Managed Organizational Capability Produces Predictable Results

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- Organizational capability doesn’t just happen
- Design a more predictable organization
- Rehearse the team, measure and adjust
- Two case studies
- Question and answer
Where have we invested in predictability?

Organizational capability is the largest single opportunity to improve predictability.
Creating the right conditions improves predictability

Misconception #1

Best Practices

Benchmarks

Experienced People
Misconception #2

“We get it about 90% right”

Who shows up this time?

- Every project and team is different enough
- Every work requirement that isn’t matched by a capability incurs a 15% productivity penalty
We can fix the other 10% on the fly

- Failure is attributed to individuals or sub-teams
- Continual reworking is accepted as inevitable
- Exchanging people for others “more qualified” is expected
A new reality

Manage organizational capability

Match the Organization to the Work

• Understand gaps and mismatches
• Design for an uninterrupted flow of work

Rehearse the Team and Learn

• Conference room pilots
• Computer simulations

Measure and Adjust

• Project phase transitions
• Disruptive events and conditions
Rehearsals, conference room pilots and table top demonstrations

- Good for single business processes
- Anticipate and prepare
- Respond rather than react
- Develop and test solutions to known or likely failures
Computer simulation of complex organization behavior

- Apply to entire team and project scope
- Design prior to execution
- Adjust to adverse conditions and test solutions
- Identify unknown risks and weaknesses
A ten-minute rehearsal prior to surgery dramatically improved predictability

- Wrong site surgeries eliminated
- Improved patient recovery rates
- Nursing turnover rate decreased from 23 percent to 7 percent
- Positive perceptions of teamwork doubled
Simulate project teams at work

Two simulation examples

SimVision® Technology

People, Skills, Experience

Organization Culture and Leadership

Work Processes

Quality and Safety

Predictable Timing

ROI
Test three jobsite organization strategies on a real project and real team

- Use a project from the CII RT261 study population as a test bed

- Simulate different owner-contractor relationships
  - Compare project outcomes
  - Quantify quality risks

- Look for advantages under different conditions and contractual arrangements
### Three “what if” strategies

#### Quantify and compare the results

| Best Player | Jobsite staff is a **hybrid** of Owner and Contractor personnel  
|             | Staffing of each function is determined by core experience  
|             | Take maximum advantage of available expertise  
|             | Intended to be lowest-cost |
| Audit       | Contractor staffs jobsite functions  
|             | Owner team **reactively** audits performance and seeks corrections and improvements  
|             | Intended to be highest-quality |
| Dual Player | Contractor staffs jobsite functions  
|             | Owner team works **proactively** to remove barriers, prevent delays and enable superior outcomes  
|             | Intended to minimize schedule variance |
Audit and Dual Player have a 20% to 50% higher staff cost than Best Player

- Both require more Owner-Contractor coordination
- Audit creates more rework to be performed by the Contractor
- Dual Player facilitates the Contractor’s job and proactively avoids rework
Audit and Dual Player impact staff cost and predictability in different ways

- Audits increase Contractor costs and uncertainty
- Dual Player makes the Contractor’s work more predictable and about 25% less-costly
- Owner adds staff in both cases
Audit makes the schedule less predictable

- The retrospective nature of Audit creates significant schedule growth and uncertainty
- Dual Player improves predictability and might increase total time
Audit and Dual Player produce a significant quality advantage

• Predictable results
• Complies with standards
• Performed according to plan
Audit and Dual Player improve communication and safety

- Communications are clear, timely and beneficial
- Information is available where and when its needed
- Communication is more carefully planned and managed

![Communication Quality Risk](chart.png)

- Communication Quality Risk Relative to Best Player (Shorter bars are better)
  - +/- 3 sigma

Best Player | Audit | Dual Player
Completion delays will cost the owner several million dollars per day in lost revenue if not corrected

- Procurement is 3 to 6 months behind schedule

- The management team is divided over two possible recovery strategies
  - Supplement design manpower with more contractors
  - Form integrated procurement teams to streamline the work process
The Design Team does not have sufficient capacity to accomplish planned work on time

Engineering Backlog
(man-days of unfinished work)

Time

Man-Days

- Mechanical
- Electrical
Simulate the manpower solution

Hiring more designers would shift the work backlog onto the project engineers

Reduce the Design Department’s backlog

Shift the backlog to the Project Engineers 2-3 months later
Simulate the manpower solution

... and have no effect on the schedule slippage

Predicted Project Schedule – Production Startup Milestone

As-Is

Proposed

Increased Design Manpower

As-Is

Planned
Model the integrated teams

As-Is: Fragmented Team, Many Rework Cycles

Proposed: Integrated Co-located Teams
Integrated procurement teams would be 25% more efficient on this project.

"Drag" is a function of organization capability and complexity.
Simulate the integrated teams solution

... and could recover about half of the time lost

Predicted Project Schedule – Production Startup Milestone

As-Is

Proposed

Integrated Teams

Planned
Simulation and rehearsal are most valuable when organizations are transition

**Capital Projects**
- Planning to Front End Engineering and Design (Feed)
- FEED to Execution
- Construction to Commissioning

**Business Operations**
- Mergers and acquisitions
- Restructuring and transformation
- New ventures and major programs
Question and answer

- This presentation is available at www.epm.cc
- Construction Industry Institute research reports are available at www.construction-institute.org