



Technical Session: RMC-14-82

Strategies for Integrating Turnarounds and Capital Projects



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Presentation Outline

1. Integrated Turnaround Event Performance
2. Most Critical Integration Factors
3. Shell's Integration Framework
4. Conclusions



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Current State of the Industry

... from a turnarounds point of view

- Improved margins have illuminated turnarounds as an opportunity...not a liability
 - Capital project activity has returned, and more of it is being executed during the turnaround window
 - Turnarounds are part of strategic business planning, resulting in challenging performance targets (especially duration)
- Increasing regulatory compliance requirements
- High profile initiatives competing for \$ and people
- Industry-wide decline of turnaround experience and capability

For many, turnaround performance continues to be subpar



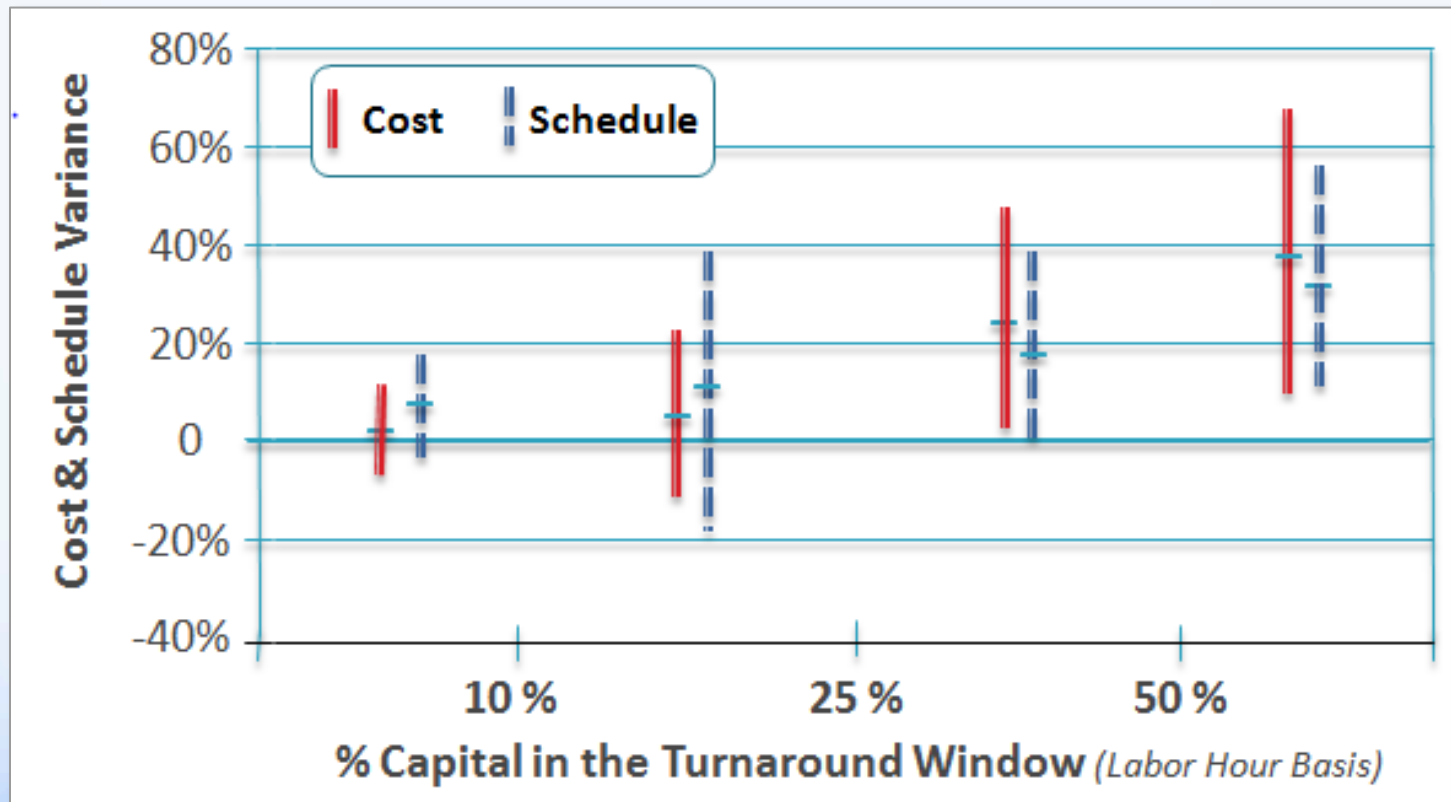
Top Reasons For Turnaround Failure

10. Quality issues at startup
9. Improper management of contractor resources
8. Significant scope growth
7. Delayed decontamination and unit handover
6. Lack of resources for optimum preparation
5. Incomplete adherence to turnaround work process
4. Inadequate/Incapable execution organization
3. Ineffective turnaround Strategy and/or Steering Teams
- 2. Inability to integrate with capital projects**
1. Unrealistic targets for turnaround success



Turnaround Predictability Performance

...as a function of % Capital Projects



Capital Project Hours

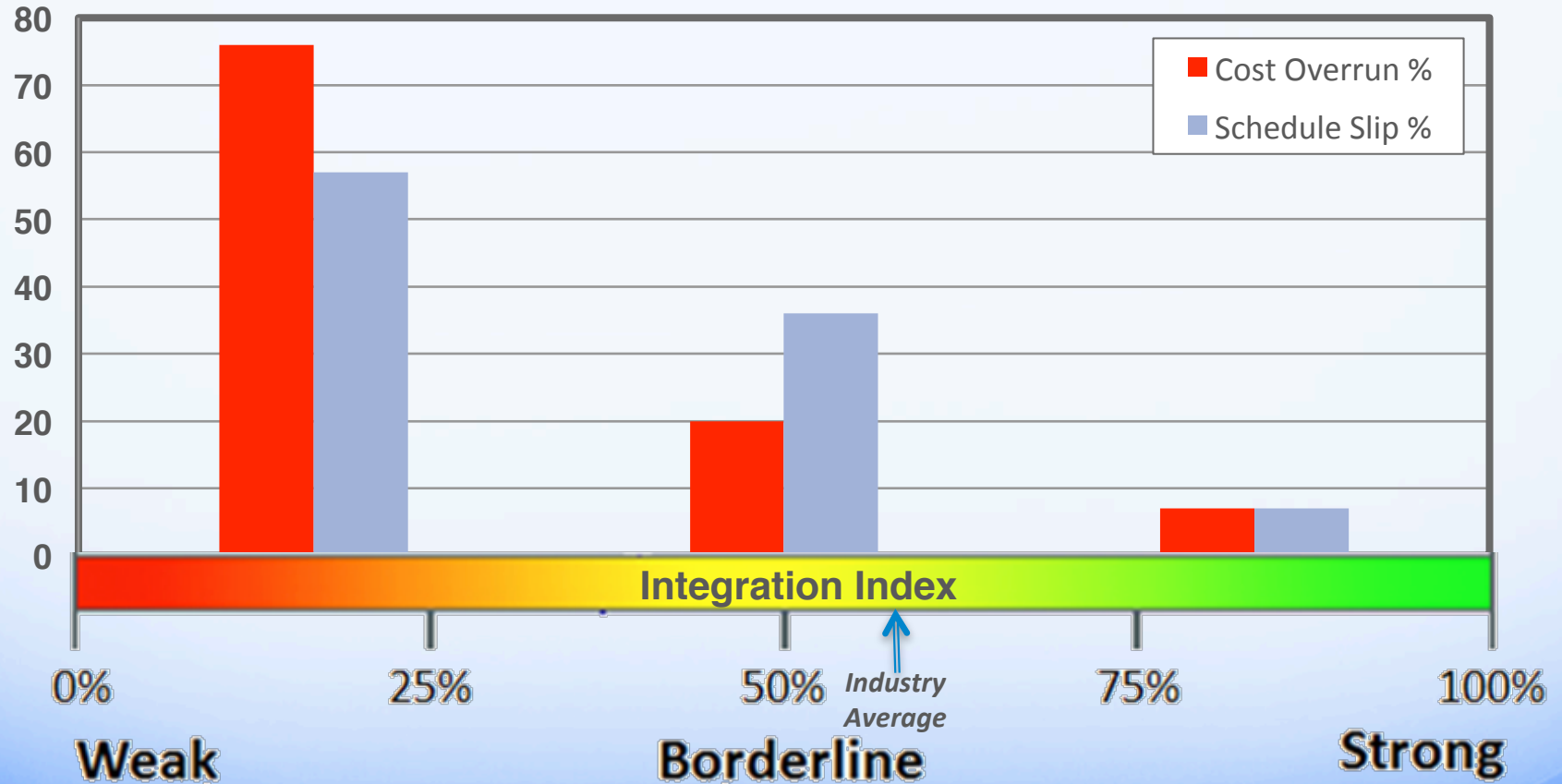


TA Predictability

Source: AP-Networks Turnaround Database

Integration Index

...is a leading indicator of event cost/schedule performance



Strong Integration Index drives better event performance

Outline

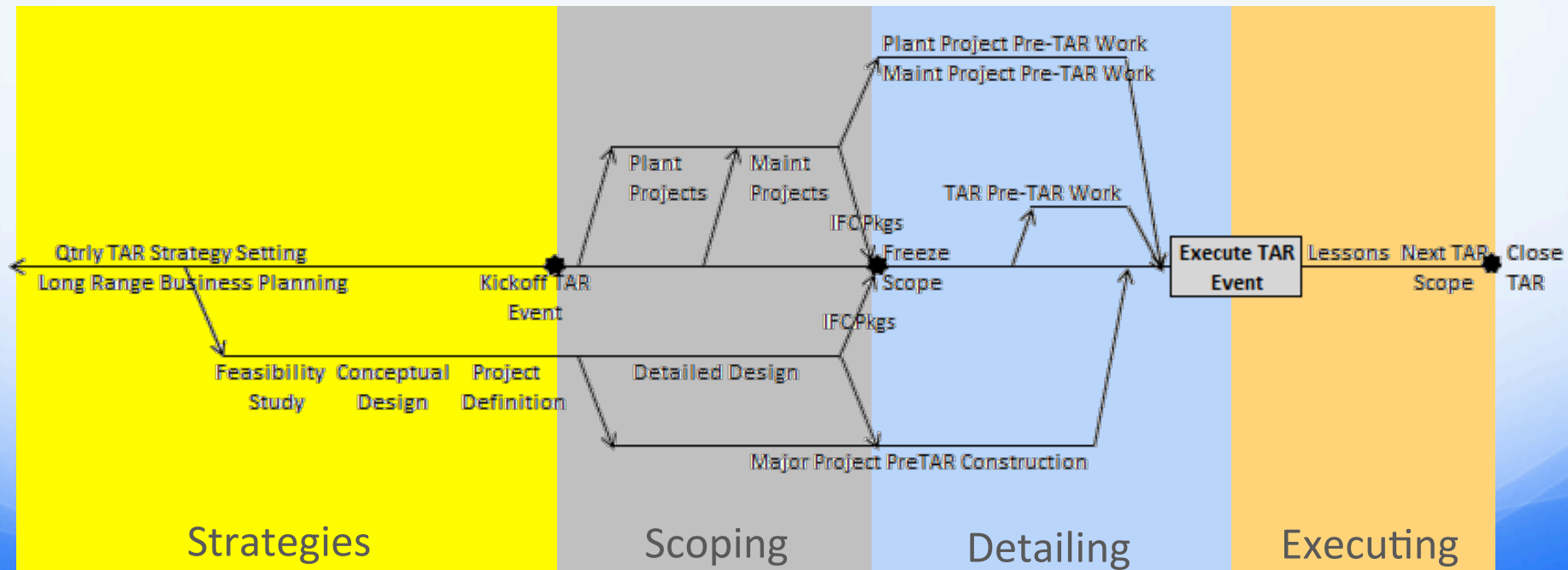
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1. Adhering to “Collaborative” Work Processes

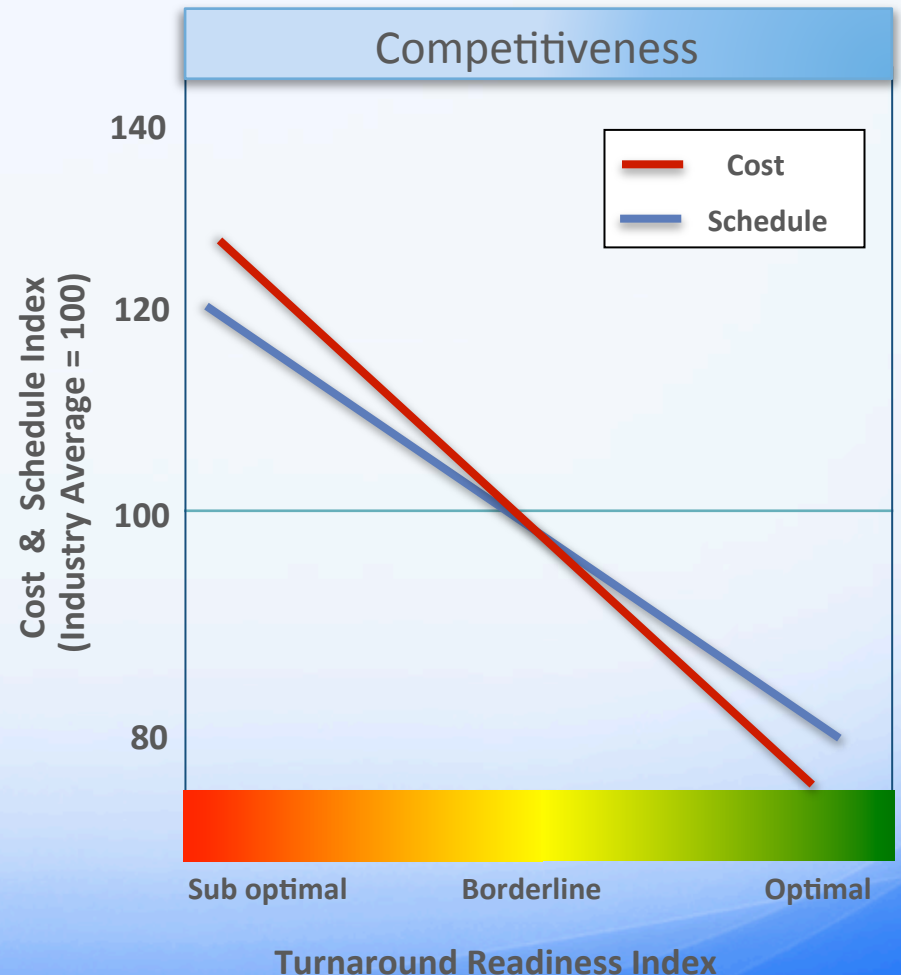
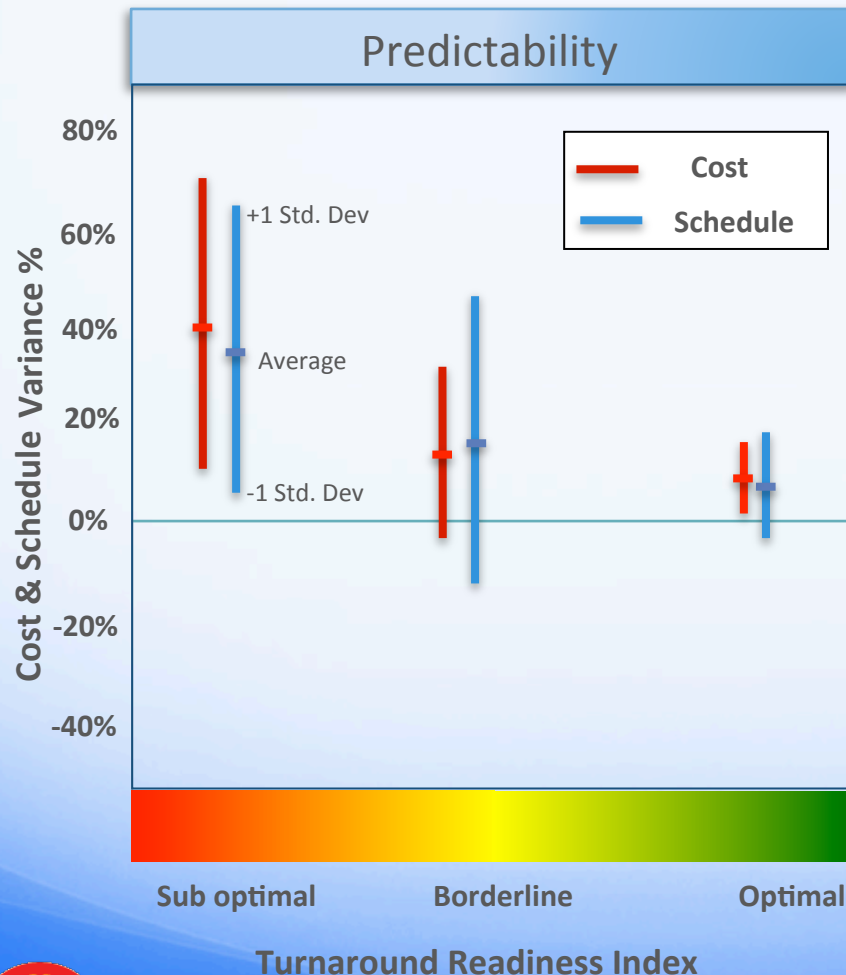
...and producing high quality deliverables

- Map out major interfaces (or milestones) between the capital project and turnaround work processes in a way that assures they are “collaborative”



Work Process Compliance Drives Readiness

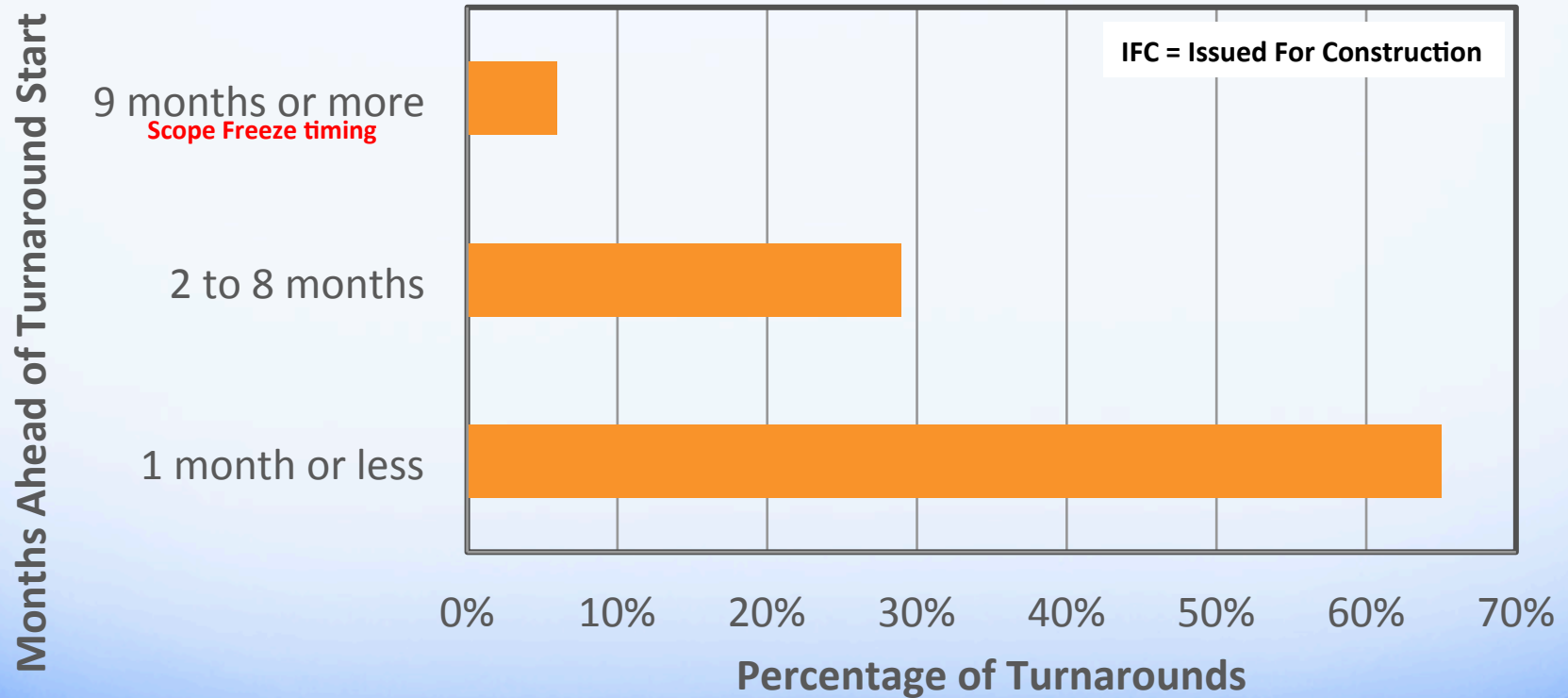
Turnaround readiness is a key leading indicator of outcomes



2. Defining the Project Scope...Early

Too often IFC packages finish after scope freeze

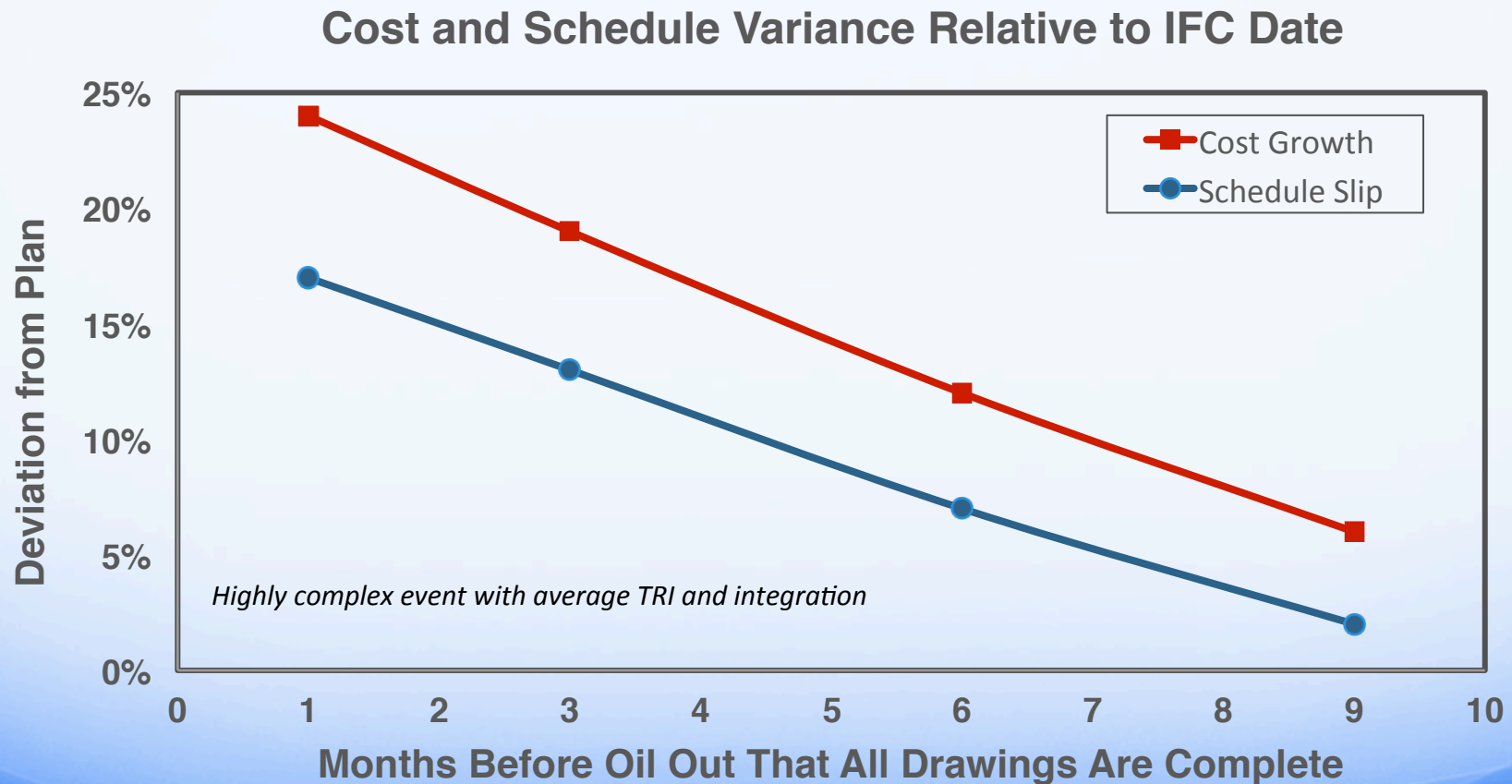
Industry Issuance of Last IFC Package



Late definition and/or funding of projects is crippling

IFC Packages are a Key Project Deliverable

...and have a sizable impact on turnaround event outcomes



Source: AP-Networks Turnaround Database

3. Documenting an Event Integration Plan

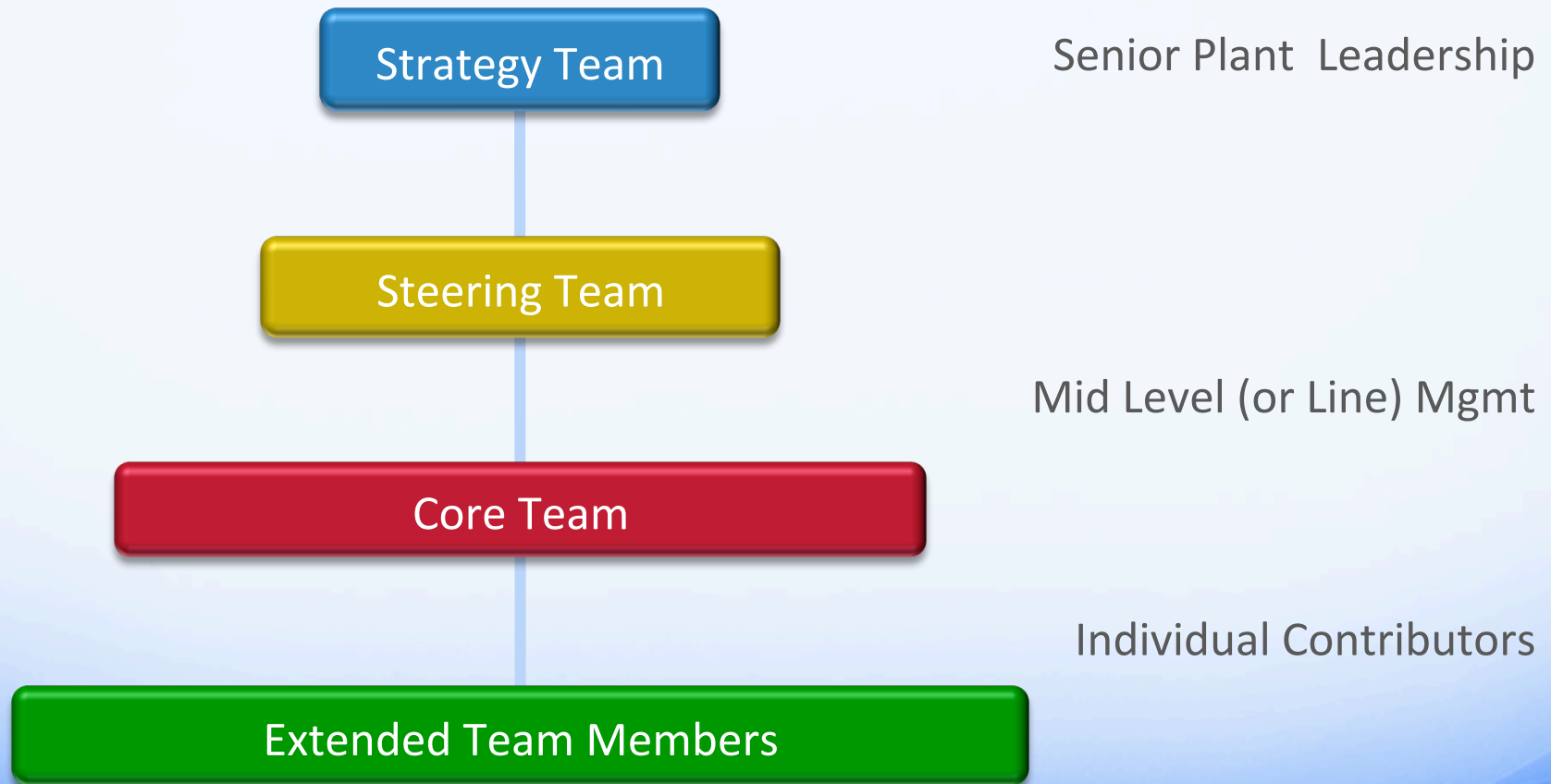
...requires early definition and commitment

- The Event Integration Plan is “the contract” between turnaround and projects defining the what, how, when, and who details of integration
- Ideally developed in a facilitated workshop ~2 years prior to feed-out, it is an extremely enabling document
- In detail, it addresses the following areas:
 - Organization
 - Strategic Processes
 - Preparation Practices
 - Execution Systems



4. Establishing an Effective Steering Team

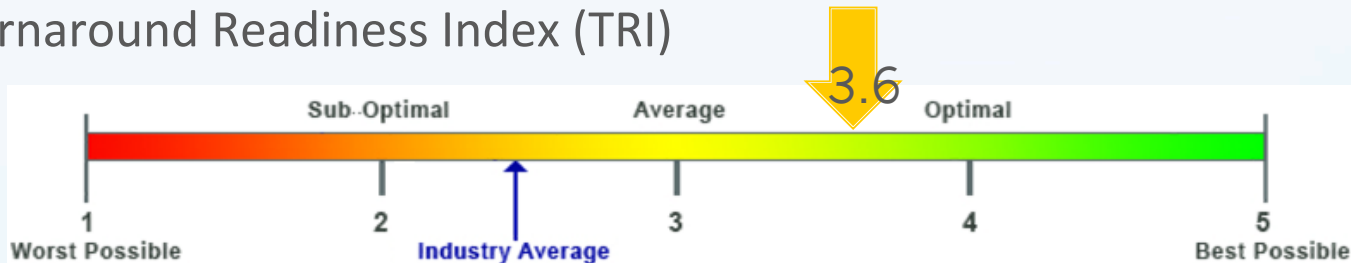
...fits within the turnaround event management structure



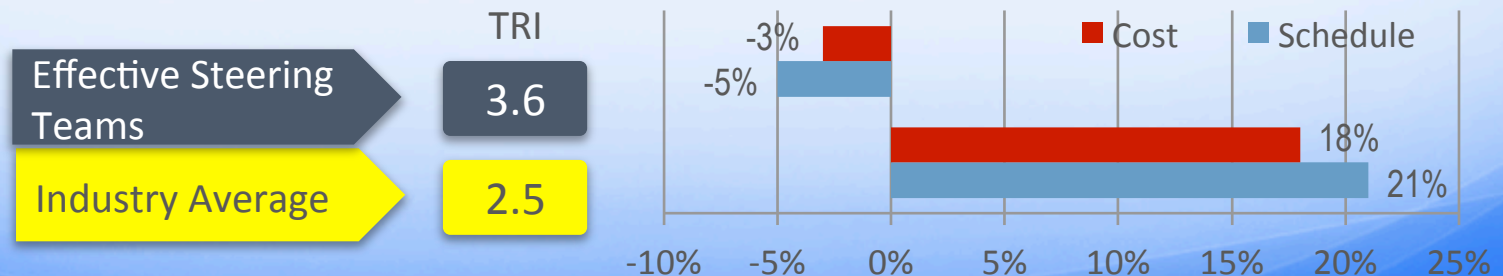
Steering Team Effectiveness

...drives desirable results and is a significant differentiator

- Steering Teams are responsible for driving “R³S”
- Turnaround events led by Steering Teams drive dramatically favorable outcomes
 - Turnaround Readiness Index (TRI)



- Significantly better Cost and Schedule Performance



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The Shell Framework

Best practice for integrating turnarounds and capital projects



The Shell Framework

Integration best practice elements

**Leadership
Commitment**

Accountability

**Integrated
Schedule**

Deliverables

- Site leadership must establish the event as a mission critical focus for the facility
- Through the Steering Team, the turnaround and project groups are jointly accountable for delivering the event
- There will be only ONE fully integrated event execution schedule
- The turnaround and projects work processes will be integrated in order to drive the timely completion of all project deliverables



The Shell Framework

Integration best practice elements

**Integrated
Organization**

Planning

**Execution and
Contracting Strategy**

Prorates

- There will be only ONE fully integrated organization for preparation and execution of the event
- The methodology for detailed planning shall follow proven turnaround practices and be performed in ONE system
- The strategies for contracting and execution shall be done to deliver ONE fully integrated approach
- Shared event costs (over and above those required for the turnaround) will be proportionally shared by projects



The Shell Framework

Integration best practice elements

**Cost
Controls**

**Representation
in Work Process**

Communications

Trust Barriers

- Ideally designed as ONE, the event controls plan and systems will be defined collaboratively and early
- Project teams shall participate in all premise setting, alignment, and team building workshops
- The methods for communication will be formally documented; turnover of pre-turnaround work is essential
- Organization is committed to proactively clarifying, defining, and addressing all issues that could create a trust barrier and ultimately inhibit the team's effectiveness



The Shell Framework

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Conclusions

- The amount of capital executed during a turnaround...
 - ▶ Increases both the turnaround event risk and complexity
 - ▶ Negatively impacts the ability to predict event outcome
- A leading indicator metric that correlates the level of integration with turnaround event outcomes is available
- Establishment of a formal Integration Framework is an emerging best practice
- There are 4 key components that drive better integration:
 - ▶ Timely definition of capital scope
 - ▶ Implementing (and following) collaborative work processes
 - ▶ Establishing Steering Teams that drive R³S
 - ▶ Defining a robust turnaround and capital integration plan



Questions

