Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Welcome!

Doing More with Less: A Roadmap to Capital Efficiency
Working Session Planning Team

<table>
<thead>
<tr>
<th>Justin Mannina: Co-Lead</th>
<th>Elizabeth Shomette: Co-Lead</th>
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<tbody>
<tr>
<td>Alan Polk</td>
<td>Kelly Malone</td>
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<tr>
<td>Ana Pacheco</td>
<td>Rahim Ghassemi</td>
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<td>Dan Oglesby</td>
<td>Oscar Sanley</td>
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<tr>
<td>Derick McNally</td>
<td>Ray Berkey</td>
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<tr>
<td>Eric Heavin</td>
<td>Theresa Jensen</td>
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<tr>
<td>Gabrielle Dedmon</td>
<td>Vicki Conner</td>
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<tr>
<td>James Styers</td>
<td>Wes Patten</td>
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Safety Moment
Brad Browning & Katherine Maurin
SECURITY AT THE BOCA RATON RESORT & CLUB

Meeting Room Access
- Your name badge will be required for access to meetings and group activities. Should you lose your badge, please contact your groups registration desk.
- Do not leave laptops, cell phone or purses unattended in meeting rooms.

Information Security
- Your room is equipped with a in room safe for storage of you personal belongings. There are Safety Deposit Boxes located at the front desk.

Emergencies
Should an emergency or an unusual incident occur, please call hotel Security. From house phone, Dial 49. From Cell phone or outside line call 561 447 3323.

If the door is cool:
- Open the door cautiously.
- If the hall is smoke-filled, crawl to the nearest fire exit.
- Do not use elevators. Use the exits (stairs) and follow hotel staff instructions.
- Go to the ground level and move away from the building. Do not go into the street as fire apparatus will be responding.

MEETING ROOMS AND OTHER OUTLETS
- If the general alarm sounds, please leave the room immediately by way of the nearest fire exit.
- The Resort Staff will alert you when it is safe to enter the building.

Evacuation/ Fire Procedures
GUESTROOMS
- Please read the map on the inside of your guestroom door and familiarize yourself with the nearest exits.
- If you hear an alarm, proceed to the door, checking it before you open it.
- If the door is hot:
  - Do not open it, instead, seal the cracks around door and vents with a wet cloth.
  - Phone for help – dial 49. If the hotel system is not responding, dial 9-911 to reach the City of Boca Raton Emergency Dispatch Center
  - Keep the window closed and doors closed;d...do not panic
  - If you are trapped in the room….Signal from the window with a white towel or pillowcase.

Security and Safety outside the Boca Raton Resort & Club
Boca Raton's crime rate is very low; however, being sensible and streetwise is the key to a trouble-free and enjoyable stay.
- Always leave passports, airline tickets and valuables in your in-room safe.
- Carry a photo ID for identification purposes when using credit cards
- At night the area surrounding the hotel is safe to walk around but if you are outside this area, travelling by taxi is recommended.

Police
Boca Raton Police Service Dept.
100 NW Boca Raton Blvd
Boca Raton, FL 33431
Non-Emergency 561-338-1333

Fire Rescue / Paramedics 911
Boca Raton Fire Rescue
6500 Congress Ave
Boca Raton, FL
Non-Emergency 561-367-6700

Hospital (Emergency Room)
Boca Raton Regional Hospital
800 Meadows Road
Boca Raton, Florida 33432
Telephone: 561-395-7100

Delray Trauma Center
5352 Linton Blvd
Delray Beach, FL 33484
Telephone: 561-498-4440

Walk-in Clinic
MD Now
7035 Baracasa Way, Suite 105
Boca Raton, FL 33433
Telephone: 561-361-1515
Hours: 7 days a week, 8:00am-8:00pm

Pharmacy
CVS Pharmacy
520 South Federal Highway
Boca Raton, FL 33432
Telephone: 561-362-3240
Hours: Monday-Friday: 8 AM – 9 PM
Saturday-Sunday: 10 AM – 6 PM

Medical Doctors On Call:
Dial 561-447-3323

Emergency Dental Clinic
24 Hour Dentist
6060 SW 18th Street
Boca Raton, FL 33433
561-394-5957

Walgreens Pharmacy
1001 SW 2 Ave
Boca Raton, Fl 33432
Telephone: 561-395-4372
Hours: 24-Hours
What’s Wrong With This Picture?
What’s Wrong With This Picture?

10 Most Frequent OSHA Citations:
1. Fall protection
2. Hazard communication standard
3. Scaffolding
4. Respiratory protection
5. Control of hazardous energy (lock out/tag out)
6. Powered industrial trucks
7. Ladders
8. Machinery and Machine Guarding
9. Electrical / wiring methods, components and equipment
10. Electrical systems design

How many safety citations would this job receive? (Base your choice on the 10 Most Frequently Cited OSHA Violations)

a. 10
b. 7
c. 4
d. none
What’s Wrong With This Picture?

1: Fall Protection

4: Respiratory Protection

3: Scaffolding

7: Ladders
Questions from Audience
# Future Leader Working Session Agenda

## Morning

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM</td>
<td>8:30 AM</td>
<td>Welcome</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>8:40 AM</td>
<td>Board Member Welcome / Intro</td>
</tr>
<tr>
<td>8:40 AM</td>
<td>8:50 AM</td>
<td>Social Media Group: ECC Mobile App How -To</td>
</tr>
<tr>
<td>8:50 AM</td>
<td>9:10 AM</td>
<td>Networking Activity #1 - Crayon Craze</td>
</tr>
<tr>
<td>9:10 AM</td>
<td>10:20 AM</td>
<td>IPA: <strong>Andras Marton</strong> - <em>Leading Capital Projects to Repeatable Success</em></td>
</tr>
<tr>
<td>10:20 AM</td>
<td>10:35 AM</td>
<td>Break</td>
</tr>
<tr>
<td>10:35 AM</td>
<td>11:35 AM</td>
<td>Echelon Front: <strong>Jeremiah Dinnell</strong> – <em>Combat Leadership Part 1</em></td>
</tr>
<tr>
<td>11:35 AM</td>
<td>12:35 PM</td>
<td>Break / Lunch</td>
</tr>
<tr>
<td>12:35 PM</td>
<td>12:40 PM</td>
<td>Welcome Back Message</td>
</tr>
</tbody>
</table>

## Afternoon

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:40 PM</td>
<td>1:50 PM</td>
<td>Echelon Front: <strong>Jeremiah Dinnell</strong> – <em>Combat Leadership Part 2</em></td>
</tr>
<tr>
<td>1:50 PM</td>
<td>2:10 PM</td>
<td>Networking Activity #2 - Paper Airplane Chaos</td>
</tr>
<tr>
<td>2:10 PM</td>
<td>2:25 PM</td>
<td>Break</td>
</tr>
<tr>
<td>2:25 PM</td>
<td>3:45 PM</td>
<td><strong>Tony Rogers</strong> - <em>Don’t Let Complexity Impact Your Productivity</em></td>
</tr>
<tr>
<td>3:45 PM</td>
<td>3:55 PM</td>
<td>Introduce Forums</td>
</tr>
<tr>
<td>3:55 PM</td>
<td>4:05 PM</td>
<td>Think Tank</td>
</tr>
<tr>
<td>4:05 PM</td>
<td>4:15 PM</td>
<td>Closing Remarks</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>4:25 PM</td>
<td>FL Picture</td>
</tr>
<tr>
<td>4:25 PM</td>
<td>5:30 PM</td>
<td>Free Time</td>
</tr>
<tr>
<td>5:30 PM</td>
<td>7:30 PM</td>
<td>Conference Welcome Reception</td>
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</tbody>
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Anti-Trust Statement

It is the intent of the ECC Board of Directors and its Executive Advisory Board that the business of the ECC is conducted within an anti-trust and competition law sensitive environment and in strict compliance with federal antitrust and competition laws.

Meeting Guidelines

- No discussion or sharing of any company’s confidential or proprietary information (e.g., purchasing plans for products or services, specific merger or divestment plans, market allocation, development plans, compliance costs, inventories / costs, etc.) ... only publicly available information may be discussed or shared
- No discussion or agreements, either explicit or implicit, regarding prices of particular products or services of a company
- No forecasting of prices for goods or services
- No sharing of information that your company considers to be confidential or sensitive, even if that information does not fit in any of above categories.
## Future Leader Liaisons

<table>
<thead>
<tr>
<th>Kenn Kerr</th>
<th>Kyle Lednicky</th>
<th>Mariano Luja</th>
</tr>
</thead>
</table>

![Air Liquide Global E&C Solutions](image1)
![Emerson Process Management](image2)
![PCL Construction Leaders](image3)
ECC Future Leader Board Advisors

Jason Diefenderfer
Executive Advisory Committee

Justin Borchardt
ECC Board Member
ECC Mobile App: How - To
Ramiro Rodriguez & Elletra Parnell
ECC Mobile App: How - To

- Download App from App Store
- Verification Code
  - Email invite → Verify Account
  - Create your profile
  - Connect LinkedIn & Twitter Accounts
- Schedule
  - Build your conference schedule
  - Receive push notifications for your planned agenda
- Connect
  - Connect with old and new colleagues alike, using customizable app profile
ECC Mobile App: How-To Continued

- **Activity Feed**
  - Stay connected and keep the conversation going within the app
  - External interactions are pulled into the feed with #2017ECCConf
  - Share highlights, quotes and photos

- **Other app features**
  - Location Safety Information
  - Hotel Map
  - Speaker Bios
  - Sponsor Companies
  - Social Media Links
Questions from Audience
Networking Activity #1 – Crayon Craze
Networking Team: Ryan Gaubert
Networking Activity #1 – Crayon Craze

Instructions

– Distribute One Crayon to each Future Leader Participant
– MC will call for all participants to group according to their Crayon color (16 groups of 7)
– Each participant will introduce themselves, and share a photo from their cellphone and discuss with your small networking group
  • Vacations
  • Selfies
  • Hobby / Passions
  • Conference pictures

Event Times:  8:50am – 9:10am
Leading Capital Projects to Repeatable Success

Andras Marton - IPA
Overview

- In recent boom years, capital projects became less effective as owners rushed to market.
- The lower oil price resulted in reduced capital spending, especially for integrated oil companies.
  - There is no need for significant global refining capacity increase in the near term.
- In sectors with lower growth forecasts much of businesses’ focus will be on regulatory, maintenance, and flexibility-driven projects.
- Growth sectors face strong competition.
- Owners need to regain discipline and refocus on project fundamentals to stay profitable in these leaner times.
The Good Times: $100 Oil and Cheap Natural Gas

- Business quickly reacted to the availability of large cash flow and the lure of high margins
- Business pressure on schedule to produce product ASAP to grab margins and/or grab labor in a looming hot market
  - Rushed the front-end definition phase
  - Open scope and late changes were the norm
  - Weak governance of work process stage gates
- Very aggressive schedule targets set, particularly engineering
- Conservative cost targets set—even for commodities
- The result: schedule driven projects with conservative costs and poor productivity
- Capital efficiency suffered, but we could afford it
…But Then Things Changed

- A lack of demand resulted in a global slump in most commodity prices
  - While refining margins were good initially, once product storage filled up margins were squeezed
- Companies cut back drastically on capital spend
- Owners and EPCs* suffered layoffs and consolidations

Message from the businesses: IMPROVE!!
GET CHEAPER

* Engineering, procurement, and construction companies
Difficult Times Are Ahead

- Oil prices are likely to remain in the $50 to $60 per barrel range
  - Cash flow squeeze for integrated companies
  - Less refining advantage for stranded crudes
- No significant demand growth in refining
  - Gain in fuel efficiency
  - Transition to lower carbon world
- While petrochemicals provide a growth opportunity, the competition is fierce
- Eventually, growing regions will build refining capacity to meet local demand—cutting exports

Tepid margins are likely to get worse—we can’t afford inefficiency anymore
Now We Have to Improve…
And Capital Project Improvement Is Not Easy

- Many functions at many levels need to align
  - They often speak different “languages”
  - Different things are important to each

- Recent staff reductions intensified the functional competency and experience decline

- Supply chain issues
  - Engineering error rate is increasing
  - Field productivity is volatile
  - Shop quality is variable

But remember—unlike the markets, there are things you can control as an owner
Project Fundamentals Have Not Changed

They Still Drive Success (1)

Information Flow
Understand the flow of information

Gated Process
Use the gated work process to develop the “right” projects

Clear Objectives
Align business/engineering around objectives

Staffing
Staff smartly in lean times

Target Setting
Set appropriate cost targets
Project Fundamentals Have Not Changed
They Still Drive Success (2)

Information Flow
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A Project Is Really the Flow of Information

- About two-thirds of the project cycle is spent producing, using, and moving information from one information producer/consumer to another.

- Only about one-third of the life cycle is typically spent building anything.
Projects and the Flow of Information

Three Separate Streams

- **Basic Data Development**: Scientific foundation of the project and underlying conditions

- **Business Planning (FEL 1)**

- **Scope Development (FEL 2)**

- **Project Planning (FEL 3)**

- **Execution Phase (Engineering & Construction)**

- **Operations Phase**: Scope, detailed design, and basis for all materials procurement and execution strategies and plans

- **Shaping Process**: Business objectives and the commercial and contextual information that project economics depend on

**Errors, omissions, or tardiness in any element of the three streams creates inefficiencies, added cost, extended schedules, and/or production attainment shortfalls**
What Do We Mean by Basic Data?

- A comprehensive set of parameters that govern the design
  - Express the science underlying engineering design of facilities to be built
  - Reflect choices made to meet the business need, e.g., location
  - Reflect information developed during Constructability Reviews, such as logistics, infrastructure requirements, and construction constraints

- Guide engineers on:
  - Materials to use
  - Heat and mass balances that determine sizing
  - Set points
  - Hazards
Basic Data Are the Foundation of the Scope Development Team’s Effort

- Needs to be available and complete by middle of Select (FEL 2) to ensure it is incorporated into the design

- Timing affects business decisions and the shaping process
  - When incomplete, items are missing from the essential scope—leading to unduly optimistic cost and schedule estimates
  - Costs then grow during FEED and degrade FEL quality

- In large projects, Basic Data that arrive during execution cannot be accommodated, resulting in production failure or lack of fit-for-purpose
Example: The Bob Dylan Project
“You don’t have to be a weatherman to know which way the wind blows”

- JV built a grassroots LNG complex that required extensive air cooling
  - Local weather agency (in a Third World country) provided Basic Data for ambient temperatures and wind directions
  - Unfortunately, the data were wrong

- Incorrect wind direction and inaccurate air temperatures rendered heat exchange inadequate to produce LNG at more than two-thirds of capacity
  - Increasing air cooler capacity was nearly impossible due to plant layout
  - Complex’s output is permanently limited

- 100 percent of nameplate capacity was forward-sold with take-or-pay guarantees; obligated the sponsors to buy LNG on the merchant market

- The company’s LNG-knowledgeable people were laid off after a previous project; no one understood the risk
The Shaping Stream Is About Value Identification and Allocation

- Every revenue-generating project can be said to have a certain “potential value” (PV)
  - 100 percent of the PV would be realized if everything happened perfectly (100 percent is never realized)

- The goals of shaping are to stabilize the environment in which the project will be executed and configure the project so it is profitable for the stakeholder-investors
  - This requires an assessment of total project value, the project stakeholders, and what piece of the project value they seek

- For a project to make business sense, the owner must be convinced through its shaping work that it can retain a sufficient piece of the PV
Common Shaping Considerations

- History of prior projects
- Nature and perceived value of the environment
- Political and institutional environment
- Regulatory climate and stability
- Local content requirements
- Competing projects

- Social, religious, and cultural issues
- Local labor availability and quality
- Engagement with affected stakeholders
What Are Stakeholders?

**Stakeholders:** All organizations, groups, and individuals that can make a claim on some of the project’s value. The claim on value can be financial, interest, or otherwise.

- ✅ Investors (sponsors)
- ✅ Governments (at any level) claiming part of the profit as royalties or taxes
- ✅ Local communities looking for infrastructure or weary of project-caused damage
- ✅ Resource holders
- ✅ Regulators looking for changes in the project
- ✅ NGOs demanding changes to reduce the environmental footprint or alleviate local poverty
- ✅ The press
Steps in the Shaping Process

Each Step Builds on the Previous Steps!

- **Project Context**: Understand the context
- **Potential Value**: Assess the potential value
- **Comparative Advantage**: Review the comparative advantage
- **Stakeholder Alignment**: Identify and understand the stakeholders
- **Project Governance**: Establish the rules with the partner(s)

Leading Capital Projects to Repeatable Success
Project Data Stream Is Measured by IPA’s Front-End Loading (FEL) Index
Let Us Get It Out of the Way
*FEL Remains the Strongest Driver of Results*

![Graph showing NPV Gain or Loss (% of CAPEX) vs Front-End Loading Index at Authorization]
Project Fundamentals Have Not Changed
They Still Drive Success (3)

Information Flow
Understand the flow of information

Gated Process
*Use the gated work process to develop the “right” projects*

Clear Objectives
Align business/engineering around objectives

Staffing
Staff smartly in lean times

Target Setting
Set appropriate cost targets
Standard Concept of the Stage-Gate Process

<table>
<thead>
<tr>
<th>Business Planning FEL 1</th>
<th>Scope Development FEL 2</th>
<th>Project Planning FEL 3</th>
<th>Execution Phase Engineering &amp; Construction</th>
<th>Operations Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>GATE 1</td>
<td>GATE 2</td>
<td>GATE 3</td>
<td>Turnover</td>
<td></td>
</tr>
</tbody>
</table>

- Develop the frame
- Identify and screen alternatives
- Develop initial business case
- Select and develop preferred alternative
- Complete the business case
- Business authorization
- Complete basic engineering and project execution planning
- Confirm the business case
- Full-funds authorization
Many Hate the Stage-Gate Process

Irritation or anger are frequent reactions when someone mentions “stage-gate process” to corporate and business leadership:

“Process is bureaucratic, slow, and expensive”

“Need to be agile and lean to compete”

- Irritation is understandable but often misplaced
  - Stage-gates allow the strategic decision team to direct capital to the best opportunities and manage spending
  - Process is simply the steps required to engineer and build a manufacturing asset
However, the Gated Work Process Works

![Graph showing average Delta NPV for different stages of the process.]

\[ \Delta NPV = \frac{NPV_{Delivered} - NPV_{Authorization}}{NPV_{Authorization}} \]

- **Did Not Follow Stage-Gate Process**: Projects received Fair or worse FEL rating at the FEL 1 and FEL 3 gates.
- **Sort of Followed Stage-Gate Process**: Projects received Good or Best Practical ratings at one gate and Fair or worse rating at the other gate.
- **Followed Stage-Gate Process**: Projects received Good or Best Practical rating at the FEL 1 and FEL 3 gates.

Projects received Good or Best Practical rating at the FEL 1 and FEL 3 gates.

Projects received Fair or worse FEL rating at the FEL 1 and FEL 3 gates.

Projects received Good or Best Practical ratings at one gate and Fair or worse rating at the other gate.
Common Work Process Mistakes are Often Made for the Sake of Speed

#1 Allowing Weak Definition at the FEL 1 Gate

#2 Disrupting the Information Flow
Allowing Weak Definition at the FEL 1 Gate

- Opportunity or problem statement is developed without a frame or charter
- Market analysis based on limited client feedback
- Technology risk not thoroughly investigated
- Capital cost estimate is back of the envelop quality with little or no engineering input
- Limited knowledge of the site: legal or regulatory requirements, physical conditions, or infrastructure
- Stakeholder analysis not done
Cascade Effect of Weak FEL 1

1. Weak FEL 1
2. Disruption and Change in FEL 2
3. Scope Development Not Finished in FEL 2
4. Disruption and Change in FEL 3
5. Cost Estimate Surprises at Authorization
6. More Costly Projects
If Authorized, Projects With Weak FEL 1 Cost More but Are Not Faster

Cost difference exists even if the project reaches Best Practical FEL at the end of FEL 3
Conditions Required to Identify the Right Project During FEL 1

- Opportunity was officially framed
- Decision criteria for determining best alternative were developed
- List of capital alternatives for pursuing opportunity was generated
- Non-capital alternatives were considered
- Initial list of alternatives was reduced to a limited number of alternatives
- Key stakeholders participated
- Data requirements for alternative selection were identified
Information often takes time to acquire and is costly
- Developing basic technical data
- Negotiating sales or feedstock agreements
- Customer testing/product validation
- Getting input and securing agreements from external stakeholders
- Completing siting studies
- Choosing suppliers and vendors
- Receiving supplier and vendor information

Waiting for information is what generates irritation

Strategy for reducing schedules is to make assumptions about key information to let the work proceed
Overlapping Phases Is Common for Fast-Tracking a Project

Sequential Development

Overlapped Development

Sequential completion versus overlapped phases

Targeted schedule savings

Phase: FEL 1, FEL 2, FEL 3, Engineering, Construction, Startup

Months

0 5 10 15 20 25 30 35

Leading Capital Projects to Repeatable Success
Average FEL Rating at Authorization for Fast-Track Projects Is Worse Than Sequential

<table>
<thead>
<tr>
<th>Front-End Loading Index</th>
<th>Fast-Track</th>
<th>Sequential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate</td>
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Leading Capital Projects to Repeatable Success
Project Fundamentals Have Not Changed
They Still Drive Success (4)

Information Flow
Understand the flow of information

Gated Process
Use the gated work process to develop the “right” projects

Clear Objectives
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Staff smartly in lean times

Target Setting
Set appropriate cost targets
Key Information the Project Team Needs From the Business When Project Handover Occurs

- Relative priorities for capital cost, schedule, product quality, operating cost, and reliability
- Guidelines for making the trade-offs between the project’s priorities
- Definition and acknowledgement of unusually aggressive cost or schedule targets
- Description of the constraints, assumptions, and unresolved issues that shape the project execution strategy
Often Owners Use the Concept of Facility Classes

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asset Life</strong></td>
<td>Less than 5 years</td>
<td>5 to 10 years</td>
<td>More than 10 years</td>
</tr>
<tr>
<td><strong>Asset Operation Flexibility</strong></td>
<td>Standard conditions for operation, little variability</td>
<td>Some variability in operating conditions</td>
<td>High level of variability in operating conditions</td>
</tr>
<tr>
<td><strong>Asset Reliability</strong></td>
<td>Less than 90%</td>
<td>Greater than 90%</td>
<td>Between 95% and 99%</td>
</tr>
<tr>
<td><strong>Asset Expandability</strong></td>
<td>No pre-investment for expansion</td>
<td>Some allowance for expansion</td>
<td>Extensive pre-investment for expansion</td>
</tr>
<tr>
<td><strong>Capital Cost Priority</strong></td>
<td>Project costs are not critical to business success</td>
<td>Capital costs have moderate importance to business success</td>
<td>Lowest possible capital cost is necessary for business success</td>
</tr>
<tr>
<td><strong>Project Schedule Priority</strong></td>
<td>Project schedule is not critical</td>
<td>Project schedule has moderate importance to business success</td>
<td>Project schedule is a critical element of business success</td>
</tr>
</tbody>
</table>
Lack of Clear Objectives Leads to Incomplete FEL 2

Clarity of Objectives at Start of FEL 2

- Very Clear
- Fairly Clear
- Not Clear

Frequency of Projects With Incomplete FEL 2

Pr < 0.001
FEL 2 Cost Estimates Are Much Less Predictable When FEL 2 Is Incomplete

Cost growth = FEL 3 cost estimate/FEL 2 cost estimate

One in four estimates grows 30 percent or more

Pr < 0.023
2*Pr < 0.001

Leading Capital Projects to Repeatable Success
A facilitated meeting between business and project engineering during FEL 1 or early FEL 2

A communication and education tool to ensure the following are clearly defined:
- Problems the business is looking to solve
- Boundary conditions for the solutions the project team will develop

What Is It?

What Are the Benefits?

Ensures the business is outlining the problem to be addressed rather than giving the project team pre-determined solutions

Supports alignment between business and project team on the project’s boundary conditions

Reduces recycle in FEL
Projects That Use BEAM Set More Competitive Targets and Are More Cost Effective
A Corporate Objective of “Lean and Agile” (1)

- Today, many owners speak of a desire to be both “lean” and “agile”
  - One cannot reasonably be both in capital projects

- A company can seek agile facilities
  - Designed to allow nimble product changes
  - Such facilities need to be planned with large variations in feedstocks, feeding speeds, production workup, and quality
    - These large variations require large engineering efforts and higher material costs than in a fit-for-purpose facility
  - Agile facilities are, therefore, the opposite of lean
While agile facilities are perfectly reasonable, agile decision making worsens project performance. Examples include:

- Late scope closure due to a desire to be able to react to market---increases costs significantly
- Late changes to design and scope for whatever reason---- typically costs three times more than estimated---and functionality often suffers

Change to project objectives and scope is reasonable and sometimes necessary---the key is the timing

- The best systems are agile in FEL (up to the point of scope freeze) but then very rigid around change during execution
Project Fundamentals Have Not Changed
They Still Drive Success (5)

Information Flow
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Staffing
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Leading Capital Projects to Repeatable Success
To better understand the relationship between staffing and performance, we identified a group of successful sites.

Staffing database was divided between two groups:

**High-Achieving Sites**
- Achieved *Good* or *Best Practical* FEL
- AND
- Cost Index is 1.00 or lower

**Rest of Industry**
- Reached *Fair* FEL
- OR
- Cost Index is higher than 1.00
FTE Index Distribution for High-Achieving Sites Is Strikingly Different

High-Achieving Sites
- Consistently staff sites with near industry average resources

Rest of Industry
- Broad distribution of staffing

**FTE Index**

\[
\frac{\text{Site’s Total FTEs (Owner + Agency)}}{\text{Industry Benchmark}}
\]

**FTE Index (Direct Functions)**

- Less Staff Than Industry
- More Staff Than Industry

Leading Capital Projects to Repeatable Success
What Are High-Achieving Sites Doing to Achieve Excellent Results?

- No functions are routinely left unfilled
  - Resources are assigned to all direct and indirect functions

- Functions are typically staffed with owner resources
  - The owner maintains control over all functions and contractors

FTE Index (Direct Functions)

High-Achieving Sites

Less Staff Than Industry  More Staff Than Industry
Few Industry Sites Staff All Direct Functions With Owner or Agency Staff

Direct Owner Functions
- Capital Projects Director
- Project Management
- Process/Conceptual Design Engineering
- Cost Estimating
- Cost Controls
- Scheduling/Planning
- Construction Management
- Technical Specialists
- Commissioning and Startup
- Inspection
- Contracts Administration
Industry Often Lacks Consistent Support From Indirect Functions

- Business
- Safety
- Environmental/Regulatory
- Procurement
- Operations
- Maintenance
Functions Often Not Filled by Owner or Agency Resources in Industry*

- Cost Estimating
- Cost Controls
- Scheduling/Planning
- Inspection
- Commissioning & Startup
- Business

Functions not filled by an owner or agency resource may be:
- Vacant
- Staffed using a contractor
- Represented informally by other functions
- Present at site but not providing measurable support

- Allowing contractors to have power over these functions gives them too much control and puts project performance at risk

* These functions were not filled with owner or agency resources for 35 percent or more of the Rest of Industry sites
Project Fundamentals Have Not Changed
They Still Drive Success (6)

Information Flow
- Understand the flow of information

Gated Process
- Use the gated work process to develop the “right” projects

Clear Objectives
- Align business/engineering around objectives

Staffing
- Staff smartly in lean times

Target Setting
- Set appropriate cost targets
Is Overrunning a Dying Art?

Major projects since 2014 in constant currency terms
Targets Matter for Projects Because Projects Do Not Become Cost Competitive During Execution

Higher Cost Index at Completion vs. Authorization

Lower Cost Index at Completion vs. Authorization

Pr < 0.001

Cost Competitiveness at Authorization vs. Completion

Better

Worse

Cost Competitiveness at Authorization

Cost Competitiveness at Completion

Pr < 0.001
## When Is Overestimation More Common?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Statistical Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule-Driven Projects</td>
<td>( Pr &lt; 0.002 )</td>
</tr>
<tr>
<td>Oil Refinery Projects</td>
<td>( Pr &lt; 0.001 )</td>
</tr>
<tr>
<td>De Facto Authorizations</td>
<td>( Pr &lt; 0.02 )</td>
</tr>
<tr>
<td>Business Makes Estimate</td>
<td>( Pr &lt; 0.001 )</td>
</tr>
<tr>
<td>Contractor Makes Estimate</td>
<td>( Pr &lt; 0.04 )</td>
</tr>
<tr>
<td>Same Contractor for FEL &amp; Execution</td>
<td>( Pr &lt; 0.02 )</td>
</tr>
<tr>
<td>Post-Global Financial Crisis</td>
<td>( Pr &lt; 0.0001 )</td>
</tr>
</tbody>
</table>

*Results controlled for project size and FEL.*
More Experience, Higher Estimates
This Is Learned Behavior!

Number of Previous Projects as Project Manager

Overestimate at Authorization

0%  0
4%  1 to 5
6%  5 to 10
8%  More Than 10
10%  0

Pr < 0.04

Leading Capital Projects to Repeatable Success
Combating Overestimation

- Each project system needs to understand why it overestimates and then attack the root problem.

**Weak Systems**
- Overestimating is understandable because the inherent uncertainty seems high.
- Any correction must start with practices and people.

**Strong Systems**
- Overestimating robs the system of the performance its practices and staff strength should produce.
- Start with competitive end of FEL 2 costs.
- Then set appropriate targets.
Conclusions
# Project Fundamentals Have Not Changed

## Key Takeaways

<table>
<thead>
<tr>
<th>Information Flow</th>
<th>• Look for errors, omissions, or tardiness in any element of the basic data, shaping and project data streams to cut inefficiencies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gated Process</td>
<td>• Do you follow your gated process? It’s there to ensure the best opportunities get funded and to drive the information flow the right sequence of steps.</td>
</tr>
<tr>
<td>Clear Objectives</td>
<td>• How do you ensure your business and project teams are aligned? This alignment is critical for doing the right project.</td>
</tr>
<tr>
<td>Staffing</td>
<td>• Don’t forget that people do projects. Are you too lean? Do you consistently rely on contractors to do your work? Functional completeness and owner representation drives efficiency</td>
</tr>
<tr>
<td>Target Setting</td>
<td>• Do you systematically underrun? Is it because gaps in your project system or because you lack estimating capabilities to challenge cost targets</td>
</tr>
</tbody>
</table>
The Improvement Industry Will Require Leaders Not Managers

• Our actions are designed to protect the bottom line—survival is the goal!
• We have grown accustomed to our role as managers—optimizing the status quo
• It is as if we have lost the courage to be bold

• We are able to look over the horizon to see approaching trends
• We use a compass—not a map—as a guide for the future
• We question existing ways of doing things
• We change mindsets and culture
Thank you!
Andras Marton
+1 703 554 8842
amarton@IPAglobal.com
www.IPAglobal.com

Leading Capital Projects to Repeatable Success
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Combat Leadership – Part 1

Jeremiah Dinnell – Echelon Front
COMBAT LEADERSHIP
Lessons Learned on the Battlefield
J.P. Dinnell
THE #1 NEW YORK TIMES BESTSELLER

EXTREME OWNERSHIP

HOW U.S. NAVY SEALS LEAD AND WIN

JOCKO WILLINK AND LEIF BABIN
J.P. Dinnell

- Sacramento, CA
- Bootcamp Sep, 5 2001
- 3 Combat Deployments
- Seal Team 3
  - Point Man
  - Lead Sniper
  - Lead Driver
- NSW Group One Training Detachment
  - Lead Instructor CQC, Urban Warfare, Combatives, and Marksmanship cell

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OPERATION IRAQI FREEDOM

AIR WAR

GROUND WAR

REGIME TOPPLED
SEAL Team THREE

• Task Unit Bravo
  – Capture/Kill missions
  – PSD (Personal Security Detail)
SEAL Team THREE

- Task Unit Bravo
  - Capture/Kill missions
  - PSD (Personal Security Detail)
INSURGENCY RISES...
SEAL Team 3... New Leadership!!!

• Task Unit BRUISER
  – Training
  – Combat
  – Win The Fight!!!

• Extreme Ownership
  – Leadership at lowest level
U.S. RESPONSE

COUNTERINSURGENCY

• U.S. Strategy
  - Withdraw to bases
  - Turn over to Iraqi Forces

RESULTS:

• Strengthen insurgents
• Isolate/anger populace
• Propaganda defeat
“The social and political situation has deteriorated to a point that US and Iraqi troops are no longer capable of militarily defeating the insurgency in al-Anbar.”

-Colonel Peter Devlin, USMC
“...ALL BUT LOST”
TASK UNIT BRUISER
APRIL 2006

• 2nd Brigade, 28th Infantry Division
  – “2-28” Guard out of PA
• 2-28 lost 94 FKIA, hundreds wounded
• Controlled less than 1/3 of the city
READY FIRST BRIGADE, 1ST ARMORED DIVISION (1/1 AD)

“WE”
NEW STRATEGY

• Radical, Innovative:
  – “Seize, Clear, Hold, Build”
  – Secure Ramadi one neighborhood at a time
  – Build Combat Outposts: COPS
COLLABORATE AND ADAPT

SEAL Task Unit Bruiser

• Adapt tactics to support “Seize, Clear, Hold, Build”
  – SEAL Sniper Support
  – Engage tribes to support local police recruiting, Civil Affairs
  – Train and Combat advise Iraqi Soldiers: Raids, Patrols, Clearances
PACIFICATION AND STABILIZATION

TIPPING POINT:

• Local populace begins to stop passive support to insurgents

• The Al Anbar “Awakening” takes place

• Enemy attacks 30-50 per day to 1 per week, then 1 per month

• 40 to 2200 Iraqi Police

Pacification of Ramadi, then Al Anbar, then Baghdad, then...

Iraq stabilized and turned over to Iraqi forces

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PEACE WAS WON...
THE COST

- 9 Abrams Battle Tanks
- 15 Bradley Fighting Vehicles
- 34 Humvees
- 500+ wounded
- 61 KIA
THE COST

08-02-2006

09-24-2009

09-29-2006
• Humility.
• Ownership.
• Teamwork.

Leadership is the most important thing on the battlefield.
Doing More with Less: A Roadmap to Capital Efficiency
ECC Future Leader Working Session
Year: 2017  Website: ECC-Conference.org

Doing More with Less: A Roadmap to Capital Efficiency
ECC Future Leader Working Session
Save the Date!

- Winter Social - Wednesday, January 10, 2018.
  - Delayed due to re-schedule of PerspECCTive (Annual Conference).
- Planning for a fun, exciting, and interactive event!
- Engagement with the ECC Board Members.
- More details to follow.
  - Future Leaders will receive an email.

- NOTE: The event will be in Houston, TX.
Combat Leadership – Part 2

Jeremiah Dinnell – Echelon Front
Laws of Combat

1. Cover and Move
2. Simple
3. Prioritize and Execute
4. Decentralized Command
Laws of Combat

1. Cover and Move
   - Team work
   - Must work together
   - If team fails, everyone fails
   - Relationships
Laws of Combat

2. Simple
   - Simplify the mission: GOAL
   - Communication: Simple, clear, concise
   - If people don’t understand, THEY CAN’T EXECUTE.
Laws of Combat

3. Prioritize and Execute
   - Relax, look around, and make a call
   - Recognize, analyze, and react
   - Detach
Laws of Combat

4. Decentralized Command

- Everyone Leads.
- Team must understand not just what to do but “Why?”
- Don’t wait for orders; LEAD!
Dichotomy of Leadership

• Decentralized command versus Extreme Ownership.
• Leader and a follower.
• Calm but not robotic.
• Brave but not foolhardy.
• Competitive but a gracious loser.
• Humble but not passive.

Discipline equals Freedom.
Discipline Equals Freedom

Standard Operating Procedures – SOP’s
Most Important Factor

Leadership:

• Accountability
• Responsibility
• Standards

“A unit does well only those things the boss checks”
“There are no bad Teams, only bad Leaders”
It’s not what you preach, it’s what you tolerate.
Humility: Check your ego

- Confident, but not cocky
- Can’t listen to anyone.
- Can’t evolve or get better.
- Adapt- new technology and new methodologies.
- Don’t respect enemy
- Get complacent.
- Can’t self assess.
- What can I/we do different/better?
EXTREME OWNERSHIP

• Attitude/mindset: No excuses. No one else to blame.
• Own problems and the solutions to those problems
• Up and down the chain
Risk Mitigation and Safety
Night time OTB (Over The Beach)
Lessons Learned

Series of Compounding Hazards:

- Wasn’t proper amount boats for training evolution
- Hurried timeline
- Improper gear set up
- Complacency and Overconfidence
- Safety equipment not positioned for conditions
- Student and was afraid to speak up
Doctrinal Risk Management

Navy: “Operational Risk Management” ORM

- Probability of an incident
- Level of impact/damage
- “Risk Assessment Code”

- Idea good, but:
  - People begin to fill in blanks without thought
  - Checking the box adds no value
  - Leaders must drill down on these documents

- Problem with mindset
  - Paperwork seen as obstacle rather than tool of risk mitigation

LEADERS MUST ENSURE THAT TOOLS ARE UTILIZED PROPERLY
Doctrinal Risk Management

Literally a chart that you would place values in to get an answer.
Pre-Combat Op Range Sight-In

• Before combat operations
  • Weapons sight-in
  • Test fire

• Other Special Operations Unit
  • Simultaneous rifle and pistol
  • “Don’t worry. We Trust You.”

• Strategic vision
  • Risk vs. Reward
  • Ownership
Mindset

• Safety and risk management must be instilled in the individual.
  – Situations where individual is totally responsible
  – There is only one person that pulls the trigger of a gun
    • Regardless of who tells him to do what
    • Regardless what situation he is put in
    • He is responsible for that bullet leaving the chamber.
  – That is the essence of personal responsibility
Mindset

• “COMPLACENCY KILLS”
  – On patrol—even when things are monotonous
  – 47 point checklist to get a HMMWV ready for an operation
  – Can’t just check the boxes.
  – “That’s the way we’ve always done it.”

• Murphy’s Law—if things can go wrong they will

• “Swiss Cheese” probability.

• UNTIL THE END.
Default Mode: Aggressive

- MAKE THINGS HAPPEN
- Move fast
- Seize initiative
- Take the fight to the enemy!
- Aggressively mitigate risk
- Not at people, not overbearing
Believing in the Mission
Understanding the WHY
Understanding the WHY
THE LAST MISSION
THE LAST MISSION

“If not us, who?”
THE LAST MISSION

“If not you, who?”
THE LAST MISSION

“If not you, who?”

EXTREME OWNERSHIP
THANK YOU

CONTACT:
JP@ECHELONFRONT.COM
www.echelonfront.com
Twitter @JPDinnell  @EchelonFront
Facebook @JPDinnell
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Networking Activity #2 – Paper Airplane Chaos

Networking Team – Shaun Card
Networking Activity #2 – Paper Airplane Chaos

Instructions

- Future Leader Participant to acquire 1 – piece of paper and 1 – Pen
- Participants to make paper planes using the materials
- Write your name and one thing they can be identified by… (color of clothing, height, accessory, etc…)
- On a scheduled 10 count randomly shoot the paper plane into the group
- Each participant must then pick up a random paper plane that lands by them and go in search of the person who launched it
- After you connect with the Paper Airplane’s Original Owner – Find out one personal or business fact about the original owner of the Paper Airplane

Event Times: 1:50pm – 2:10pm
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session
Don’t Let Complexity Impact Your Productivity
Communication in Complex Project Environments

Tony Rogers, Ph.D.
Learning Objectives

To prevent complexity from impacting productivity, what strategies can leaders develop to:

- Mitigate the impact of decision making biases
- ‘Connect the dots’ by fostering collaboration
- Identify patterns and trends earlier and see them more clearly (and coach others to do the same)
- Optimize communication and coaching skills to boost productivity
Agenda

- The Context: Drivers and Impact of Complexity for EPC
- Self-Assessment 1 - Mindset
- The Limits of Human Decision Making – Cognitive Bias and Complexity
- Strategies Under the Leaders’ Control
- Self-Assessment 2 – Style
- Mitigating the Impact of Cognitive Limits through Skilled Dialogue
- Practice
The Context
Drivers and Impact of Complexity in EPC

Don’t Let Complexity Impact Your Productivity
Drivers of Complexity

- Customer Requirements
  Size, Volume, Time, Cost, Location, Sustainability, Risk Mitigation
- Technology
  Investment and Assimilation Not Keeping Pace with Opportunity
- Talent Mismatch
  Skill Gaps, Mobility Issues
- Volatility
  Geopolitics, Commodity Prices
- Regulatory Shifts
  Anticipating changing requirements on permitting, approval and environmental processes

Confronting Limits of Human Decision Making

Productivity Impact

Don’t Let Complexity Impact Your Productivity
Where is the Toothbrush?
Where is the Parking Meter?
Self-Assessment 1 - Mindset

- Please refer to handout.
The Limits of Human Decision Making
We’re just not that good with complexity
Which causes more deaths in the United States?

1. Shark attacks
2. Getting hit by falling aeroplane components
Are you more likely to die from a?

1. Terrorist attack
2. Television set
Human Decision Making

- We’re rational, logical thinkers and decision makers
  - ... Aren’t we?
- No – we use *shortcuts* (heuristics) that cause problems in how we frame and view decisions
  - Shortcuts potentiate an array of accidental errors and biases, for example:
    - We’re terrible at predicting risk
    - We’re just as bad at predicting how we’ll feel in the future
    - We make snap judgments, *then* justify why we made them
- We also rationalize after the fact:
  - We hate feeling wrong
  - We *justify* our decisions
  - We distort our original intentions
Cognitive Bias - Introduction

WYSIATI
Cognitive Bias - Introduction

What is the second most prevalent bias?

- Self-Serving Bias
- Which drives Rationalization - After the Fact
Video - Captain Command and Control
Video - Captain Command and Control
### On the contribution of root causes to productivity *

<table>
<thead>
<tr>
<th>Root Cause</th>
<th>Contractor</th>
<th>Owner</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing project size and complexities</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Contractual structures and incentives are misaligned</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Design processes and investment are inadequate</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Poor project management and execution</td>
<td>6</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

McKinsey Global Institute study, reported in *Reinventing Construction: A Route to Higher Productivity* (February 2017)
Cognitive Bias – Other Examples

- Confirmation bias – Selectively processing information that confirms what we already believe
- Anchoring – Initial information anchors subsequent judgments
- Overconfidence effect – Disregarding facts as not sufficiently relevant; choosing an alternative that matches the one you thought of first
- Recency effect – Being pre-disposed to most recent and so easiest remembered data
- Selective perception – Ignoring data that does not fit
- Sunk cost bias – Making choices that support past decisions even if no longer valid
Discussion: Impact on Project Effectiveness

- With respect to project execution and outcomes, where might we see the signs and symptoms of cognitive bias?
Strategies
What’s in the Project Leaders’ Control

Don’t Let Complexity Impact Your Productivity
Mitigating the Impact of Cognitive Limits through Skilled Dialogue
Orchestrating Other Perspectives With Our Own

Don’t Let Complexity Impact Our Productivity
Self-Assessment 2 - Behavior

- Please refer to handout.
Where Do You Fit in the Puzzle?

- The world looks and feels different from where each of us stand in the project organization.

```
Top
```
```
Middle
```
```
Middle
```
```
Bottom  Bottom  Bottom
```

“Burdened”

“Torn”

“Confused”
Orchestrating Other Perspectives with Our Own

Effective Dialogues Balance 4 Moves

- Showing the way
- Setting direction
- Gaining alignment

- Sharing our intent
- Revealing context
- Developing trust

- Exploring other’s views
- Uncovering options
- Being open to change

- Listening to understand
- Clarifying meaning
- Connecting

Authority
Transparency
Curiosity
Empathy
Orchestrating Other Perspectives with Our Own

Authority looks and sounds like . . .

- I got this …
- We will…
- I expect . . .
- I recommend . . .
- Go for it!
- Let’s give it a shot . . .
- Let’s move on . . .
Orchestrating Other Perspectives with Our Own

Transparency looks and sounds like . . .

- I think …
- I feel …
- This is what I know …
- Here is my dilemma …
- I don’t know …
- I made a mistake …
Don’t Let Complexity Impact Your Productivity
Video – Just Listen
Empathy looks and sounds like . . .

- It sounds like you …
- I am hearing that …
- I imagine that …
- I wonder if …
- Go on …
- It’s interesting that …
Orchestrating Other Perspectives with Our Own

Curiosity looks and sounds like . . .

<table>
<thead>
<tr>
<th>Curiosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s going on?</td>
</tr>
<tr>
<td>What’s on your mind?</td>
</tr>
<tr>
<td>What do you think about …?</td>
</tr>
<tr>
<td>How does that work?</td>
</tr>
<tr>
<td>What happened next?</td>
</tr>
<tr>
<td>What else is there?</td>
</tr>
<tr>
<td>How can I help?</td>
</tr>
</tbody>
</table>

Don’t Let Complexity Impact Your Productivity
Orchestrating Other Perspectives with Our Own

Imagine moving through spatial hemispheres

Authority

Transparency

Curiosity

Empathy
Orchestrating Other Perspectives with Our Own

The moves of the upper hemisphere express your direction, ideas and feelings

Authority
- Showing the way
- Setting direction
- Gaining alignment

Self

Transparency
- Sharing our intent
- Revealing context
- Developing trust
Orchestrating Other Perspectives with Our Own

Moving in the lower hemisphere draws out the ideas and feelings of others

- Curiosity: Exploring other’s views, Uncovering options, Being open to change
- Empathy: Listening to understand, Clarifying meaning, Reaching mutuality
Orchestrating Other Perspectives with Our Own

Put it together in a conversation by moving around and trying it out

- Authority
- Transparency
- Curiosity
- Empathy
Orchestrating Other Perspectives with Our Own

Model for Skilled Dialogue

**AUTHORITY**
- Activity: Setting Direction
- Goal: Alignment

**TRANSPARENCY**
- Activity: Revealing Context
- Goal: Trust

**CURIOSITY**
- Activity: Uncovering Options
- Goal: Being Open to Change

**EMPATHY**
- Activity: Clarifying Meaning
- Goal: Connection

Dynamic Energy
Reflective Energy

Model for Skilled Dialogue © Tony Rogers & Holly Davis 2008 All rights reserved
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Let’s Practice

Scenario → Response

Don’t Let Complexity Impact Your Productivity
Model for Skilled Dialogue

**Authority**
Activity - Setting Direction
Goal – Alignment

**Transparency**
Activity - Revealing Context
Goal – Trust

**Curiosity**
Activity – Uncovering Options
Goal – Being Open to Change

**Empathy**
Activity - Clarifying Meaning
Goal – Connection

**Explore Others’ Views**

**Listen to Understand**

Self

Reflective Energy

Dynamic Energy

Other

Model for Skilled Dialogue © Tony Rogers & Holly Davis 2008 All rights reserved
Used with permission.

Don’t Let Complexity Impact Your Productivity
Strategies Under the Leaders’ Control

- Invest in upfront planning and scoping with multiple perspectives
- Uncover common incentives, KPIs, and sharing of risk
- Leverage technology to mitigate our cognitive limits
- Optimize the entire ‘system’ not the parts
- Link learning with action (e.g. coaching)
- Agree on the common sources of truth
- Infuse collaboration, communication, and connectedness in all phases of work (e.g. skilled dialogue)

Don’t Let Complexity Impact Your Productivity
For Further Information

To take a more comprehensive self-assessment and find more tools on the t³ Model, go to:

www.talkingtowardtruth.org
Questions from Audience
Thank you!
Tony Rogers
210 850 6026
AJR@talkingtowardtruth.org
www.talkingtowardtruth.org
Breakout Forum Overview

Wally Mathiasen & Kurt Schoeffler
Erik Wielang & Eric Moore
# 2017 ECC Conference Breakout Forum Overview

## Wednesday, December 13

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:55 AM</td>
<td>Breakout Forums</td>
</tr>
<tr>
<td>11:55 AM</td>
<td>Breakout Forums</td>
</tr>
<tr>
<td>1:25 PM</td>
<td>Breakout Forums</td>
</tr>
<tr>
<td>2:25 PM</td>
<td>Breakout Forums</td>
</tr>
</tbody>
</table>

## Future Leader Led Breakout Forums:
- Moving Advanced Workface Planning (AWP) to the Next Level
- Driving Competitiveness in Small Capital and Project Portfolios

## Other Breakout Forums:
- Sadara: When Mega Goes Giga
- The Next Step Change in Safety
- Designing for Capital Efficient Projects
- Change the Culture, Change the Game
- Reinventing Construction: Practical Steps to Improve Productivity And Predictability
- Equipping the Next Generation: Developing Competencies that Deliver Business Outcomes
- Exploiting Trust: The Critical Factor in Knowledge Transfer During Succession Planning
- Gaining Capital Efficiency with Technology by Improving Insight and Understanding on Projects

## Thursday, December 14

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15 AM</td>
<td>Breakout Forums</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>Breakout Forums</td>
</tr>
</tbody>
</table>
Moving Advanced Work Packaging (AWP) to the Next Level: Applying AWP Principles in Action and Expected Outcomes

Facilitator

Simone Ponticelli
Business Strategy
Senior Consultant

Panel Members

Jamie Gerbrecht
Global Technology Sponsor Construction

Silvana Lara
Global Director of Advanced Work Packaging & Workforce Planning

Antonio Monteiro
Construction Manager

ExxonMobil
FLUOR
JACOBS
ECC Survey Results: Level of AWP utilization is varied

Roughly what percentage of projects in your organization utilize some level of AWP?

Percentage of respondents

- Owners
- Contractors

0%
10%
20%
30%
40%

Only selected projects (< 25%)
25% of projects
50% of projects
75% of projects
All projects
Moving Advanced Work Packaging (AWP) to the Next Level: Applying AWP Principles in Action and Expected Outcomes

- Share AWP fundamentals and distinctiveness
- Review implementation and best practices from owners and contractors
- Discuss roadblocks and barriers to implementation
- View results and statistics from recent projects
- Determine next steps based on self discovery
Driving Competitiveness in Small Capital and Portfolio Projects

Facilitator

Anthony Caletka
Principal - Capital Projects and Infrastructure, PWC

Panel Members

Kurt Mondlak
Manager, Project Management Office, BASF

Sandy Lee
Vice President Project Services, S & B

Heath Satterfield
Sr Manager - E&P Project Management and Continuous Improvement, Devon Energy
What is most important in Competitive Small Capital and Portfolio Projects?

- Effective program management strategies
- Collaborative Contracting Strategies
- Governance & Assurance models for lower risk, lower spend projects

**Right-sized Front End Planning**
- Efficiency focus throughout the project life cycle
- Driving to a fit for purpose, industry standard design

**Cost reduction emphasis:**
- Impacts on Value
- Balancing customization and standardization
- Scope Replication & Version Control

**Owner’s Perspective**
**Shared Perspective**
**EPC Perspective**
Questions from Audience
Think Tank Overview

Cindy Davey & Corey Dinkel
Think Tank

- **Liaison - Kenn Kerr**
  - 3rd year Future Leader
  - Air Liquide
- **Co-Lead – Cindy Davey**
  - 3rd year Future Leader
  - Phillips 66
- **Co-Lead – Corey Dinkel**
  - 2nd year Future Leader
  - Performance Contractors
- **Board Representative – Justin Borchardt**
  - Future Leader Alumni
  - S&B Engineers & Constructors, Ltd.
Think Tank

- Think Tank Overview
  - Leverage growing ECC Future Leader population
    - Adapt to continued ECC organization’s growth
    - Enable FLs to engage in activities that benefit FL Program & ECC overall
      - ECC & FL Program promotion
      - Alumni Engagement
  - Focused on FL Program: New Strategies, Innovative Ideas & Initiatives, Problem-solving
  - Work to Increase Owner & EPC participation in FL Program
    - Promote Benefits – ECC Video, Active Marketing at Conf, etc.
  - Transfer FL knowledge and experience from year-to-year
  - 2017 Think Tank members represented an equitable distribution of Owners, Contractors and Suppliers
    - Good participation and thought partnership
    - Led to the generation of 8 significant initiatives
    - Discussed and distilled down to 3 major activities
Think Tank

- Developed ECC FL ‘marketing video’ – highlights FL Program benefits
  - Building Connections, Collaboration, Industry Perspective, Facing Market Challenges…
  - Premiere today and at the broader ECC Annual Meeting

- Partnered with FL Program Engagement Team to hold first Alumni Roundtable Engagement Session
  - Included participants from multiple FL classes
  - Interested to re-engage and contribute to the broader ECC program
  - Variety of ideas – more to come…..
    - Sponsoring charitable or educational event
    - “Dinner for 8” with an ECC Board Member
    - Social events
    - Alumni tables at ECC conference

- De-mystifying the Board
  - Opportunity for FL’s to learn more about ECC Board Membership – how to become a Board Member & how the Board drives the ECC forward
Rachel Jackson – ECC Chair
# 2017 ECC Future Leader Team Leads

<table>
<thead>
<tr>
<th>Team</th>
<th>Leaders</th>
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<tbody>
<tr>
<td>Safety Team</td>
<td>Brad Browning</td>
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<td></td>
<td>Katherine Maurin</td>
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<td>Social Media Team</td>
<td>Ramiro Rodriguez</td>
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<td>Elletra Parnell</td>
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<td>Networking Team</td>
<td>Gray Slocum</td>
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<td>Forum 1</td>
<td>Erik Wielang</td>
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<td>Eric Moore</td>
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<td>Forum 2</td>
<td>Justin Hubbert</td>
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<td>Abhishek Dhawan</td>
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<td>Think Tank</td>
<td>Cindy Davey</td>
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<td>Corey Dinkel</td>
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<td>Future Leader Program Engagement</td>
<td>Ty Webb</td>
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<td>Wendy Turini</td>
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Survey

- Future Leaders will receive an email.
- Requesting feedback on:
  - Quality/content of the speakers.
  - Networking experience.
  - Level of engagement.
  - Improvement opportunities.
  - Etc.
- You input is VITAL for the continued success of the working sessions and the ECC Future Leader program as a whole.
THANK YOU TO ALL
2017 ECC FUTURE LEADERS!
Activity Location Information

- ECC Future Leaders Picture

- ECC Conference Welcome Reception (5:30-7:30 PM) – Great Hall
Doing More with Less: A Roadmap to Capital Efficiency

ECC Future Leader Working Session