

Troubled Transport Projects – It's No Way to Run a Railroad !

Presented by



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Key Disciplines for Successful Power Projects

- **Contract Management**
- **Scope Management**
- **Schedule Management**
- **Procurement Management**
- **Cost Management**
- **Dispute Management**

Management

- Why so important today?
- Technical complexity of the projects
 - Efficiency, 58 % +
 - Reliability
 - Environmental Limits
- Delivery Cycle
- Capital Cost
- Risk vs. Reward (Peak Demand)

Contract Management

- Selection of Contract Delivery System :
EPC/Turnkey, DB, DBOM
- Integration of all Project contracts
- Reality Check – Side Issues
- Contract Administration
 - Notice
 - Changes
 - Performance
- Reporting/Monitoring

Key Owner/Contractor Clauses

- Changes
- Differing Site Conditions
- Assigned Equipment POs
- Delay/Acceleration
- Warranty
- Payment
- Performance Testing
- Liquidated Damages
- Disputes

Change Management

- **Increasing Design Complexity leads to more Significant Impacts to Projects by Changes**
- **Recognize that Change is Occurring**
- **Build Recognition Systems into Contract Administration**
- **Minimize Negatives and Maximize Positives of Change on the Overall Project**

Owner's View of Changes

- **Formal Change vs. Field Design Change**
- **Consideration Required**
 - **Scope of Work**
 - **Directive versus Change Orders**
 - **Constructive Changes**
 - **Cardinal Change**

Scope Management

- Assumptions
 - “Its going to be just like the _____ project.”
- Codes and Standards
- Interfaces
- Work by Others
- Global Economy

Planning Assumptions

- **What's the Deal?**
- **Site Access and Suitability**
- **Labor Availability and Skill Levels**
- **Boundary Conditions**
- **Related Work by Others**
- **Procurement Schedules**
- **Testing and Operation**

Schedule Management

- **Why have a schedule ?**
 - To create confusion!
 - To add weight to the monthly report!
 - As a sword
 - As a shield
 - To be able to hide the project float!
- **“Games” schedulers play**
- **Specifying Schedules**
- **Scheduler qualifications**

Schedule Management

- **Mission Impossible? Or just improbable?**
- **What is driving the schedule?**
- **Progress Reporting or CYA?**
- **Change Integration**

Schedule Management

- Floating completion dates or negative float?
- Dual units → Linked impacts
- Recovering from problems
 - Working smarter rather than harder.
 - Re-planning the work vs. schedule games
- Resource Constraints: When Desire Meets Reality

Procurement Management

- Specifications
- Shipping
- Inspection
- Acceptance
- Global Economy

Equipment Procurement

- Whose Standard?
- Inspection Protocol
- Testing Protocol
- Warranty
- Repair

Cost Management

- Reality vs. Project Management
- Cost Estimate → Budget
 - Understanding Assumptions
 - Arbitrary?
 - How identical are 2 projects?
- Timeliness and Availability
- Measurement & Monitoring
- Integration with Scope & Schedule

Labor Utilization

- **Skill Levels: Requirements vs. Reality**
- **Availability**
- **Portability**
- **Efficiency Compared to Bid Assumptions**

Operating & Maintaining

- **Beauty is in the Eye of the Beholder**
- **Project is Built, but No Spare Parts**
- **People Who Worked on the Project Are All Gone**
- **Training For Operating & Maintenance Personnel**
- **Failure to Maintain Operating Standards**
- **Schedule Considerations for O&M**

Effective Disputes Management: Keys to Success

- Fairness
- Efficiency/ Timing
- Flexibility
- Contemporaneous Decisions
- Executive Level Involvement
- Consistent With Applicable Legal Framework

Disputes: An Issue of Identify

- Identification of Change Order, Claim, Delay, etc.
- Notice -- Avoid Surprise -- Hostility
- Formal Exchange Of Positions
- Discussion
- When Is a Dispute a “Dispute”
- Issues May be Timing or Definition

Disputes: Levels Of Engagement

- **Negotiations -- Project Management**
- **Executive Involvement**
 - Senior Executives
 - Board Of Directors
- **Third Party Involvement**
 - Mediation/Conciliation (Ad Hoc)
 - Adjudicator/DAB (On-Going)
- **Arbitration**
- **Parties' Contract Obligations Continue, Absent Termination**

Technical Disputes

- **Contract Defines**
 - Design Adequacy
 - Compliance With Specifications
 - Compliance With Applicable Standards
 - Progress Of Construction Works?
- **Independent Expert Opinion**
- **Expert Qualifications**
- **Expert Powers**
- **Abbreviated Procedures**

Common Threads

- **Planning Focus**
- **Complexity of Interactions**
- **Identification and Monitoring of Assumptions**
- **Primacy of Contract**

New Management Paradigm – Systems Thinking

- **Whole vs. Parts**
- **Systems are the product of interactions rather than the sum of the parts.**
- **Optimize the whole rather than the parts.**

Paradigm Implementation

- **Align Purpose(s)**
- **Manage Interactions**
- **Learn and Adapt**

Application of Systems Thinking

- Apply systems thinking to all phases of the project
- Conceptual Studies
- Team Selection
- Administration
- Construction
- Start-up/Testing
- Operations

Conceptual Design

- **Critically Examine Assumptions and Make them Explicit**
- **Programming Phase Definition**
- **Review and Test**
- **Scope definition**
- **Schedule assumptions**
- **Budget Data**

Typical Project Assumptions

- Codes, Regulations and Standards
- Worker availability and skill levels
- Local materials availability and quality
- Lack of Existing Infrastructure, ports, roads, etc.
- Permits, Inspection services, etc
- Transportation
- Communications
- Living Conditions (eg building a camp may be necessary before construction)
- Economic Drivers
- Exchange Rates
- Commodity Prices

Team Selection

- **Select Project Delivery Method**
 - Design-Bid-Build
 - Design Build
 - Hybrids
- **Select Team**
 - CII Study:
 - Most important determinant to project success is the personnel assigned to the work



Project Administration

- Procedures
- Report Timing and Format
- Change Order System
- Problem Acknowledgement
- Reviews and meetings
- All Procedures Act as Constraints within the system
- Designed to focus on the success of the whole

Construction

- **Work Scope Definition**
- **Shop Drawing Administration**
- **Requests for Information**
- **Design Bulletins**

Start-Up/Testing

- **Special Equipment**
- **Test Procedures**
- **User Training**

Operation

- User Expectations
- Nuts and Bolts
- Operability
- Maintainability
- Reliability

Project Flash Points of Trouble

- Engineering Deliverables
- Long Lead Equipment
- Site Mobilization
- Construction Interfaces
- Start-up Testing/ Commissioning
- Initial Operation and Operator Training



How Does Project Advocacy Fit Into a Systemic View of Projects?

- Looking at the whole instead of parts
- Incorporate wisdom
(higher level L & A aspects)

Ingredients for a Successful Project

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- Proper Planning
- Project Definition
- Financial Stability
- Appropriate Design
- Fair Contracts
- Team Development
- Rapid and Fair problem resolution



Project Advocate Team Development

- Selection
 - Private/Public
- Contract Award
 - Pricing
 - Schedule
 - Permitting
 - Supervision
- Pre-Project Meetings
 - Document Review
 - Partnering



Project Planning For Success

- **Select Individuals**
- **Integrate Skills to Create a Team**
- **Master Plan Development**
- **Master Schedule Development**
- **Execution**
- **Monitoring**
- **Feedback of Actual Data to Revise Plan and Redirect Resources**
- **Budget Verification**

Proven Project Management Techniques

- **Develop Detailed Project Plans**
- **Identify/Quantify Key Assumptions**
- **Make Project Comparisons**
- **Implement Team Building Strategies**
- **Develop Multilevel Relationships with Customers/Suppliers**

Implement Partnering Concepts

- All Parties Seek Win-Win Relationships involving the whole team as early as possible in the project
- Value is Placed on the Relationship
- Trust is Part of Relationship
- Parties are Accountable for their Actions
- No Exploitation
- Individual Contributions are Recognized

Types of Partnering

- Strategic (Long-Term/Multi Project)
- Project Partnering (Project Specific)

Project Success Predictor

- **Statistical Insight to Project Success (Data collected by Survey, 60 Projects Studied)**

Determinates of Success

- **Management**
- **Organization**
- **Experience**
- **History of Working Together**
- **Interpersonal Skills**

Project Management Methods

- **Importance of Project Management**
 - **Developers/Companies Must Still Execute a “Good” Project in the Traditional Sense**
 - **Scope Definition**
 - **Scheduling Control**
 - **Estimating, Budgeting and Cost Control**
 - **Project Financial Management**

Project Management is the art and science of managing technical and administrative personnel, resources and time to have the greatest positive impact on the accomplishment of the project goal in the most efficient and expedient manner.

“Except in the middle of a battlefield, nowhere must men coordinate the movement of other men and all materials in the midst of such chaos and with such limited certainty of present facts and future occurrences as in a huge construction project...

Even the most painstaking planning frequently turns out to be mere conjecture and accommodation to changes must necessarily be of the rough, quick and ad hoc sort, analogous of ever-changing commands on the battlefield.”

Blake Construction Co. v. CG Cookby, Inc.

Causes of Project Success or Failure

- **Inaccurate Project Assumptions**
- **Lack of Maintenance Planning**
- **Bad Management**
- **Technical Failures**
- **World Events**

Characteristics of Problem Projects

- **Overly Optimistic**
- **Top Down Planning**
- **Poor Organization of Key Data**
- **Productivity and Progress Assumptions**
- **Poorly Defined Work Scope**
- **Poorly Written Contracts**
- **Unrealistic Schedules**
- **Logic Failures**

Project Payment Terms

- Time and Materials
- Lump-Sum Bid
- Lump-Sum Turn Key
- Cost Plus
- Cost Reimbursable Plus Fixed Fee

Financial Management

- **Commodity Pricing**
- **Currency Exchange Rates and Stability**
- **Portability of Capital**
- **Repatriation of Profits**
- **Supply/Demand Projections**
- **Reevaluate**
 - **Cost to Complete**
 - **Original Estimate Assumptions**
 - **Actual Progress v. Costs Incurred**
 - **Recovery/Acceleration Costs**

Attributes of Successful Projects

- Know Your Business Partners
- Management Know “The Business”
- Preplanned Methodology
- Same Execution Model – Same Team
- Bid Realistically – Experience
- “What-Ifers” are Welcome
- Knowledge, Money & Stability

Project Delivery Systems

- Design-Bid-Build
- Engineer-Procure-Construct (EPC)
- Design Build

Design-Bid-Build

- **Precise Scope Definition**
- **Owner Warrant Design**

Minimizing Change Orders

Causes

- Unknown Conditions
- Design Deficiencies
- User Changes
- Regulatory Requirements

Remedies

- Additional Investigations
- Design Review
- User Involvement
- Regulatory Expertise

Project Delivery Systems

Engineer-Procure-Construct (EPC)

- **General Scope Definition**
- **Uncertainty Over Details**
- **Performance-based Objectives**

Project Delivery Systems

Design-Build

- Contractor Developed Scope
- Broad Performance Statements
- Assumes Fast Track Schedule
- Assumes Lower Cost to Complete

Managing Change — *Finding Common Ground*

- Quick action
- Management assistance
- Prevention at source
- Recognition systems

Managing Change – *Finding Common Ground*

- Deal quickly and effectively with changed conditions
- The direct cost of the change is small compared to the other related costs

Managing Change— *Finding Common Ground*

- Implement project and construction management controls that detect changes early and allow time for management
- Intervene to minimize the time and cost impacts of changes

Managing Change— *Finding Common Ground*

Prevent Changes Where Possible

- Project Assumptions
- Programming
- Project proposal
- Preliminary design
- Design review
- Constructability reviews
- Resource constraints
- Scope, schedule, budget implications

Managing Change- *Finding Common Ground*

- Recognize that change is occurring
- Build recognition systems into project and construction management monitoring systems
- Minimize negatives and maximize positives of change on the overall project

Right of Way Acquisition & Survey

Lower Costs are not necessarily long-term effective

Station Renovation

Maintenance Facilities

- Example – NJ Transit

UK Legal Cases and examples

Environmental Problems and Concerns

What are the impacts?

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