MARSH RISK CONSULTING

RISK. DISPUTES. STRATEGY.

REORIENTING OUR DECISION MAKING FRAMEWORK FOR PROJECT RISK

JULY 18, 2017
JACKSONVILLE, FL
CFMA

Lori Flemming, Senior Vice President

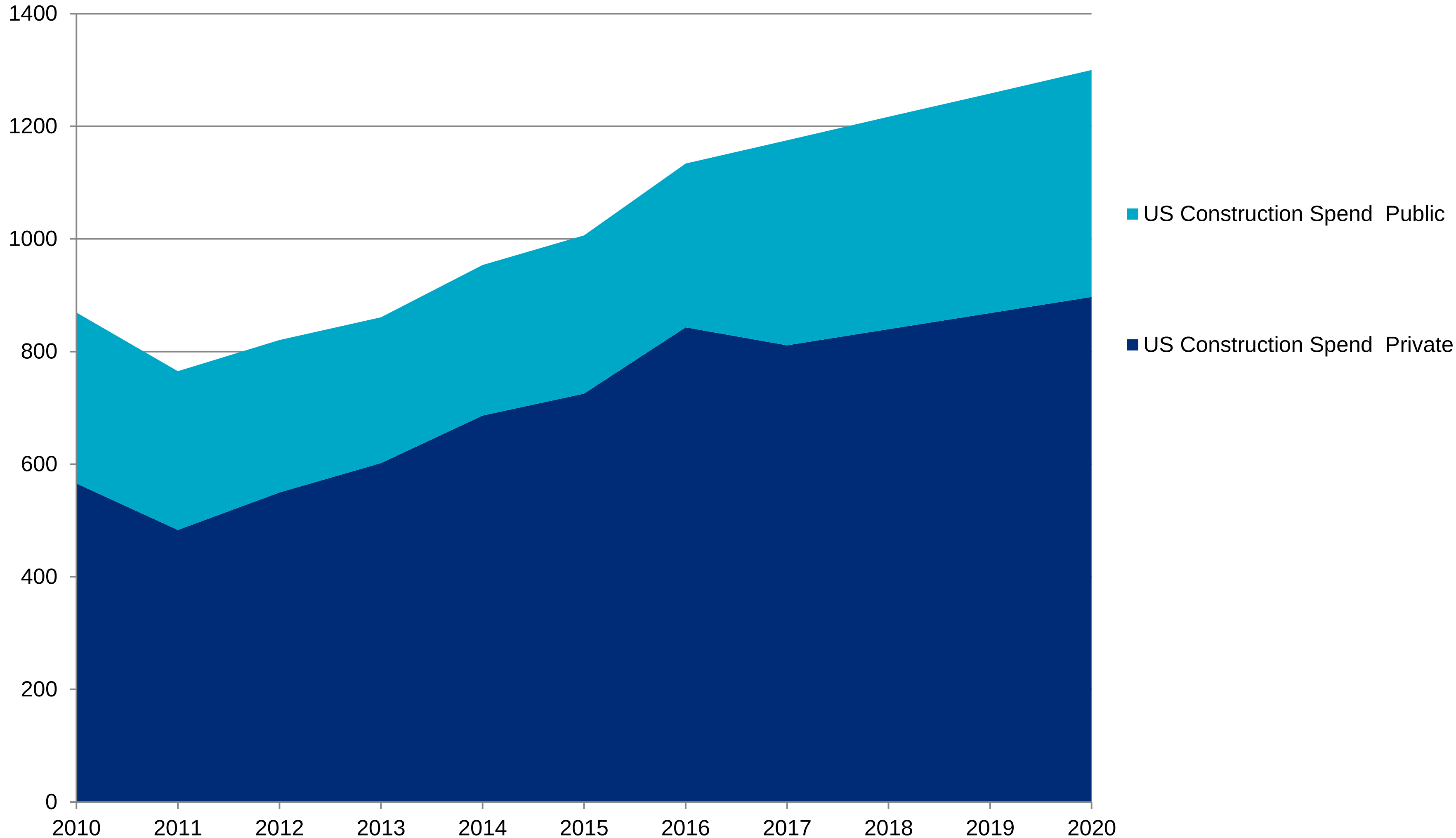
Colin Daigle, Managing Director

MARSH

Discussion Overview

- Synopsis: this discussion will present current factors that are driving risk for contractors in today's market, examine how these risks can trigger or complicate a contract or insurance claim, and then present solutions.
- The objectives of the session include providing attendees with:
  - Research and opinion about what's driving risk in construction today.
  - Relatable approaches to minimize contract disputes and maximize recovery under a Subcontract Default Insurance or Builders Risk policy.
  - Tactical steps to manage contract risk during project execution.

CAPEX on the Rise



Florida P3

- New Projects Under Consideration:
  - Tampa Bay Next
  - I-4 Beyond the Ultimate
- Under Construction:
  - I-4 Ultimate in Orange & Seminole Counties
  - SR 79
- In Operations:
  - Port Miami Tunnel
  - I-595 Improvements
- Construction Complete:
  - US 19
  - SR 9B
  - I-95 South of SR 406 to North of SR 44
- Contract Complete:
  - Palmetto Section 5
  - I-4 Connector
  - I-75 in Lee and Collier Counties
  - Palmetto Expressway Widening and Interchange Improvements Section 2
  - I-95 Widening/Pineda Causeway Interchange
  - I-95 Express Lanes Phase I
  - US 1 Improvements in the “18-Mile Stretch”
  - I-75 North of SR 80 to South of SR78

Source FDOT’s P3 website. http://www.fdot.gov/comptroller/PFO/p3.shtm

Behind the Numbers

Fortune 500 balance sheet strength

overseas capital 10% of U.S. CAPEX

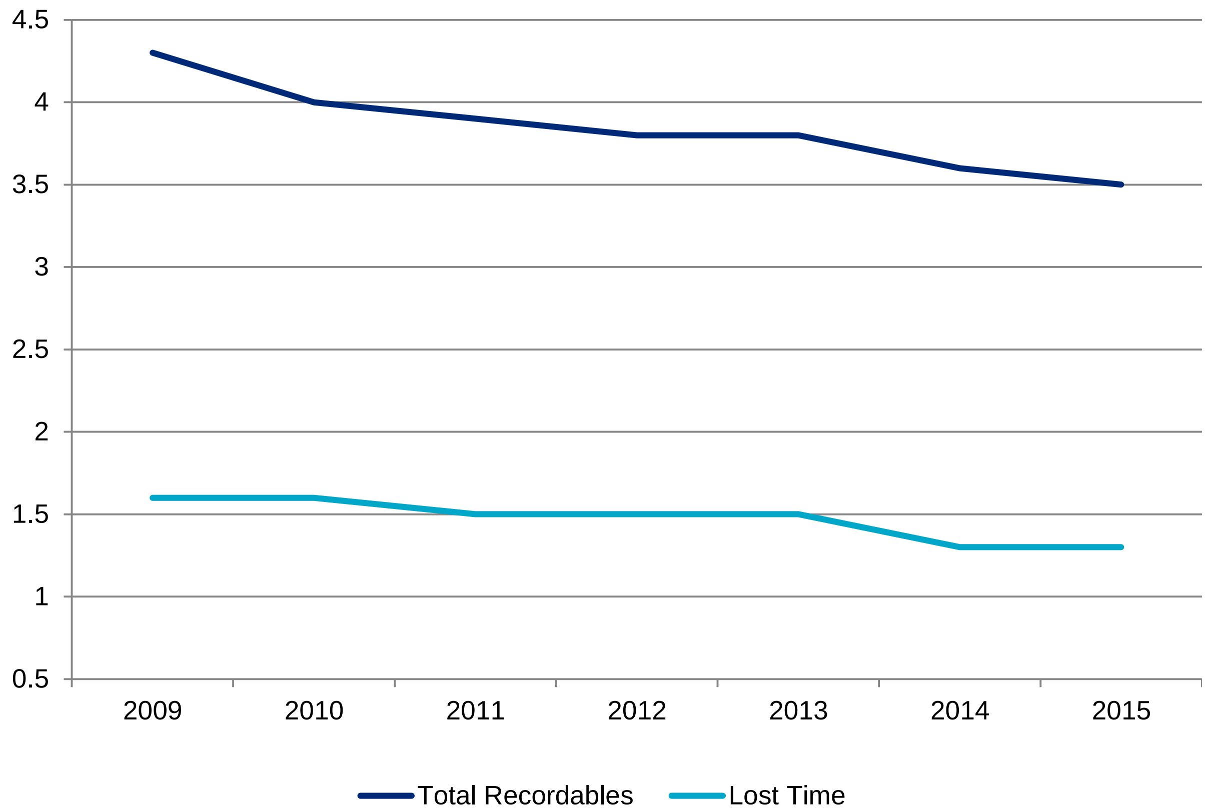
88%+ domestic capital is "alternative capital"

Avg. project size 21% in excess of $1 billion

Increasing Complexities

Complicating Factors

- Labor productivity stuck at **1%** annual growth.
- Incident rates **flat.**
- No marginal improvement in TCOR.



Behind the Risk

- Contractor fragmentation has meant inconsistency persists.
  - Top 20 construction firms have only **8%** market share.
- Suboptimal procurement focused primarily on reducing price and offloading risk.
- Inexperienced yet risk-averse owners.
- Mismatched contractual risk allocations/rewards.
- Capacity stretched thin.
- Labor pool volatility.

Contract Disputes and Claims Pose Non-Trivial Risk to Projects

High Level Views

- 75% of owners and contractors have experienced a claim or dispute in the last five years.
- Claims and disputes are still prevalent, causing disruption and cost increases for all stakeholders involved.
- Most common drivers of claims and disputes:
  - Construction defects ranked most frequent and expensive for owners.
  - Subcontractor default/termination top the list for GCs.
  - Warranty issues are the most common for trades; defects and warranty are most expensive.

Source: Dodge. Data & Analytics. SmartMarket Report. Managing Risk in the Construction Industry. Stephen A. Jones and Donna Laquidara-Carr. 2017.

“CONTRACTORS ARE THREE TIMES AS LIKELY TO FAIL IN A RECOVERY THAN IN A DOWNTURN.”

– Thomas Schleifer, PhD
Del E. Webb School of Construction at Arizona State University

Cause for Failure

Strategic	Organizational	Uncontrollable
• Overexpansion. • New markets. • New types of work.	• Insufficient financial strength. • Poor financial management. • Poor field performance.	• Outside economic issues. • Banking/Surety changes.

Cause for Failure – A Deeper Look

Too Much Change	Loss of Discipline	Inadequate Capitalization
• Taking on too many new ventures simultaneously: – Geographic expansion. – Acquisitions/Mergers. – New products/services.	• Move outside core competencies. • New hires that do not fit. • Poor job costing focus.	• Cash flow on new projects exceeding expectations. • Poor performing projects over stressing cash on hand.

What is the Extra Strain During a Recovery?

Cash Flow

Negative, especially in the early phases.

Gross Margins

Low/Stagnant, especially in the early phases.

Human Capital

Expensive to attract/retain.

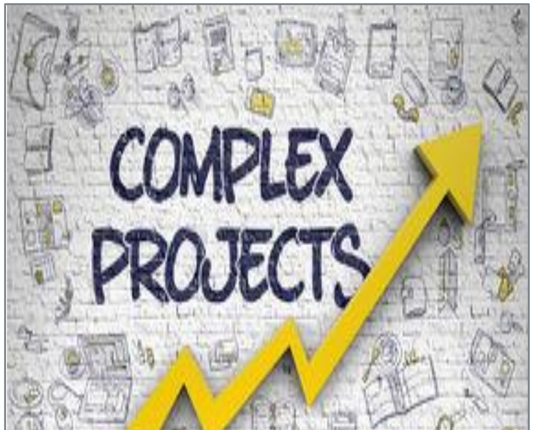
Contract Disputes and Claims Pose Non-Trivial Risk to Projects

Views Distilled

- Top risks vary for owners and contractors.
- Owners experienced most significant impacts from schedule changes, scope/planning, and cost escalation.
- GCs and trades most concerned with labor procurement, contract risks (risk allocation in contracts/i.e. – warranties, etc.).
- Differences in risk experiences/priorities result in different risk diagnosis and mitigation strategies.

Source: Dodge. Data & Analytics. SmartMarket Report. Managing Risk in the Construction Industry. Stephen A. Jones and Donna Laquidara-Carr. 2017.

What's the Point?



Bigger, more complex projects.

More dollars in play from more sources.

Project efficiency has not kept up.

Larger risks accruing to project stakeholders.

Larger single-project financial risk.

Default risk is ever prevalent.

You have an obligation to manage this.

Aligning Risk and Construction Procurement

Profit Margin

Cost Control

Quality Control

Delays
& Cost
Over
Runs

PM Control

Areas to be proactive

Balancing Risk and Spend – Leveraging Analytics

Critical Steps

- Assess the risk.
- Prioritize critical risk issues.
- Quantify the exposure.
- Evaluate finance options.
- Compare to alternatives.
- Align stakeholders.
- Implement a plan.
- Measure the progress.
- Manage and adjust.
- Cost and schedule.
- Early dispute resolution.

Your Tool Belt

- Risk assessment.
- Project proforma.
- Project loss cost modeling.
- Casualty PML/BR PML.
- Project risk finance optimization.
- Prequalification.
- Project/Claims management.

How Risk Is Managed
High Level Views

By Stakeholders

- Owner vs. contractor vs. subcontractor
- Design firm A/E risk
- Lenders
- Public, private, P3

By Organizational Function

- Risk management
- Project management
- Legal
- Financial
- Executive

Risk matters differently to different groups based on risk strategies.

Managing Performance Risk - Defaults

Financial Risk

First understand the risk.

- Key financial ratio review.

Then mitigate.

- Bond.
- SDI.
- Self-insure.

Operational Risk

Three key components.

1. New contractor.
2. New type of work for the contractor.
3. New location.

Tripping one needs to be watched.
Tripping two, watch out!

Example Pre-qualification Framework: Benchmark Analysis Tool Process

Evaluate

- Subcontractors' financial reports against standard financial reporting guidelines.

Analyze

- Score subcontractor's:
  - Balance sheet.
  - Work in progress.
  - Income statement.
  - Cash flow.
  - Working capital.
  - Net worth.
- Compare to ratios commonly used by sureties in their underwriting reviews.

Review

- Subcontractor credit report.
- Determine existence of any liens, judgments, or lawsuits outstanding.

Z-Score

- For each subcontractor analyzed.
- Measure of corporate financial distress and potential economic bankruptcy.

Reporting

- Separates each subcontractor's risk score into four quartiles.
- Quarterly reports provided reflecting the overall quality of your subcontractor portfolio.

Risks Overlap Stakeholders and Functions

Examples of Risk Managers Working Across Divisions

- **Builders Risk Claims**
  - Rebuild challenged as betterment by carrier requires risk management and project management to support “no other alternative.”
  - Challenge T&M costs as inefficient or excessive requires risk management, legal and project management to align and demonstrate coverage.
  - Delays affect time impact (direct and indirect) and span contract and policy.

- **Subcontractor Default Claim**
  - Owner changes vs. GC performance vs. subcontractor defaults.
  - Risk drivers and impacts are very different than property-related risk.

- **Owner or Lender Audits on GMP contracts**
  - Align and reconcile areas that span legal, risk management, project management.
    - Cost of the Work, OCIP deducts, labor/equipment rates/burdens, estimate v. actual.

Facts about Project Results

Risk Management Will Mitigate Problems

Projects that perform formal **Risk Assessment** have **9.4%** lower project cost and **10.1%** less schedule growth.[1]

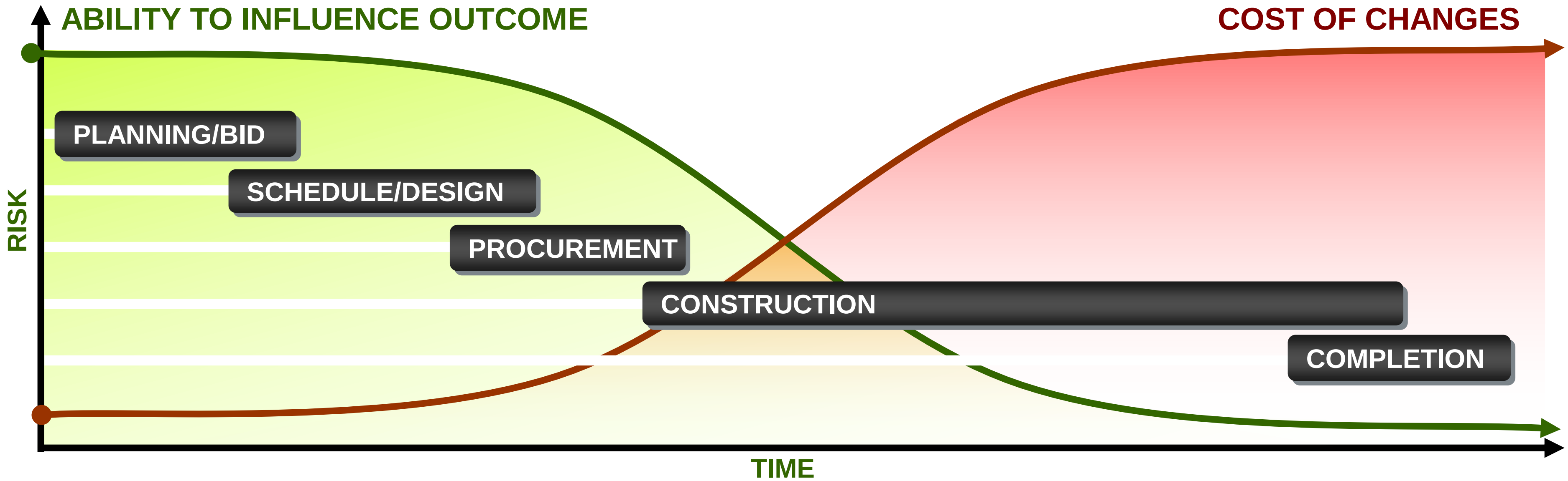
Implementing **Risk Assessment** best practices can **reduce the cost of changes and rework.**[1]

Using an **external risk management consultant** results in a **more effective and thorough** assessment process.[2]

Investment in Risk Management is often **less than 1%** of overall project cost, but results in return of **more than 20% in savings.**[2]

1. Construction Industry Institute (CII), Best Practice Guide: Improving Project Performance (draft February 2012)
2. Oliver Wyman, *Getting Things Done*, Risk Journal, Volume 3

Risk Management Through the Project Construction Lifecycle



*"The ability of the stakeholders to influence [the finished project] is **highest at the start and gets progressively lower as the project continues.***

A major contributor to this phenomenon is that the cost of changes and correcting errors generally increases as the project continues."

A Guide to the Project Management Body of Knowledge (PMBOK® Guide)
by Project Management Institute

Claim Prevention / Management
Project Management as Part of Risk Management

Recurring Key Claim Issues – Stemming from Lack of Project Management Basics

Scope Management	Schedule and Cost Control	Review
• Proceeding with work without written instruction.	• Failure to recognize or track changes—time/cost impacts. • Recognizing/communicating critical path delay. • Failure to up-date progress accurately. • Cost coding for added scope.	• Failure to give notice/proper, reserve rights. – Documentation: poor contract records.

Schedule Control and Risks: Back to the Basics

- Scheduling is project control, not just a contract requirement.
  - As a planning tool.
  - Input from project team (disciplines, subcontractors, etc.).
  - Realistic progress.
- Schedule risks must be effectively managed to mitigate impact.
  - Early identification of the sources of risk.
  - Early recognition of the timing of potential impact.
  - Address the time impact in the schedule **when it occurs**.

Claim Prevention/Management
Schedule Management

Baseline Schedule Development

- Allocating labor resources does not have to be resource loading.
- Linking work breakdown structure (“WBS”), estimate, and schedule activities.
- Check the BASICS — critical path, logical sequence through completion, crew allocation.

Schedule Updates/Impacted Schedules

- Awareness of contract requirements.
- Address impacts as they occur.
  - Reasonable durations.
  - Confirm criticality.
  - Review for concurrency.
- Allocation of resources for scheduling.

Compare and Relate to Traditional Risk Management Focus and Collaborate

Project control is embedded in risk management.

- Risk triggers should be within project controls system.
- Failure to recognize or track changes — time/cost impacts.
- Recognizing/Communicating critical path risks.
- Contemporaneous schedules.
- Failure to update progress accurately will affect triggers.
- From baseline schedule through monthly updates.
- Cost coding for added scope.
- Schedule dates consistent with job cost reports, daily reports.
- EACs/ETCs updated regularly; Cold-eyes review for larger projects with noted changes.

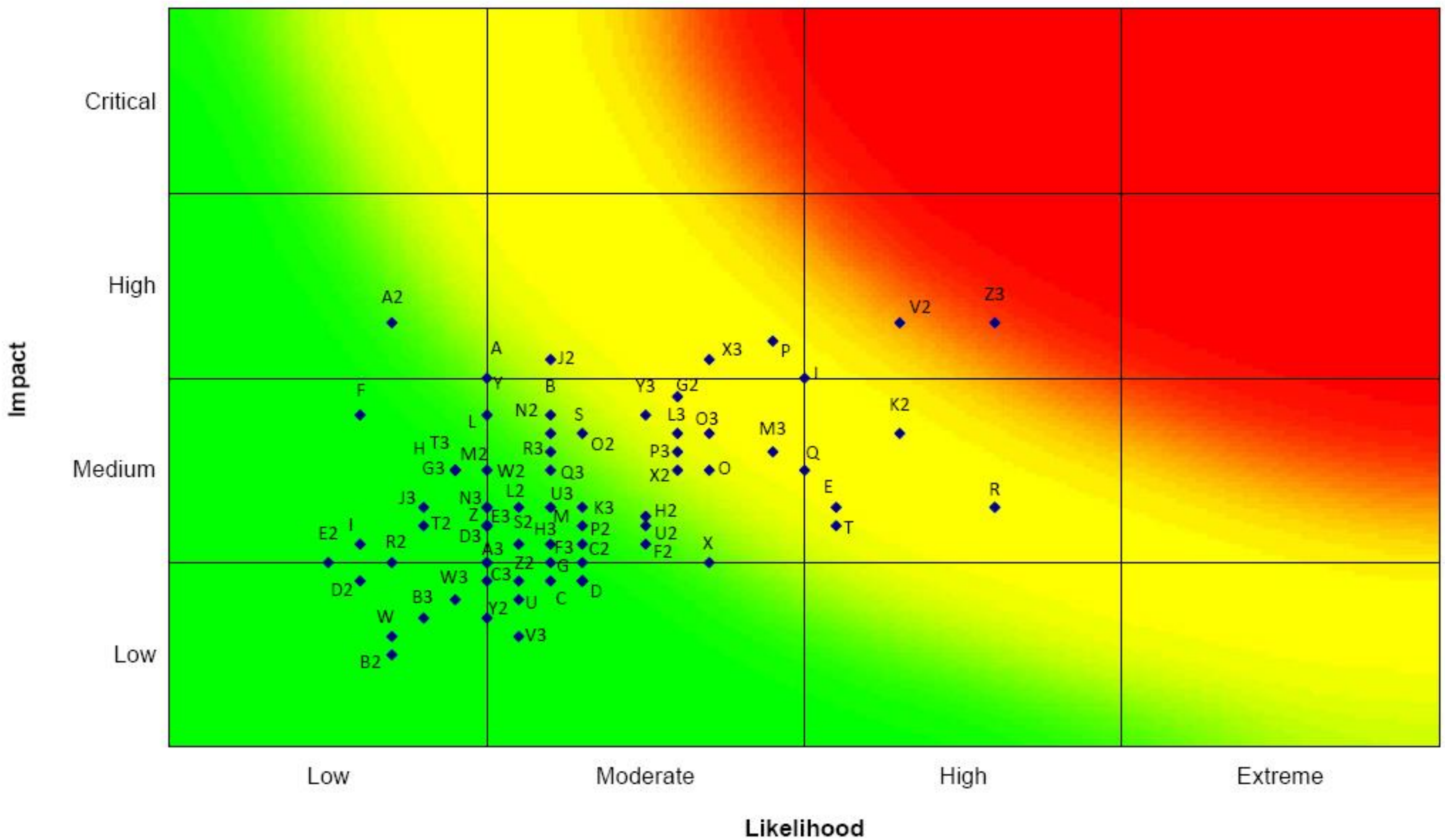
Claim Avoidance Within Risk Management
Compare and Relate to Traditional Risk Management Focus and Collaborate

Integrating project management with risk management:

- Progress tracking (actual vs. planned).
  - Long lead procurement check (prioritized risks).
  - Milestone review (approvals/permitting).
- Daily reports, time sheets, and extra work order support.
- Meeting minutes, key decisions documented.
- Subcontractor payment records, progress reporting.
- Cost coding reflects work breakdown structure.
  - Extra work (change orders).

Claim Avoidance Within Risk Management

Risk Register Heat Maps Allow Identification and Prioritization of Project Risks



Risk Management During the Project Lifecycle Is Largely Project Management

RISKS

PLANNING / BID

SCHEDULING/DESIGN

- •Aggressive / inaccurate schedules and budgets.
- •Gaps and conflicts in contract.
- •Complex procurement strategy.
- •Outside schedule drivers.
- •Change in leadership.
- •Short bid cycles, inadequate resources reviewing bid risk.

PROCUREMENT

CONSTRUCTION

- •Scope creep.
- •Inadequate change management.
- •3rd party impacts , insufficient owner resources.
- •Incomplete design, inaccurate as-built data.
- •Poor risk management, risk triggers not activated.
- • Vendor / Subcontractor performance issues.
- •Unforeseen subsurface conditions.

CLOSE-OUT

- •Punchlist delays.
- •Warranty issues.
- •Poorly defined handover specs.
- •Delayed takeover to operations.
- •Unresolved claims.

SOLUTIONS

Governance, Risk Assessment, Performance Audit

- Identification and assessment of contract risks.
- Develop risk register: Identify, prioritize, monitor risks.
- Risk Triggers: Notification of risk early, allows mitigation.
- Bid / No bid decision gate process.
- Governance assessment to drive profit, improve margins.
- Assess budget and schedule against deliverables.
- Project controls gap analysis.

Claims Avoidance, Dispute Resolution

- Assessment of deliverables against project expenditures.
- Risk trigger review, develop mitigation (action plans).
- Claims avoidance workshops.
- Review and analyze change orders.
- Analysis of loss of productivity and cumulative impact.
- Assessment of delay and time impact.
- Quantification of damages.
- Negotiations / alternative dispute resolution.
- Expert witness testimony.

Contact Us

- **Lori Flemming**
  Senior Vice President
  Marsh USA Inc.
  +1 704 953 9780
  lori.flemming@marsh.com

- **Colin Daigle**
  Managing Director
  Marsh Risk Consulting
  +1 202 263 7892
  colin.a.daigle@marsh.com

MARSH RISK CONSULTING