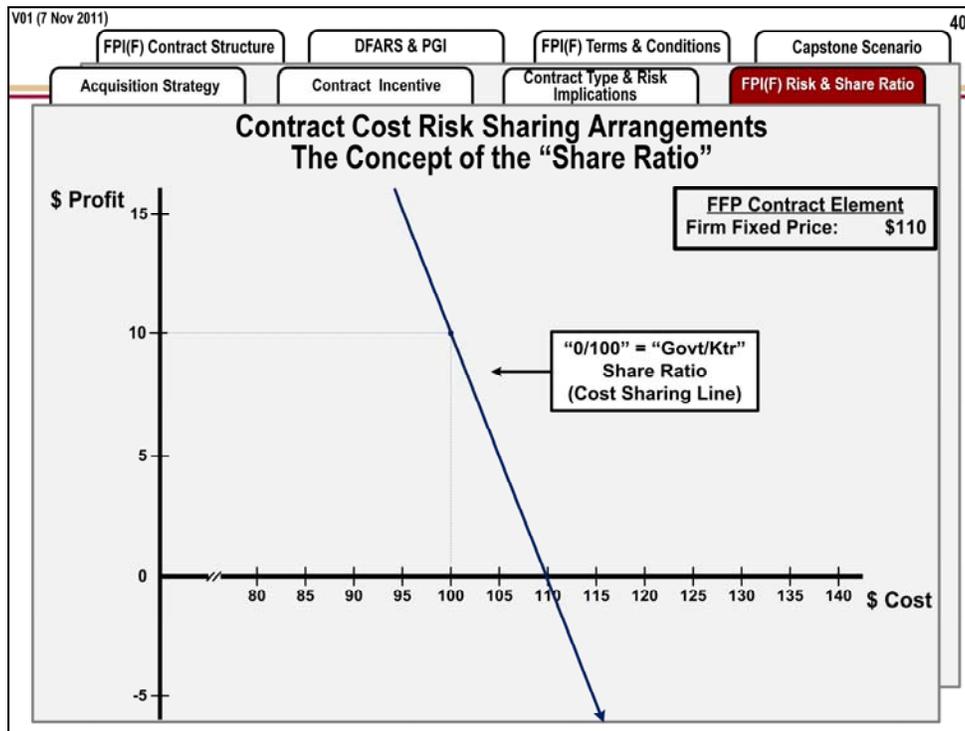
FPI(F) Risk & Share Ratio

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**
- Describe **FPI(F) risk & share ratio to structure & price**

**Let's Talk About Risk &
Share Ratio to Structure & Price...**

Scenarios



This chart depicts an FFP type contract.

The contractor accepts full cost responsibility when it agrees to this type of contract. Ultimate profit from the contract is directly related to the cost of doing the work and to how effectively the contractor controls costs and manages the total contract effort.¹ (p.22) In this example, the negotiated price of \$110 is based on a negotiated cost of \$100 and a negotiated profit of \$10, but only the negotiated price is specified in the contract.

In the terminology of an incentive contract, the risk/cost sharing arrangement between the Government (Govt) and the contractor (Ktr) in an FFP contract is "0/100", or "Govt/Ktr" share in the standard notation utilized to describe the risk sharing formula used in cost incentive contracts.

This means that the Government pays the firm fixed price for acceptable completion of the contract work and does not share at all in any profit or loss. However, the contractor receives or accepts 100% of any difference between the fixed price and actual costs to perform the work. The contractor assumes complete responsibility, in the form of profit or loss (i.e., negative profit), for all costs required to successfully complete the contract effort.¹ (p.22).²

Therefore, in an FFP contract, the Government's share of the cost risk is zero percent, and the contractor's share of the cost risk is 100 percent – or a "0/100" Share Ratio, or share line, as depicted in the chart above.

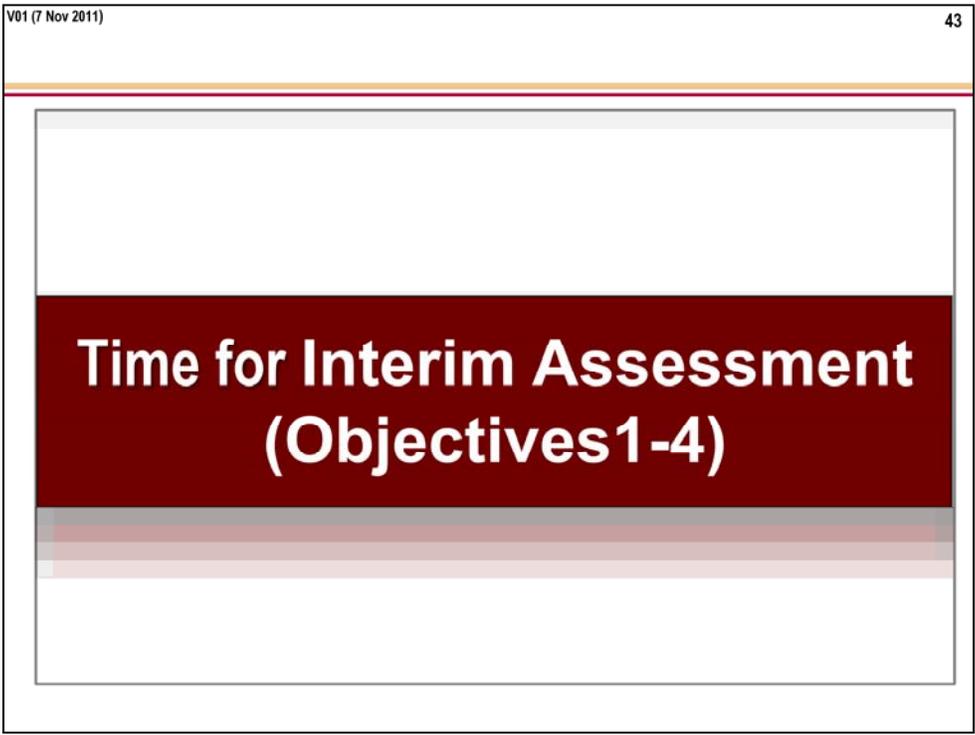
The rewards and penalties in a cost incentive contract (or the cost sharing arrangement), such as those in an FPI(F) contract, is expressed as a similar percentage ratio. A 65/35 incentive share line in the contract means that the Government pays 65 cents, and the contractor pays 35 cents of every dollar of cost above the cost target of the contract. For every dollar of cost savings under the target, the Government saves 65 cents and the contractor earns an additional 35 cents, over and above the target profit.¹ (p.3)

¹ DoD and NASA Incentive Contracting Guide (1969)

² Contract Pricing Reference Guides, Vol.4,Ch.1 Sec.1.3.1

Quiz

- **What standard notation describes Ktr and Gov't risk sharing?**
- **What do you think the Ktr & Gov't cost risk sharing arrangement might be in a CPFF type contract?**
- **Give an example of an incentive contract share line.**



**Time for Interim Assessment
(Objectives 1-4)**

Interim Assessment (Objectives 1-4)

Incentive Contracting with an Emphasis on FPI(F) Workshop

Interim Review Name: _____

1. What is the relationship between the Acquisition Strategy and the Contracting Strategy?

2. When considering the use of incentives, which of the following is true? (Select all that apply)

- a. They should motivate the contractor
- b. They should provide value to the government
- c. The Government's objective is to reduce profit as much as possible
- d. Incentives can actually reward industry for retaining inefficient practices
- e. Best informed by "Cost Knowledge", including contractor "spend"

3. What are the two types of monetary incentives?

- a. _____
- b. _____

4. Match the type of contract to its description:

- a. Cost Plus Fixed Fee _____
- b. Cost Plus Incentive Fee _____
- c. Firm Fixed Price _____
- d. Fixed Price Incentive (Firm Target) _____
 - i. FFP not suitable; adequate cost data exists to set reasonable firm targets at time of initial contract award
 - ii. Target cost and fee adjustment formula likely to motivate effective contractor management
 - iii. Research, study, or exploration work with an unknown level of effort
 - iv. Reasonably definite functional or detailed specifications; predictable cost impacts for performance uncertainties

5. Define risk:

6. List the following in order of least to greatest risk allocation to the Government:

- FFP 1. _____
- CPAF 2. _____
- FPI(F) 3. _____
- CPIF 4. _____
- CFP 5. _____
- FPIa/EPA 6. _____

7. Define the following:

a. Target Cost: _____

b. Target Profit: _____

c. Target Price: _____

d. Ceiling Price: _____

e. Share Ratio: _____

f. Point of Total Assumption (PTA): _____

g. Range of Incentive Effectiveness (RIE): _____

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**
- Relate **FPI(F) risk & share ratio to structure & price**
- Know how to **structure an FPI(F) contract**

**Let's talk about
Contract Structure...**

V01 (7 Nov 2011) 46

FPI(F) Contract Structure
DFARS & PGI
FPI(F) Terms & Conditions
Capstone Scenario

Acquisition Strategy
Contract Incentive
Contract Type & Risk Implications
FPI(F) Risk & Share Ratio

Structuring an FPI(F) Contract – Step 1

Step 1: Determine the Most Likely, Optimistic and Pessimistic Cost Estimates and Their Associated Profit Dollars			
	Optimistic Cost	Most Likely (Target Cost)	Pessimistic Cost ³
Material/Subkts	\$250,000	\$300,000	\$375,000
Direct Labor	\$320,000	\$400,000	\$600,000
Indirect Costs	<u>\$230,000</u>	<u>\$300,000</u>	<u>\$325,000</u>
Total Cost	\$800,000	\$1,000,000	\$1,300,000
Assume profit should be:	<u>\$150,000</u> ²	<u>\$100,000</u> ¹	<u>\$25,000</u> ²
Price	\$950,000	\$1,100,000	\$1,325,000 ⁴

¹ Dollars determined by using a structured approach pursuant to DFARS 215.404-4(b). (e.g., the Weighted Guidelines Method).

² Value judgment – the dollar amount that the Govt would be willing to pay at that cost level.

³ The total Pessimistic Cost also represents the PTA Cost

⁴ This value represents the Ceiling Price (i.e., the maximum amount the Govt is willing to pay for the contract).

Evaluate & Decide Optimistic, Pessimistic, and Target cost by “individual” cost element

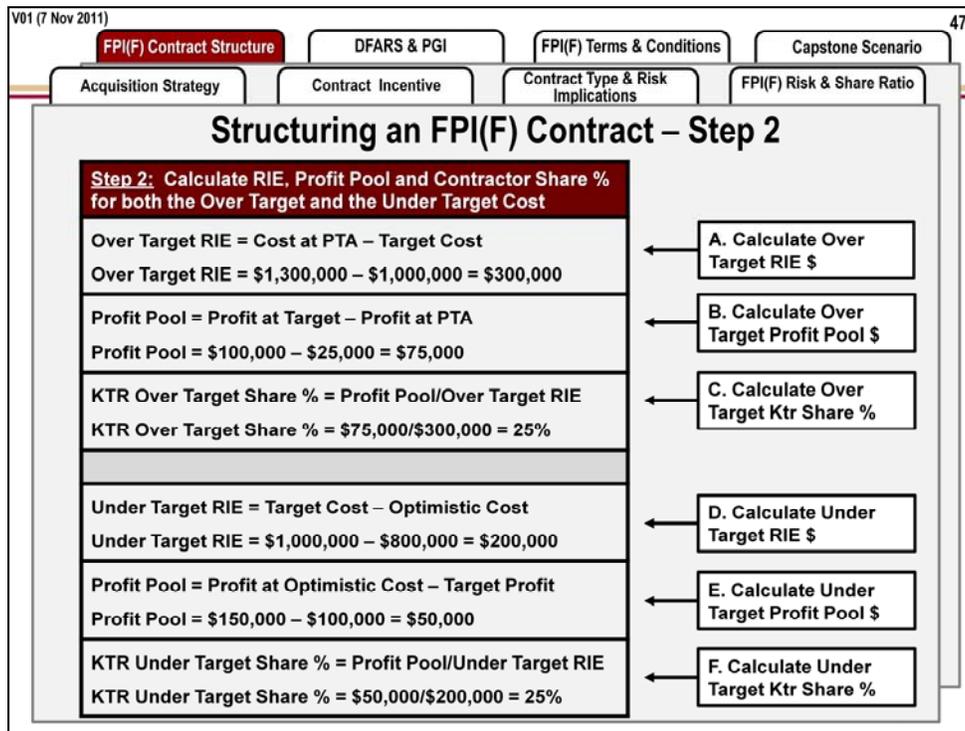
Next – Evaluate & Decide the Appropriate Profit Amount

The techniques for structuring an FPI(F) contract as presented in this chart and the next chart are adapted from the guidance described both in Chapter III of the DoD and NASA Incentive Contracting Guide (1969), pages 67-77, 81-83, & 85-94, and in the Contract Pricing Reference Guides, Vol.4, Chapter 1, Section 1.3.1.

In this example, note that variance between Target Cost and Optimistic cost is \$200,000 while the variance between Target Cost and Pessimistic cost is \$300,000. The DoD/NASA Guide states that a good estimated target cost should be one where there is equal chance of cost overrun or underrun, but not necessarily one where there is an equal magnitude of the cost overrun and underrun. As indicated in this Guide, the magnitude of the potential overrun usually will not equal the magnitude of the potential underrun. A good target cost represents a good estimate at a point in time. A target cost is not absolute, but is a point in a range of possible actual costs. Where the target cost falls in the range of probable costs it will be reflected in the slope of the share lines. (Ref: DoD/NASA Guide, p.85-87)

In a sole source acquisition, the Optimistic, Target (Most Likely) and Pessimistic cost estimates would be based on a detailed cost analysis of the contractor’s proposal at the cost element level to determine the objective end state of the negotiation.

In a competitive acquisition, the initial estimates of Optimistic, Target (Most Likely) and Pessimistic cost estimates would be based on a detailed Independent Government Cost Estimate performed at the major cost element level.



The techniques for structuring an FPI(F) contract as presented in this chart and the next chart are adapted from the guidance described both in Chapter III of the DoD and NASA Incentive Contracting Guide (1969), pages 67-77, 81-83, & 85-94, and in the Contract Pricing Reference Guides, Vol.4, Chapter 1, Section 1.3.1.

In this example, note that variance between Target Cost and Optimistic cost is \$200,000 while the variance between Target Cost and Pessimistic cost is \$300,000. The DoD/NASA Guide states that a good estimated target cost should be one where there is equal chance of cost overrun or underrun, but not necessarily one where there is an equal magnitude of the cost overrun and underrun. As indicated in this Guide, the magnitude of the potential overrun usually will not equal the magnitude of the potential underrun. A good target cost represents a good estimate at a point in time. A target cost is not absolute, but is a point in a range of possible actual costs. Where the target cost falls in the range of probable costs it will be reflected in the slope of the share lines. (Ref: DoD/NASA Guide, p.85-87)

The Contract Pricing Reference Guides, in Vol.4,Ch.1, Sec.1.3.1, makes the following additional points concerning RIE and its relationship to the Profit Incentive Pool and the Share Line:

Range of Incentive Effectiveness

- The range along the cost line within which the incentive is presumably working on the contractor.
- Some range of Realistic/Reasonable cost outcomes.
- The range of cost outcomes over which the contract contemplates the sharing of some pool of profit.

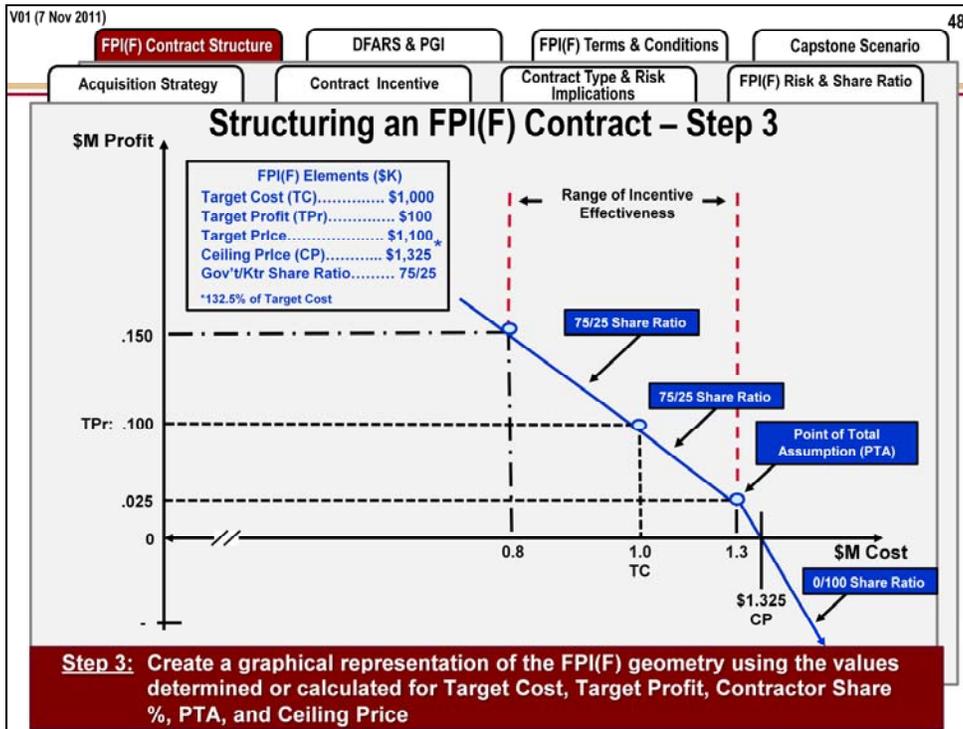
Incentive Profit Pool

- The amount of profit available to the contractor depending upon potential cost outcomes over the RIE.
- The difference in profit available at the Optimistic and Pessimistic Cost.

Share Line

- Represents the change in KTR profit or fee based on variations in performance cost over the RIE.
- Slope (calculated as \$Profit pool ÷ \$RIE) is the “Contractor’s Share” percentage* of any increase or decrease in performance cost.

$$*Contractor's Share \% = \frac{\text{Profit Pool Dollars}}{\text{Range of Incentive Effectiveness \$ (Cost Sharing Range)}}$$



Suggested Steps for Constructing the FPI(F) Contract Geometry

1. Set up a 2D graph where Cost\$ is the x-axis (horizontal) and Profit \$ is the y-axis (vertical). While not used in the above chart, one method recommended by the DoD/NASA Incentive Guide (p.46) for setting up the graph is as follows. A ratio of 5 to 1 (horizontal to vertical) is convenient for the analysis. That is, if each space on the horizontal axis is equivalent to 5 units or dollars, each space on the vertical axis will be equal to 1 unit or dollar. To label, start at the intersection of the two lines drawn on the graph paper (lower left corner). Label this point 0. Using the 5 to 1 ratio to establish and label points on both axes, there is a total range of cost dollars from 0 to 160 and profit dollars from 0 to 24.
2. Recap the FPI(F) element values for: Target Cost (TC), Target Profit (TPr), Target Price, Ceiling Price, Share Ratios, Optimistic Cost, Pessimistic Cost, Total Range of Incentive Effectiveness (RIE) and the Point of Total Assumption (PTA) cost.
3. Plot the intersection of Target Cost (TC) and Target Profit (TP) values.
4. Plot the Ceiling Price (CP) value on the Cost axis.
5. Plot the PTA point. It is at the intersection of the Pessimistic Cost value (i.e., the PTA cost) on the x-axis and the value of the Profit dollars determined for that cost on the y-axis.
6. Draw the 0/100 Share Line from the PTA point through the Ceiling Price value on the x-axis.
7. Plot the Optimistic Cost point. It is at the intersection of the Optimistic Cost value on the x-axis and the value of the Profit dollars determined for that cost on the y-axis.
8. Draw the 75/25 Over Target Share Line from the TC/TP intersection point to the PTA point (i.e., Pessimistic Cost).
9. Draw the 75/25 Under Target Share Line from the TC/TO intersection point through the Optimistic Cost/Profit intersection point.
10. Show the total RIE from Optimistic Cost to Pessimistic Cost (i.e., the PTA cost).

Quiz

- **When do we use a FPI(F) Contract?**
- **Define Target Cost**
- **Define Target Price**
- **Define Point Of Total Assumption (PTA)**
- **Why is PTA important to know?**

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**
- Relate **FPI(F) risk & share ratio to structure & price**
- Know how to **structure an FPI(F) contract**
- Apply **DFARS and PGI guidance**

**Let's Talk About DFARS and
PGI Guidance...**

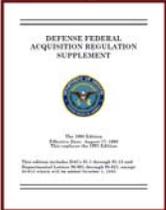
V01 (7 Nov 2011) 51

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

DFARS/PGI Guidance – Use of FPI(F) Contracting

DFARS 216.403-1 Fixed-price incentive (firm target) contracts (b) Application.

- (1) The contracting officer shall give particular consideration to the use of fixed-price incentive (firm target) contracts, especially for acquisitions moving from development to production.
- (2) The contracting officer shall pay particular attention to share lines and ceiling prices for fixed-price incentive (firm target) contracts, with a 120 percent ceiling and a 50/50 share ratio as the point of departure for establishing the incentive arrangement.
- (3) **See PGI 216.403-1** for guidance on the use of fixed-price incentive (firm target) contracts.



PGI 216.403-1 Fixed-price incentive (firm target) contracts

- (1) *Use of FPIF contract. (i) **Not mandatory.*** DFARS 216.403-1(b)(1) directs the contracting officer to give particular consideration to the use of fixed-price incentive (firm target) (FPIF) contracts, especially for acquisitions moving from development to production. **DFARS does not mandate the use of FPIF** for initial production and each acquisition situation must be evaluated in terms of the degree and nature of the risk presented in order to select the proper contract type.
- (2) *Incentive arrangement.* DFARS 216.403-1(b)(2) directs the contracting officer to pay particular attention to share lines and ceiling prices for fixed-price incentive (firm target) contracts, with 120 percent ceiling and a 50/50 share ratio **as the point of departure** for establishing the incentive arrangement. While **DFARS does not mandate the use of these share ratios or ceiling percentage**, it is not unreasonable to expect that upon entering into production, risks have been mitigated to the point that the DFARS recommended point of departure for an FPIF incentive arrangement would be normal.

The full text of PGI 216.403-1, Fixed-price incentive (firm target) contracts, is attached to the Student Handout Notes Pages.

V01 (7 Nov 2011) 52

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

PGI Guidance – Analyzing Cost Risk for FPI(F) Contracts

- **Establish an Incentive Structure where the risks and rewards are shared equally between the Government and contractor**
 - Establish a target cost where the probability of an underrun and overrun are considered equal, and where both risks and rewards are shared equally – hence, the 50/50 share line represents the point of departure
 - The contractor has a high probability to accomplish the effort within a ceiling percentage of 120 percent—ceiling percentage is applicable to the target cost on the prime contract
 - Risk posed by the various elements of cost is individually quantified
 - All risks, including technical and schedule risk, are translated into cost risk and quantified
 - Magnitude of risk impact and probability of occurrence is considered
- **PGI 216.403-1(3)(ii) through (iv) provides guidance for analyzing the cost risks at the cost element level**
 - Subcontracts and material cost and risk
 - Direct labor cost and risk
 - Indirect (e.g., overhead) cost and risk

(3) *Analyzing Risk. (i) Quantification of risk.*

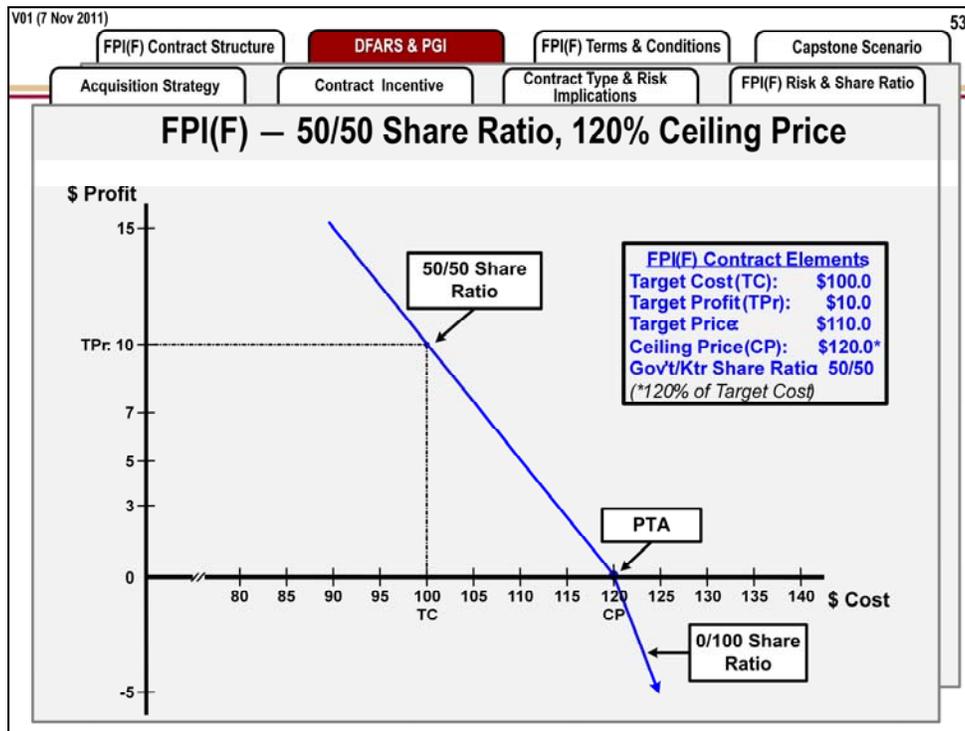
(A) The first step is establishing a target cost for which the probability of an underrun and overrun are considered equal and therefore, the risks and rewards are shared equally, hence the 50/50 share is the point of departure. Equally important is determining that the contractor has a high probability of being able to accomplish the effort within a ceiling percentage of 120 percent. In accomplishing both these steps, the analysis of risk is essential.

(B) Too often, risk is evaluated only in general terms without attempting to quantify the risk posed by the various elements of cost. Also, a contracting officer may incorrectly fall back on the share ratios and ceiling percentages negotiated on prior contracts or other programs, without examining the specific risks.

(C) Whether being used to select the proper contract type or establishing share lines and ceiling price on an FPIF contract, the analysis of risk as it pertains to the prime contractor is key. From a contractor's perspective, all risks, including technical and schedule risk, have financial ramifications. Technical and schedule risks, if realized, generally translate into increased effort, which means increased cost. Therefore, all risk can be translated into cost risk and quantified. Risk always has two components that must be considered in the quantification: the magnitude of the impact and the probability that it will occur.

(D) When cost risk is quantified, it is much easier to establish a reasonable ceiling percentage. The ceiling percentage is applicable to the target cost on the prime contract. It is important to understand the degree of risk that various cost elements pose in relation to that target cost. A discussion of the major cost elements and the risk implications follows in paragraphs (3)(ii) through (iv) of this section.

The complete full text of PGI 216.403-1, Fixed-price incentive (firm target) contracts, is attached to the Student Handout Notes Pages



This chart shows the revised incentive geometry that occurs by applying the DFARS Rule and the implementing guidance in the companion PGI concerning FPI(F) contracting (issued on 9/16/2011) to the incentive structure shown back on Chart 42 (i.e., the FPI(F) example taken from the DoD and NASA Incentive Contracting Guide).

Using the following standard formula:

$$PTA = \frac{(\text{Ceiling Price} - \text{Target Price})}{\text{Government Share \%}} + \text{Target Cost}$$

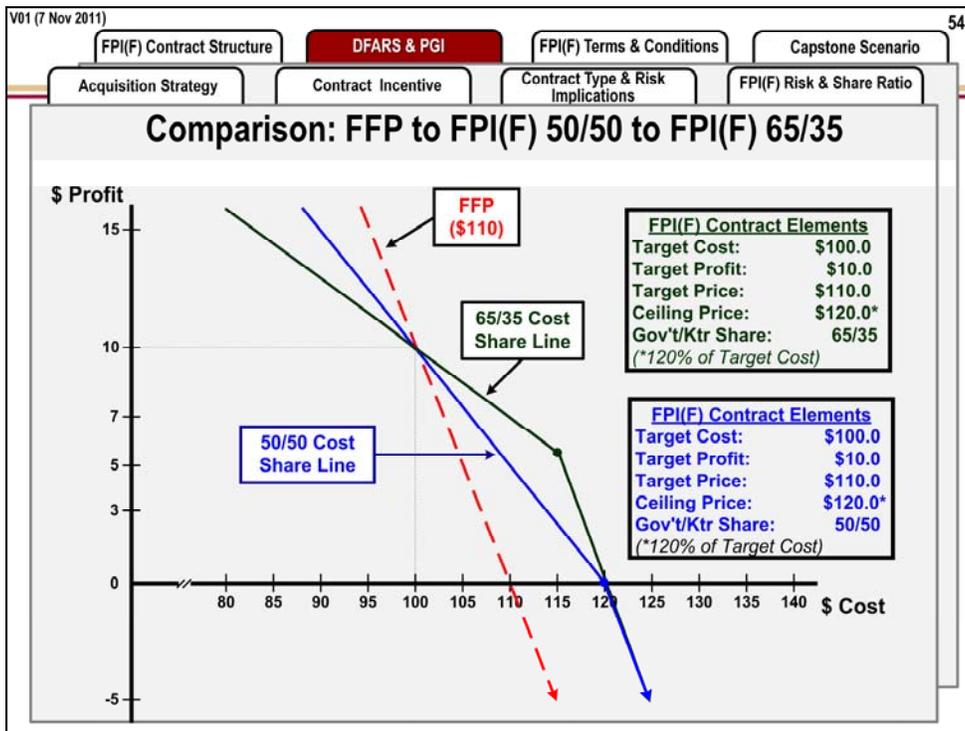
PTA for this example is calculated as follows:

$$PTA = ((120 - 110) \div .50) + 100 = 120$$

Therefore in this example, PTA is equal to Ceiling Price.

As indicated in the DoD & NASA Guide, the PTA cost is equivalent to the Pessimistic cost estimate to perform the contract work. When PTA is set equal to the Ceiling Price, this means that the earned profit for the contractor at the Pessimistic cost is zero dollars. Therefore, in order to provide some amount of earned profit to the contractor for completing the work at the Pessimistic cost as contemplated in the DoD & NASA Guide, then the Target Profit dollars would need to be increased in this case in order to provide for profit at PTA.

However, it should be noted that the DoD & NASA Guide leaves open the possibility that earned profit at the Pessimistic cost could be zero dollars because it states that the Profit at Pessimistic cost is a “reasonable” amount determined by the Government negotiator (Ref. p. 71). Therefore, depending upon the circumstances of the acquisition, it may be reasonable to provide the contractor with zero profit at the Pessimistic cost estimate.



Comparison of the cost risk sharing profiles of an FFP type contract with the two different examples of FPI(F) incentive structures discussed in Chart 42 and in Chart 53 using the same contract values but with the different Share Ratios.

Quiz

- Are Fixed Price Incentive (Firm Target) contracts mandatory?
- What does the PGI advise regarding DFARS 216.403-1(b)(2)?
- How is the Share Ratio Determined?
- What is the Range of Incentive Effectiveness (RIE)?

FPI(F) Contract Structure

DFARS & PGI

FPI(F) Terms & Conditions

Capstone Scenario

Acquisition Strategy

Contract Incentive

Contract Type & Risk
Implications

FPI(F) Risk & Share Ratio

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**

Let's talk about FPI(F) Terms & Conditions...

- Recognize unique **FPI(F) terms and conditions**
- Integrate what you have learned in various capstone scenarios

V01 (7 Nov 2011) 57

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

FPI(F) Contract Implementation (Abstract)

Clause FAR 52.216-16 - Incentive Price Revision - Firm Target

(a) *General.* The supplies or services identified in the Schedule as Items 0001 are subject to price revision in accordance with this clause; provided, that in no event shall the total final price of these items exceed the ceiling price of **one hundred and twenty dollars (\$ 120*)**.
Any supplies or services that are to be:

- (1) ordered separately under, or otherwise added to, this contract and
- (2) subject to price revision in accordance with the terms of this clause shall be identified as such in a modification to this contract.

(c) *Data submission.*

- (1) Within 60 days after the end of the month in which the Contractor has delivered the last unit of supplies and completed the services specified by item number in paragraph (a) of this clause, the Contractor shall submit in the format of Table 15-2, FAR 15.408, or in any other form on which the parties agree --
 - (i) A detailed statement of all costs incurred up to the end of that month in performing all work under the items;
 - (ii) An estimate of costs of further performance, if any, that may be necessary to complete performance of all work under the items;
 - (iii) A list of all residual inventory and an estimate of its value; and
 - (iv) Any other relevant data that the Contracting Officer may reasonably require.

* Sample data

FEDERAL
ACQUISITION
REGULATION

The Target Cost, the Target Profit and Target Price are set forth in the Schedule of the contract, Uniform Contract Format (UCF) Section B – Prices, Supplies or Services and Prices/Costs.

The Ceiling Price is set forth in FAR 52.216-16(a) as a dollar amount certain (i.e., as opposed to specifying a “percentage” of Target Cost). However, the Ceiling Price amount is also usually specified in Section B of the Schedule according to common practice.

FAR 52.216-16(c) sets forth the requirement that the contractor must submit a detailed proposal to the Government after completion and acceptance of the work for the purpose of establishing the final contract price and describes the content of such proposal.

FAR 52.216-16(d) and (e) establish the specific procedures for negotiating and incorporating the revised total price into the contract.

The “contractor’s share” of the Share Ratio(s) is specified in FAR 52.216-16(d)(2). The contractor’s “over Target Cost” share is specified in FAR 52.216-16(d)(2)(ii). The contractor’s “under Target Cost” share is specified in FAR 52.216-16(d)(2)(iii).

FAR 52.216-16(d)(2) can easily accommodate split (i.e., different) Share Ratios for both “over” and “under” Target Cost if such a split sharing incentive is determined to be in the best interest of the Government for a given acquisition; that is, such provides for an FPI(F) cost sharing arrangement that best fits the cost uncertainty of the effort and results in the best business deal for both parties.

V01 (7 Nov 2011) 58

FPI(F) Contract Structure	DFARS & PGI	FPI(F) Terms & Conditions	Capstone Scenario
Acquisition Strategy	Contract Incentive	Contract Type & Risk Implications	FPI(F) Risk & Share Ratio

FPI(F) Contract Implementation (Abstract - Cont'd)

(d) **Price revision.** Upon the Contracting Officer's receipt of the data required by paragraph (c) of this clause, the Contracting Officer and the Contractor shall promptly establish the total final price of the items specified in (a) of this clause by applying to final negotiated cost an adjustment for profit or loss, as follows:

FEDERAL
ACQUISITION
REGULATION

- (1) On the basis of the information required by paragraph (c) of this clause, together with any other pertinent information, the parties shall negotiate the total final cost incurred or to be incurred for supplies delivered (or services performed) and accepted by the Government and which are subject to price revision under this clause.
- (2) The total final price shall be established by applying to the total final negotiated cost an adjustment for profit or loss, as follows:
 - (i) If the total final negotiated cost is equal to the total target cost, the adjustment is the total target profit. *[i.e., target cost and target profit specified in the Schedule – Section B]*
 - (ii) If the total final negotiated cost is greater than the total target cost, the adjustment is the total target profit, less 35* percent of the amount by which the total final negotiated cost exceeds the total target cost.
 - (iii) If the final negotiated cost is less than the total target cost, the adjustment is the total target profit plus 35* percent of the amount by which the total final negotiated cost is less than the total target cost.

(e) **Contract modification.** The total final price of the items specified in paragraph (a) of this clause shall be evidenced by a modification to this contract, signed by the Contractor and the Contracting Officer.

* Sample data

The Target Cost, the Target Profit and Target Price are set forth in the Schedule of the contract, Uniform Contract Format (UCF) Section B – Prices, Supplies or Services and Prices/Costs.

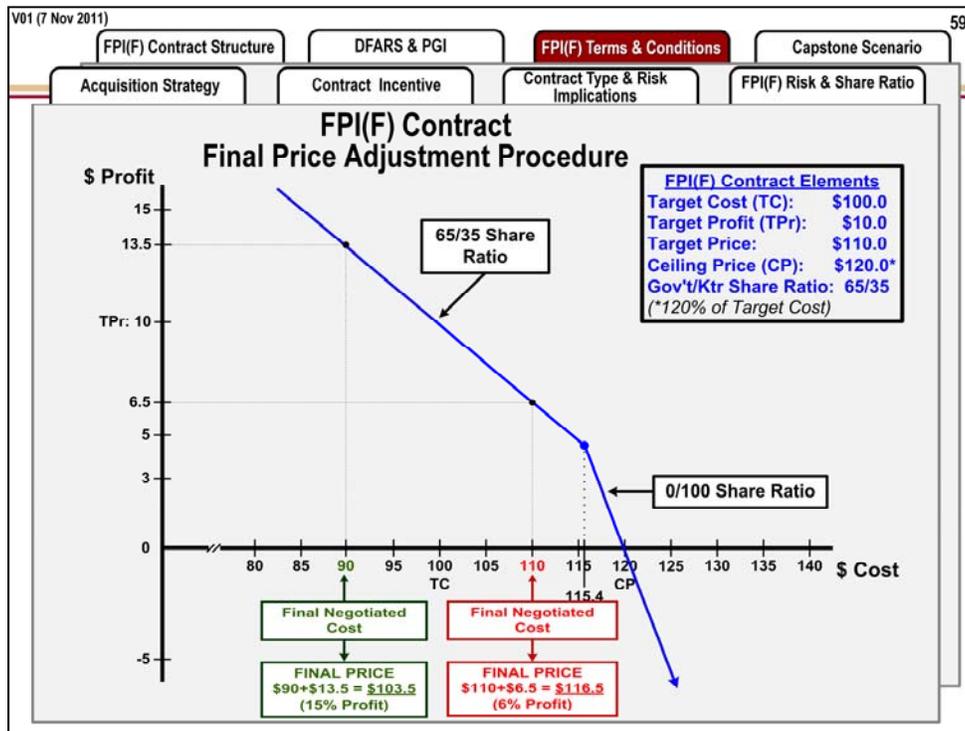
The Ceiling Price is set forth in FAR 52.216-16(a) as a dollar amount certain (i.e., as opposed to specifying a “percentage” of Target Cost). However, the Ceiling Price amount is also usually specified in Section B of the Schedule according to common practice.

FAR 52.216-16(c) sets forth the requirement that the contractor must submit a detailed proposal to the Government after completion and acceptance of the work for the purpose of establishing the final contract price and describes the content of such proposal.

FAR 52.216-16(d) and (e) establish the specific procedures for negotiating and incorporating the revised total price into the contract.

The “contractor’s share” of the Share Ratio(s) is specified in FAR 52.216-16(d)(2). The contractor’s “over Target Cost” share is specified in FAR 52.216-16(d)(2)(ii). The contractor’s “under Target Cost” share is specified in FAR 52.216-16(d)(2)(iii).

FAR 52.216-16(d)(2) can easily accommodate split (i.e., different) Share Ratios for both “over” and “under” Target Cost if such a split sharing incentive is determined to be in the best interest of the Government for a given acquisition; that is, such provides for an FPI(F) cost sharing arrangement that best fits the cost uncertainty of the effort and results in the best business deal for both parties.



The FPI(F) contract is a flexibly-priced, fixed-price contract with a pre-determined, formula-type incentive arrangement. The values of the “contract elements”, such as those used in this example, are agreed to before a definitive contract is awarded.

Upon final acceptance of supplies or services by the Government, the contractor submits a proposal, subject to certified cost or pricing data if the amount is over the TINA threshold, for the amount of total actual costs incurred to perform the work. After evaluation by the Government, the parties negotiate the total final cost incurred for the contract, and then apply the contract incentive sharing formula to determine the profit earned and the resulting final contract price. If the final negotiated cost is greater than or equal to PTA cost (\$115.4 in this example), then the ceiling price is paid. [Ref.: FAR 52.216-16 (d)].

For example, if the final negotiated cost is \$90, then the final price is calculated as:
 $(\$10 + ((\$100-90) \times 35\%)) = \13.5 [earned profit] plus \$90 = \$103.5 Final Price (15% profit rate).

Or for example, if the final negotiated cost is \$110, then the final price is calculated as:
 $(\$10 - ((110-100) \times 35\%)) = \6.5 [earned profit] plus \$110 = \$116.5 Final Price (6% profit rate).

Your Interactive Workshop Objectives

- Understand the **role of Acquisition Strategy**
- Understand the **nature of a contract incentive**
- Know the **various contract types & risk implications**
- Relate **FPI(F) risk & share ratio to structure & price**

**Let's talk about
what you have learned...**

- Integrate **what you have learned in various capstone scenarios**

FPI(F) Contracting Exercise #1

- Gov't and contractor will soon begin negotiations for a production contract
 - Production requirement also includes manufacturing technology improvements which could drive unit cost down as more units are produced
 - Moderate risk, with program office optimistic and pessimistic cost estimates of \$80 and \$123
 - Initial Government negotiation objectives:
 - Target cost: \$100
 - Target profit: \$10 (10%)
 - Share ratio: Government believes this is more risky than a 60/40, or 70/30 share ratio, but not risky enough for a 90/10. Set the Share Line at 80/20 as negotiation objective
 - Ceiling price: Government believes 130%, given moderate risk and pessimistic cost estimate
1. Graph the geometry of the incentive structure (template provided)
 2. Does this FPI(F) structure appear to offer an effective incentive?

FPI(F) Contracting Exercise #2

The program office is reassessing the same requirement using a 50/50 share ratio and a Price Ceiling of 120% as a point of departure

- 1. Graph the geometry of the revised incentive structure
- 2. Does this revised FPI(F) structure appear to offer an effective incentive?



FPI(F) PM Exercise #1

- Firebird II had a successful EMD and the Operational Assessment (OA) proved to be very informative. In preparation for the MS C Decision, the Acquisition Strategy calls for a Technology Refresh of the processing system—allows for several SW issues identified during OA to be corrected
- Follow on effort would award Production Contract with LRIP for 12 units and then Full Rate Production exercised as a contract option.

As the PM, what contract type would you discuss with the Contracting Officer for these efforts? Why?

FPI(F) PM Exercise #2

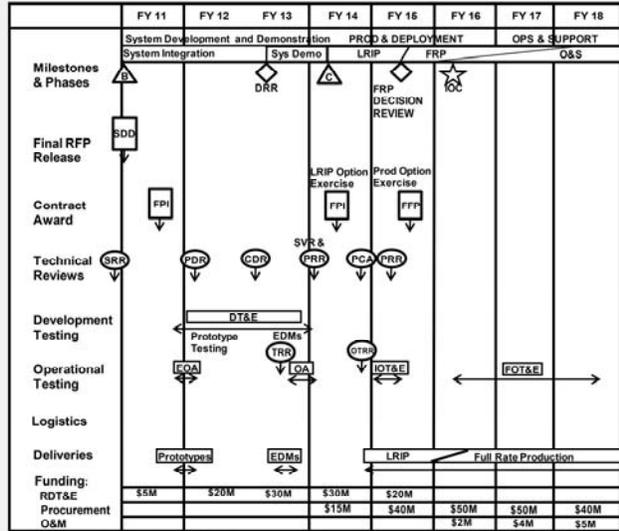
- Firebird II had a successful LRIP and IOT&E. JROC approved a requirement to add an advanced Intelligence, Surveillance, and Reconnaissance (ISR) capability. Currently, the Hawkeye ISR system has been installed on two UAVs with success—appears that Hawkeye meets your KPPs and the warfighter's requirements.
- Technology assessment has been conducted—strong recommendation that Hawkeye can be installed on Firebird II in a relatively short incremental approach. Your Chief Engineer recommends moving forward, gain approval, and seek funding. Some low to moderate risks persist with weight, balance, and S/W for this upgrade. The S/W integration will be the most important requirement because live video stream must be compressed, linked to a satellite, and delivered to the warfighter for analysis to support short operational time windows.

As the PM, what are your risks and what contract type will best suit this scenario?

Firebird II Program Structure Chart*

Legend

- △ - Milestones
- ◇ - MDA Decisions
- ☆ - User Decisions
- - Technical Reviews
- ▭ - Activities (Tests Deliveries etc)
- ▭ - Document
- ↓ - Point in Time (Short Event)
- ↔ - Duration of Event or Activity



* The Firebird I program was developed prior to major changes in the Defense Acquisition Management System. Do not rely on this chart for correct event/phase names or sequencing.

**Time for Final Assessment
(All Objectives)**

Final Assessment (page 1 of 2)

Incentive Contracting with an Emphasis on FPI(F) Workshop

Final Exam Name: _____

1. When considering the use of incentives, the Program Manager (PM) must know the objectives of the acquisition. The PM should consider which of the following:
 - a. The requirement to exit
 - b. The outcomes the contractor is expected to provide
 - c. Risk the Government assumes
 - d. Clarity of cost factors
 - e. All the above
2. T / F Incentive contracts must contain a cost incentive.
3. Describe the two types of monetary incentives:
 - a. Objective incentives: _____
 - b. Subjective incentives: _____
4. Match the type of contract to its description:

a. Cost Plus Award Fee	_____
b. Cost Plus Incentive Fee	_____
c. Firm Fixed Price	_____
d. Fixed Price Incentive (Firm Target)	_____

 - i. FFP not suitable; adequate cost data exists to set reasonable firm targets at time of initial contract award
 - ii. Target cost and fee adjustment formula likely to motivate effective contractor management
 - iii. Infeasible to set objective cost, schedule, performance targets & expected benefits warrant effort and cost involved
 - iv. Reasonably definite functional or detailed specifications; predictable cost impacts for performance uncertainties

5. What are the three components of risk?
 - a. _____
 - b. _____
 - c. _____
6. Which contract type (CPAF, CPFF, CPIF, FFP, FPA/EPA, FPI/F) allocates greatest risk:
 - a. to the Contractor: _____
 - b. to the Government: _____
7. Which of the following is true (select all that apply):
 - a. In an FFP contract there is a "50/50" share ratio with 100% of the risk on the government
 - b. The share ratio is always presented as Govt cost risk % / Atr cost risk %
 - c. The share ratio is the price revision formula that is used to adjust earned profit based on the variance of the final negotiated cost from the target cost
 - d. A "50/50" share ration should be the point of departure in an FPI(F) contract
8. What does the Point of Total Assumption (PTA) identify?

9. What does the Range of Incentive Effectiveness (RIE) tell us?

Final Assessment (page 2 of 2)

10. Given the following information, graph the geometry of the incentive structure (include the following as a minimum: TP, TC, CP, PTA, 80/20 share ratio, 0/100 share ratio, RIE).

Gov't and contractor will soon begin negotiations for a production contract
Production requirement also includes manufacturing technology improvements which could drive unit cost down as more units are produced.

Moderate risk, program office cost estimates of \$85 optimistic and \$120 pessimistic.

Initial Government negotiation objectives:

- **Target cost:** \$100
- **Target profit:** \$10 (10%)
- **Share ratio:** Government believes this is more risky than a 60/40, or 70/30 share ratio, but not risky enough for a 90/10. Set the Share Line at 80/20 as negotiation objective
- **Capline price:** Government believes 130%, given moderate risk and pessimistic cost estimate

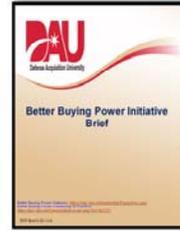
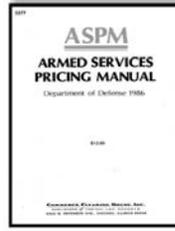
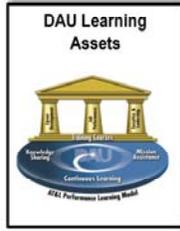


SUMMARY

- **Congratulations! You have:**
 - Described the role of an acquisition strategy and its relationship to incentives
 - Discussed a PM's objectives/outcomes for sample life cycle scenarios and selected the contract type that was the most appropriate based on a range of variable factors
 - Performed a Risk Assessment
 - Applied the mechanics of a Fixed Price Incentive (Firm Target) contract
 - Demonstrated a full understanding of Target Cost, Target Profit, Target Price, Share Ratio, Ceiling Price, Point of Total Assumption, and Range of Incentive Effectiveness
- Remember, as Mr Frank Kendall, (then) Principal Deputy Under Secretary of Defense for Acquisition, Technology and Logistics, said "*FPI(F) is not a mandate!* The guidance is to consider FPI(F) contracts and use them when they are the right choice (18 August 2011)"



Data Sources



AT&L Directives & Memos



Other Resources

- **DAU Courses**

- Intermediate Systems Acquisition Course (ACQ 201B)
- Introduction to Cost Analysis (BCF 106)
- Program Management Office Course (PMT 352B)
- The Program Manager's Course (PMT 401)
- Introduction to Contract Pricing (CON 170)
- Intermediate Cost and Price Analysis (CON 270)
- Source Selection and Acquisition of Service Contracts (CON 280)
- Contract Administration and Negotiations (CON 290)
- Life Cycle Product Support (LOG 340)

Other Resources

- **Continuous Learning Modules**
 - Contract Source Selection (CLC 007)
 - Contractual Incentives (CLC 018)
 - Performance Based Payment (CLC 026)
 - Analyzing Contract Cost (CLC 056)
 - Performance Based Payments and Value of Cash Flow (CLC 057)
 - Contract Risk Analysis (CLB 024)
- **Excel Contract Tool for FPI(F)**
- **Community of Practices**
 - Incentive Contracts Community of Practice (CoP)
- **DoD Contract Pricing Reference Guides**

On the Horizon

Advanced FPI(F) Contracting Concepts Part 2: (Under Construction)

- **Planning and Execution Battle Rhythm**
 - Program and Contract Life Cycle
 - Budget and Contract Funding Requirements
- **Evaluation of FPI(F) Structure in Competitive Acquisitions**
 - Contractor Proposed Structure
 - Government Specified Structure
- **Incorporation of Performance and Schedule Incentives**
- **Contract Modifications/Termination**