Making Good Projects Great

“More Business Value for Our Money”

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Safety Contact – Cell Phones & Driving
My Beliefs…

1. Construction Industry is critical to future business success.

2. Construction Industry must help owners understand how to capture business value.

3. Owners must operate in ways that ensure Construction Industry effectiveness and sustainability.
Business Value

$$\text{ROIC} = \frac{\text{Net Income} - \text{Dividends}}{\text{Total Capital}}$$
1. Standard work processes executed in a disciplined manner deliver predictable results.

2. Consistent use of proven “best practices” deliver good results.

3. Integration of standard work processes and proven “best practices” deliver predictable, great results.
WorkFace Planning

An integrated work process and a best practice.
“One Enterprise”
Project Work Processes

- Businesses Lead Cross Functional Project Teams to Do FEL and Determine “What, When, Where and How Much.”

- Engineering Develops the Most Competitive “How and Who” and Leads FEL and Project Execution.

- Requires Mutual Accommodation and Collaboration to a Higher Degree than Ever Before.
Elements of Capital Effectiveness

Key Leading Indicators:
- Business Strategy
- Technology Strategy
- Alignment of Functions
- Leading Technology
- Use of Value Improving Practices
- Front-End Loading

Key Performance Indicators:
- Optimal Scope for Business Needs
- Executed With Minimum Change
- Timely Involvement of Contractors/Vendors
- Discipline
- Low Cost
- Fast Cycle Time
- Excellent Operability

SAFETY

BETTER IRR
Goal of WorkFace Planning is to improve performance by getting the right things to the right place at the right time:

- The Project must be planned forward from Engineering to Start-up since process systems drive commissioning and start-up, commissioning and start-up drive construction and construction drives engineering and procurement.
- The planning process must work backward from Startup to Engineering to schedule the release of engineering to the field since the Path of Construction will drive the prioritized release of Construction Work Packages (CWP).
- The prioritized release of CWP will determine the order in which the Field Installation Work Packages (FIWP) must be prepared and released to drive the sequence in which engineering and procurement is delivered to the field.
Facilities Engineering Process

Global Customer Needs & Requirements

Business Objectives, Capital Forecasts

Project Basis, Capital Budget

Production Des Basis, CAC, Project Auth

Competitive Facility That Meets Business Needs

Products That Continuously Meet Global Customer Needs & Requirements Better Than All Competitive Products

Business Planning FEL-1

Facility Planning FEL-2

Project Planning FEL-3

Project Implementation

Facility Startup → Operate Maintain Improve

Front-End Loading

Execution/Operation

Owner Leads

Owner Audits

Owner Leads

Contractor Involved

Contractor Leads

Contractor Supports

Owner Leads
FACILITIES ENGINEERING PROCESS

Global Customer Needs & Requirements

Business Planning FEL-1
- Process/Product Development
- Market Forecasts
- Sales/Capacity Reconciliation
- Competitive Studies
- Legal/Environment/S&OH
- Process/Technology Evaluation and Selection
- Procurement Screening
- Strategic Review
- Informal VGAs
- Preliminary Process Hazard Assessments

Business Objectives & Capital Forecasts

Facilities Planning FEL-2
- Form Project Team
- Prepare Project Objectives
- Identify Site Options
- Hold Business Review
- Technology Screening & Conceptual Engineering
- Evaluate Business Feasibility
- SHE Strategy & Screening Reviews
  - Consequence Analysis
- Run Pilot Plant
- Prepare Basic Data
- Prepare Screening VGA

Project Basis & Capital Budget

Project Planning FEL-3
- Project Survey(s)
- Design P&I Diagrams & Major Equipment
- Procurement Plan
- Execution Plan
- Preliminary Equipment Arrangements
- Scope of Work
- Schedule Analysis
- SHE Pre-Auth Reviews
  - PHR, Ergonomics & Fire Protection
- Estimate Preparation
- Appropriation Request

Production Des Basis, CAC & Project Auth
Plans are of little importance, but planning is essential.

-- Winston Churchill --
FEL: Window of Opportunity

Influence Realities

- Major Influence
- Rapidly Decreasing Influence
- Low Influence

Level of Influence

- Overall Influence Curve (of Front-End Loading)
- Project Expenditures

Project Life Cycle

- Conceptual Analysis & R&D
- Pre-Proi Planning
- Basic Data & Scoping
- Proi Auth
- Production & Engineering
- Construction
- Eng Comp
- Turnover & Start-up
FACILITIES ENGINEERING PROCESS

Project Implementation

- Quality Review
- Process Development Letter
- Production Design
- Equipment Procurement
- Bid Package Specifications
- Contract Quotations
- Award Contracts
- Build Facility
- Checkout/Turnover
- Detailed PHA/QA
- Operating Procedures & Safe Work Practices
- Contractor Safety & Performance

Facility Operation

- Pre Start Up Safety Review
- Energize
- Start Up
- Audit
- Operate
- Training & Performance
- Maintain
- Mechanical Integrity
- Improve
- Regenerate
- Incident Investigation
- Management of Change
- Emergency Planning & Response

Competitive Facility That Meets Business Needs

Products That Continuously Meet Global Customer Needs & Requirements Better Than All Competitive Products

Production Design Basis, CAC, Project Authorization
The “Right” Plant Practices

- Technology Selection
- Process Simplification (Value Engineering 1)
- Classes of Facility Quality
- Waste Minimization
- Constructability Review (1) *
- Process Reliability Modeling
- Minimum Standards and Specifications
- Predictive Maintenance
- Design-to-Capacity
- Energy Optimization
- 3D CAD (through execute)
- Value Engineering (2) *
- Constructability Review (2)
- Constructability Review (3) *

Potential to Impact Value

Explore Appraise/ Select Define Execute Operate

Project Phase
USING CAPITAL MORE BUSINESS EFFECTIVELY

From
Market Research
→ Product Characteristics
→ Design
→ Engineering
→ Supplier Pricing
→ COST
If cost is too high, return to design phase

To
Market Research
→ Product Characteristics
→ Planned selling price less desired profit
→ TARGET COST
Design Engineering Supplier Pricing
Target costs for each component force marketers, designers, and engineers from all departments and suppliers to struggle and negotiate tradeoffs

MANUFACTURING
Periodic Cost Reduction
Continuous cost reduction
Supply/Demand Forecasting Model
Web-Based Labor Market Information Management

Construction Workforce Development Center

In association with:

www.cwdcforecasting.com
Benefit to Owners

- Reliable tracking system to assist with project planning
- Regional supply/demand summary info
- Easy access to input data on regular basis
- Secure interface & data confidentiality
- Common methodology

Benefit to Contractors

- Timely data for recruiting & training strategies
- Reliable tracking system to understand supply/demand

www.cwdcforecasting.com
Strong Operating Discipline Required to Deliver a Great Project...

Strong Operating Discipline

- Safety
- Cost
- Quality
- Schedule
Operational Discipline

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Different Levels of Value From WFP

- Owners
- Contractors
- Industry

Owners  - Improved safety performance
- Improved planning
  *Execution strategy
  *Contracting Strategy
  *Optimize cost & schedule
- More accurate estimates(cost/schedule)
- Improved control
- Increased productivity
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**Contractors**
- Improved safety performance
- Improved planning
- Improved productivity
- Increased profitability

**Industry**
- Improved safety performance
- Improved work force development
- Increased work force availability
- Increased overall productivity
- Increased attractiveness of construction jobs
“Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.”

Douglas Adams, (1952 - 2001)
*English humorist & science fiction novelist*
Cultural Evolution

TENDENCY TO DRIFT

Adversarial Relationship
Authority
Control
Compliance
Short-Term Focus

Standard of Behavior
Policies
Rules
Standards
Hierarchy

Standard of Excellence
Communication
Involvement
Openness
Trust
Collaboration
Commitment

Stakeholders
Self Accountability
Organizational Unity
Principles
Purpose
Understanding
Long-Term Focus

LEADERSHIP ENERGY
Effectiveness / Trust Relationships

Trust = f \left( \frac{Intimacy \times Competency}{Risk} \right)
My Reflections

• Must see project management holistically
• Best practices define the pathways
• Leadership is learn/teach/learn
• It’s never over
• Positive attitude critical

“People don’t resist change, they resist being changed!”
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