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# Agile Contracts

Agile 2005 Workshop



# *Opportunism*

*Taking advantage of opportunities without regard for the consequences to others.*

*Seeking immediate advantage with little regard for ultimate consequences.*



# *Two-Party Interactions*

- Free Market
  - Market forces control opportunism
  - Suitable for 'standard' products
- Vertical Integration
  - Administration controls opportunism
  - Suitable for specialized assets
- Contracts
  - Contract controls opportunism
  - Motivation:
    - Lower Cost
    - Specialized Capabilities



# *What is Trust?*

- Confidence in the fairness, stability, and predictability of the company's routines and processes.

*It's not that I don't trust the person sitting across from me at General Motors. In fact, I may feel more comfortable with him than his counterpart at Toyota. I may trust him completely.*

*What I don't trust is that he will be sitting there a year from now. And even if he's there, he may have to play by a new set of rules.*

Supplier executive quoted in *Collaborative Advantage*, by Jeffery Dyer, 2000



## *Can there be Trust Between Firms?*

- What do we mean by Trustworthy?
  - The extent to which company can be trusted to treat a supplier or client fairly
  - The extent to which the company might try to take unfair advantage of the other party
  - The company's reputation for fairness among the supplier or client community

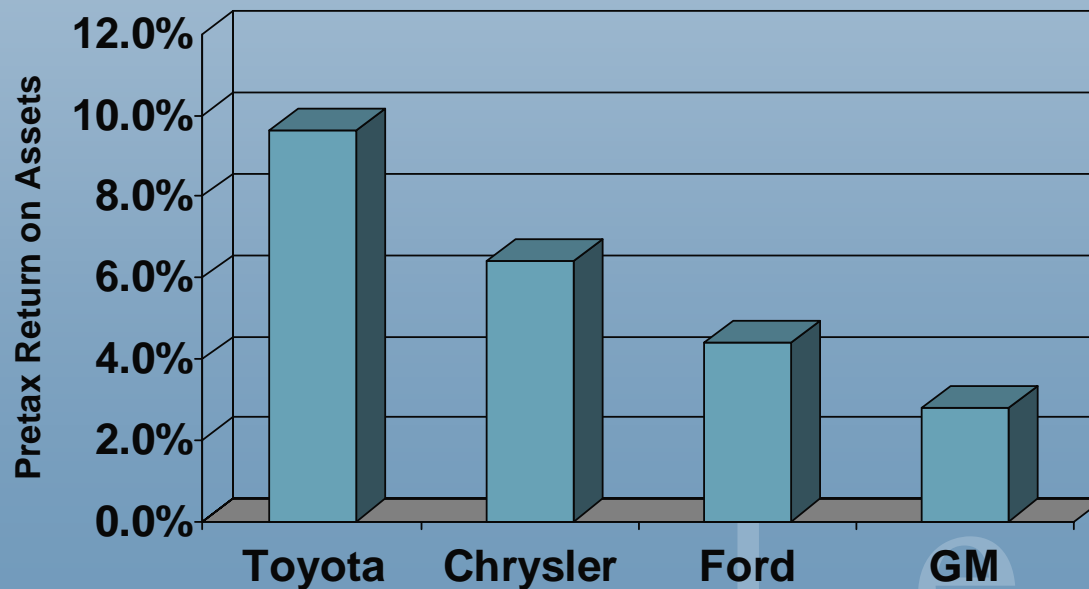


# *The Economic Value of Trust*

**TOYOTA**

- Obtains  $\frac{3}{4}$  of US components from suppliers while GM obtains  $< \frac{1}{2}$  from suppliers
- Spends  $\frac{1}{2}$  as much money & time on procurement as GM

**Automaker Profitability (Average from 1982-1998)**





# *The Economic Value of Trust*



- Rapid growth was incompatible with the prevailing model of vertical integration
- Wanted to focus on customers, not components
- Uses Virtual Integration, not Vertical Integration

*“Virtual integration means you stitch together a business with partners that are treated as if they’re inside the company.”*

Michael Dell, Harvard Business Review Interview, March, 1998



# *The Cost of Crossing Boundaries*

- Keiretsu (K-ret-soo): a group of affiliated companies in a tight-knit alliance that work toward each other's mutual success.
  
- “In every single case, the Keiretsu, that is, the integration into one management system of enterprises that are linked economically, has given a cost advantage of at least 25% and more often 30%.”\*
  - GM: 1920’s – 1960’s
    - Ownership
  - Sears: 1930’s – 1970’s
    - Partial ownership, contracts
  - Marks & Spencer: 1930’s – ?
    - Contracts
  - Toyota: 1950’s – present
    - Contracts, economic incentives

*\* Management Challenge for the 21<sup>st</sup> Century, Peter Drucker*



# *Prisoner's Dilemma*

- Two prisoners held in separate cells and not allowed to communicate. The police can prove they both have committed crime A, but want to convict at least one of them of the more serious crime B.
- Each prisoner is offered this deal:
  - Confess to crime B and testify against the other. If he does not confess and testify against you, you go free, while he receives 3 years in prison.
  - If, however, he also confesses to crime B and agrees to testify against you, you each will receive 2 years.
  - If you both remain silent, you both will be convicted of crime A and serve 1 year.
- There are two choices – cooperate (remain silent), or defect (confess).
  - Cooperation either means you serve one or three years.
  - Defection means you may serve 0 or 2 years.
- What would you do?





# *The Purpose of Contracts*

- Conventional Wisdom
  - Companies inevitably look out for their own interests
  - Contracts are needed to limit opportunistic behavior
- The Lean Approach
  - Assume other party will act in good faith
  - Let the relationship limit opportunism
    - Sometimes is called a relational contract
  - Use the contract to set up incentives
    - Align the best interests of each party with the best interests of the joint venture



# *Contract Models*

Fixed Price  
Time-and-Materials  
Progressive  
Target Cost  
PS 2000 (Norway)  
Profit Sharing



## *Selecting a Contract model*

- All contract models create a bi-lateral monopoly.
- Risk should be born by the party best able to manage it.
  - Uncertainty in the domain
    - Customer
  - Uncertainty in the technology
    - Supplier



# *Transaction Costs*

- Selection
- Negotiation and Renegotiation
- Monitoring and Enforcement
- Billing and Payment
- Inventory and Transportation
- Cost of Diminished Communication
- Cost of Loss of Skill Base
- Cost of Poor Results



# *Fixed Price Contracts*

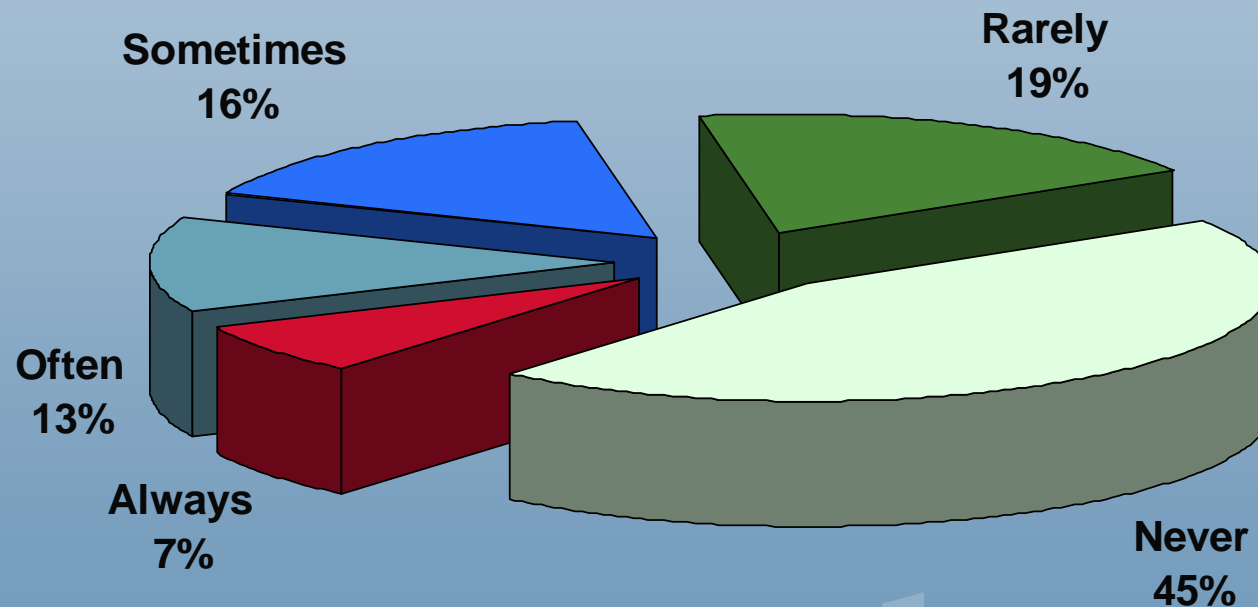
- Supplier is at greatest risk
  - Customer has little incentive to accept the work as complete
- Generally does not give the lowest cost
  - Competent suppliers will include cost of risk in bid
  - Creates the game of low bid with expensive change orders
- Generally does not give the lowest risk
  - Selection favors the most optimistic [desperate] supplier
    - Least likely to understand project's complexity
    - Most likely to need financial rescue
    - Most likely to abandon the contract before completing it
- Customers are least likely to get what they really want



# *Fixed Price Contracts Lead to:*

- Early Scope Definition (to protect the vendor)
- Excess Scope (to protect the customer)

## Features and Functions Used in a Typical System



*Standish Group Study Reported in 2000 Chaos Report.*



## *Why Time-and-Materials?*

“Customers should prefer flexible-price contracts to fixed-price contracts where it is cheaper for the customer to deal with uncertainty than it is for the contractor to do so, *or where the customer is more concerned with the ability of the contractor to provide a product that works than with price.*”

*Fred Thompson in “Handbook of Public Administration” (Second Edition), Rabin, Hildreth, & Miller, eds.,. New York: Marcel Dekker, Inc., 1998.*



# *Time-and-Materials Contracts*

- Customer is at greatest risk
  - Supplier has little incentive to complete the work
  - Therefore need to control supplier opportunism
- DOD T&M contracts
  - Birthplace of the Waterfall Lifecycle
  - Trust is difficult to justify in a government entity
- Traditional T&M control systems
  - Are Expensive
  - Do Not Add Value
  - Get in the way of Good Software Development
    - Do not support on-going user feedback
    - Are not tolerant of change or uncertainty



# *Progressive Contracts*

- Structure
  - Start With An Umbrella or Framework Contract
  - Release Work In Stages
    - Keep Stages Small
    - Each Stage is an Iteration
    - Often Early Stages are Fixed Price
  - Scope Beyond the Existing Stage is Negotiable
- Incentives
  - Customer is at risk if supplier starts and doesn't finish
  - Supplier is at risk of sudden cancellation
  - Risks mitigation: Trust increases as risk increases



## *The 1/3 – 2/3's Contract*

- Estimate entire project (ballpark)
  - Divide the estimate into thirds
- Deliver workable system in first third of the time
  - Minimum functionality
  - No bells and whistles
  - Gives customer general idea of what is being done
- Customer can change the contract at that point
  - The project is almost *always* changed at this point



# Target Cost Contracts

- Target cost
  - Target cost includes all changes
  - Target is the joint responsibility of both parties
  - Target cost is clearly communicated to workers
  - Negotiations occur if target cost is exceeded
    - Neither party benefits
  - *Workers at all levels have clear incentives to work collaboratively, compromise, and meet the target*
- Example: New College Field House



## *PS 2000 (Norway)*

- Developed by Norwegian Computer Society
- Used in large public IT projects in Norway
- Highlights
  - Flexible iterative model for development suited for an environment of uncertainties and risks
  - Used when it is particularly difficult to draw up a detailed specification prior to tendering
  - Provides mechanisms for establishing a common understanding between customer and the developer
  - Leaves it to the developer to find the best way to meet the objectives and needs of the customer

From: <http://dataforeningen.no/?module=Articles;action=ArticleFolder.publicOpenFolder;ID=1044> 7/19/2005.



# *PS 2000 (Norway)*

- Standard Contract Elements
  - Increasing efficiency of the procurement and tender processes
  - Based on documented "Best practice"
  - Tools for managing uncertainty
  - Stage by stage, iterative development model allows increasing understanding of the requirements and challenges
  - Close co-operation between supplier and customer
  - Incentives and sanctions in combination with target pricing
  - Procedures for conflict resolution with an expert as a mediator
- Standard Contract Parts
  - I. Part I defines the Customer and Supplier
  - II. Part II describes the rights and obligations of the parties
  - III. Part III consists of specific annexes

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# *PS 2000 Experience Report*

- Advantages
  - Allows for Agile Development
  - Promotes Trust
  - Has Mechanisms for Changes
  - Target Cost
    - Has target, upper limit and lower limit
      - If under cost, share savings
      - If over cost, share overrun
    - Reduces the incentive to do the wrong thing
- Disadvantages
  - Each iteration is a separate contract
    - Tends to be fixed-price like
    - Time and Materials
  - Works well only if the iterations are small



# *Profit Sharing*

- Vendor & customer share profits from Joint Venture
  - Customer may fund vendor's development at cost
  - Vendor may develop system on speculation
- Advantages
  - Both sides prosper (or not) together
  - Workers motivated to work for the good of the Joint Venture
- Disadvantages
  - Intellectual Property ownership may be a challenge
  - Customer may not market the product aggressively
  - Quality of product may not meet expectations



# *Summary*

- Trust-Based Partnerships
  - Require risk sharing
  - Adapt to change and uncertainty
  - Depend on organizational policies that limit opportunism through non-contractual methods
  - Must provide motivation for everyone to work for the good of the Joint Venture
  - Almost always yield faster, better, cheaper results



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## Thank You!

*More Information: [www.poppendieck.com](http://www.poppendieck.com)*