"***Project Engineering Best Practices***" 1998 Almquist Lecture

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Definition of **PROJECT ENGINEERING:**

The art of doing for $10 million what any poor sap can do for $50 million

1. **Business Planning ↔ DO THE RIGHT THING.**
2. Facilities Planning.
3. **Project Planning ↔ DO THE THING RIGHT.**

**Resolve the right issues at the right time to minimize change & rework.**

## BUSINESS PLANNING CONSISTS OF:

1. What is the ***BEST*** Opportunity? i.e. What is the RIGHT THING to Do?
2. How will success be measured?
3. What is ***IMPORTANT*** to the Business?
4. Boundary Conditions:
   Affordability, Markets, Technology, Timing, Location, etc.

## PROJECT PLANNING CONSISTS OF:

1. Process Flow Diagrams { ***PFD***'s }:
   - → Simple Block Diagram { communicate fundamental process concept to management }
   - → Flowsheet Diagram { unit operations - overall material & energy balances }
   - → Detailed Piping and Instrument Diagrams { ***P&ID***'s }
   - → Construction Drawings { very detailed CAD = Isometrics, 3-D dynamic models }
2. Materials of Construction?
3. Control Strategy?
4. Environmental Strategy? & Permits
5. Process Hazards Screening? & Safety Requirements?
6. Scope of Work?
7. Quality of Estimate?
   - ⇒ only enough to evaluate affordability & choose between options.
   - ⇒ A simulation model is only as good as the physical properties used.

**Commercial Decisions are ultimately based on profitability improvement.**

Corporate Economic Goal: **<u>Maximization of Profits with Minimization of Risks</u>**