

# Risk-Adjusted Estimating & Bid Management for General Contractors

**Laura Watts**

Manager, ACS Customer Success



# About the speaker

## Laura Watts

- Joined BuildingConnected in early 2019 as a Customer Success Manager focusing on helping general contractors enhance their preconstruction and prequalification workflows.
- Previously, spent the last 6+ years working in a variety of roles focused on the customer experience for software companies.
- Developed a strong passion for helping customers understand how innovative technology can help solve their problems and have a positive impact on their business.
- Has helped over 100+ general contractors implement Autodesk Construction Cloud solutions across their organizations and specifically, over 50+ TradeTapp customers.

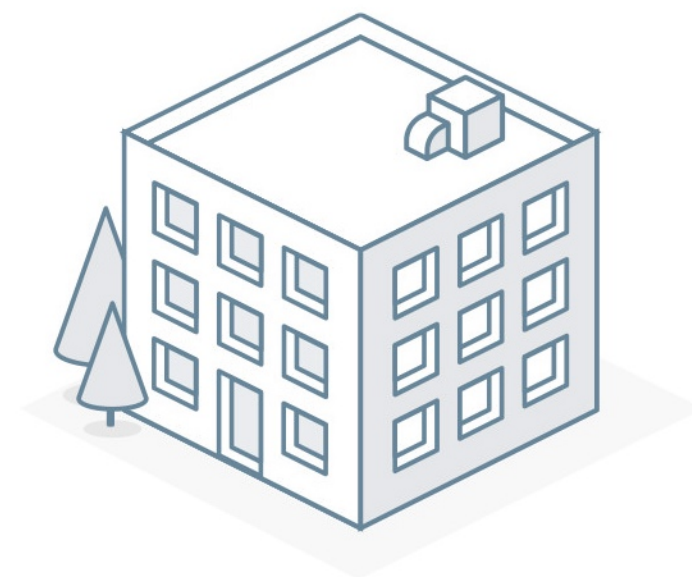
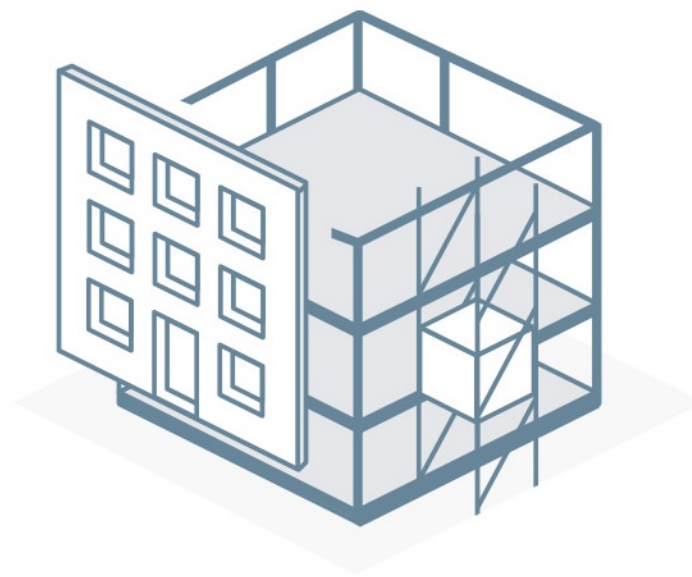
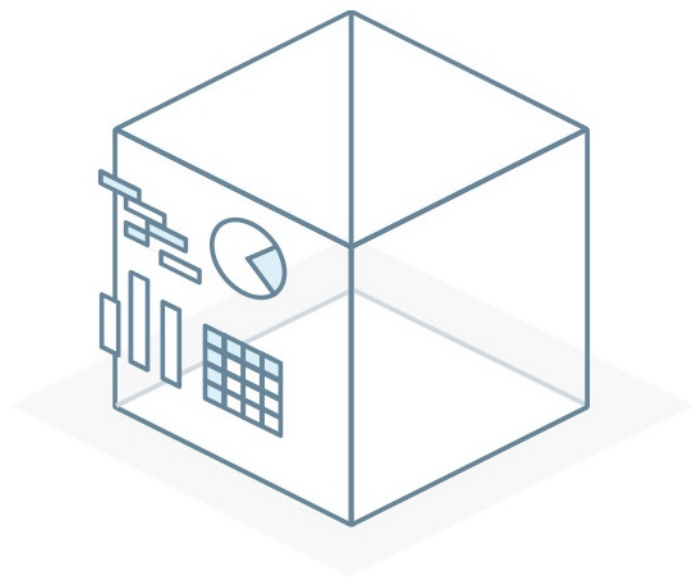
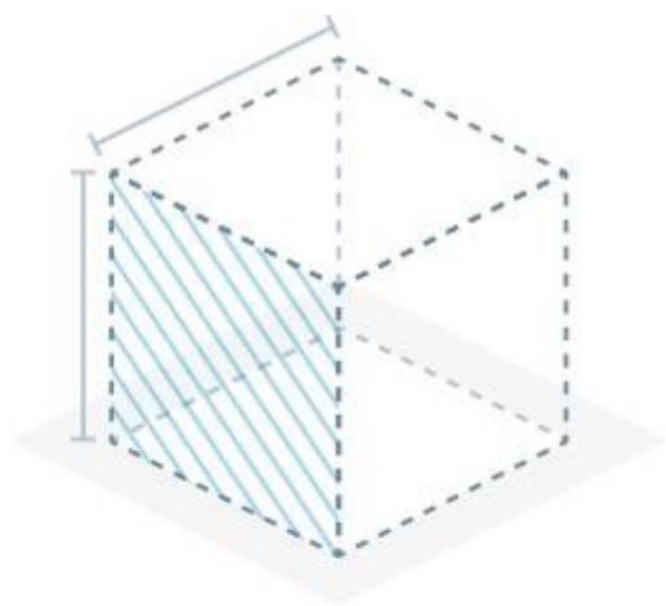


# The importance of connected construction





# Connected workflows in construction



Apps	DESIGN	PLAN	BUILD	OPERATE
Workflows	<ul style="list-style-type: none"><li>Design Authoring</li><li>Design Collaboration</li></ul>	<ul style="list-style-type: none"><li>Model Conditioning</li><li>Model Coordination</li><li>Quantification</li><li>Bid Management</li><li>Qualification</li></ul>	<ul style="list-style-type: none"><li>Project Management</li><li>Field Collaboration</li><li>Quality &amp; Safety</li><li>Cost Control</li><li>Commissioning</li></ul>	<ul style="list-style-type: none"><li>Facilities Maintenance</li><li>Asset Lifecycle</li></ul>
Shared Data	<div>Data</div> <div>Models · Drawings · Issues · Specifications · RFIs · Cost · Assets · As-Builts</div>			
Insight	<div>Predictive Analytics &amp; Risk Management</div> <div>Predictive Analytics · Benchmark Reports · Mitigation Strategies</div>			
Network	<div>Builders Network</div>			



# Connected workflows in construction



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The million-dollar question:

"Why is estimating so difficult?"





# The reality of construction today

**20%** of projects overrun their timeline

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**80%** of projects are over budget

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**31%** of all construction projects from The past 3 years have been completed within **10% of their initial budget**

COVID 19 related layoffs & increased safety precautions

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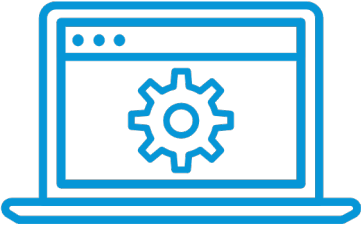

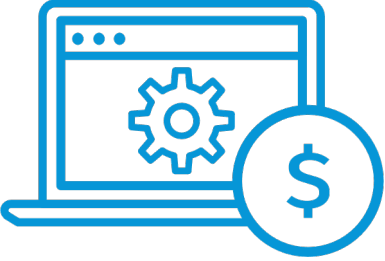
General labor & supply chain shortage trends

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Devastating weather conditions

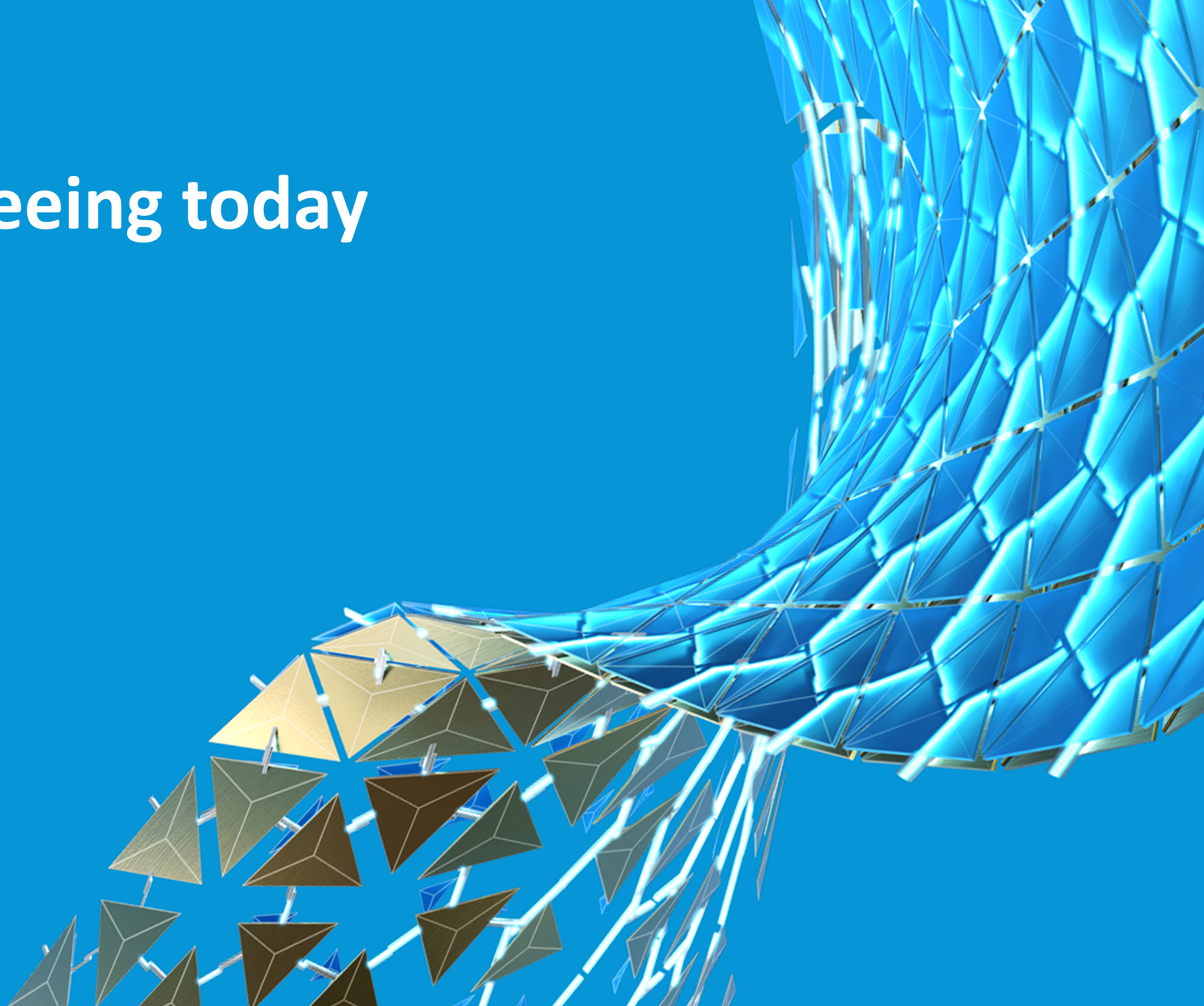


# Top challenges & technology investments

	 Challenges	 Current Software Investments	 Planned Software Investments	 Innovative Tech Investments
1	Data security	Enterprise resource planning	Client relationship management	Predictive analytics/big data
2	Effectively managing risk	Project management	Estimating	Internet of Things
3	Lack of effective technologies/ outdated technologies	Project scheduling	BIM-based workflows	Augmented reality/virtual reality



What we're seeing today







**We have bid management  
processes in place.**



**We (*may*) have risk processes  
in place.**

**How are these two processes currently working together?**



# Breaking down the bid management process



**ESTIMATING TEAM**

**Sends bid invitation to subcontractor**

**Analyzes bids and performs bid leveling**

**Puts together a cost estimate**

**Awards subcontractors**



# Breaking down the prequalification process



**RISK TEAM**

**Invites subcontractors to quality**

**Subcontractors complete questionnaire**

**Performs risk analysis**

**Creates risk mitigation plan**

**Assigns qualification status**



# Challenge with the current process

Risk data is not always incorporated into how Estimators analyze bids and choose the best subcontractors for the right jobs:



Increased unforeseen costs.



Increased change orders.



Increased safety issues.

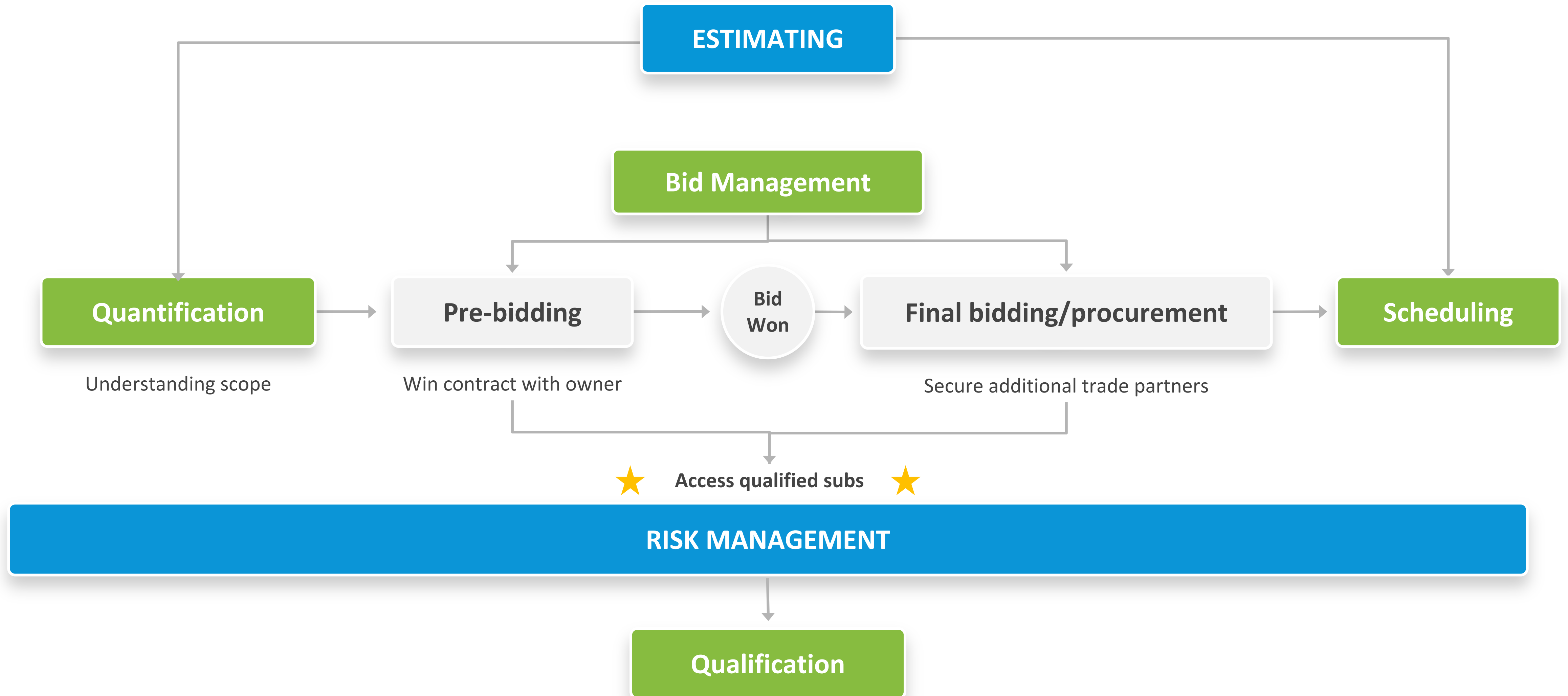


Extended project timelines.



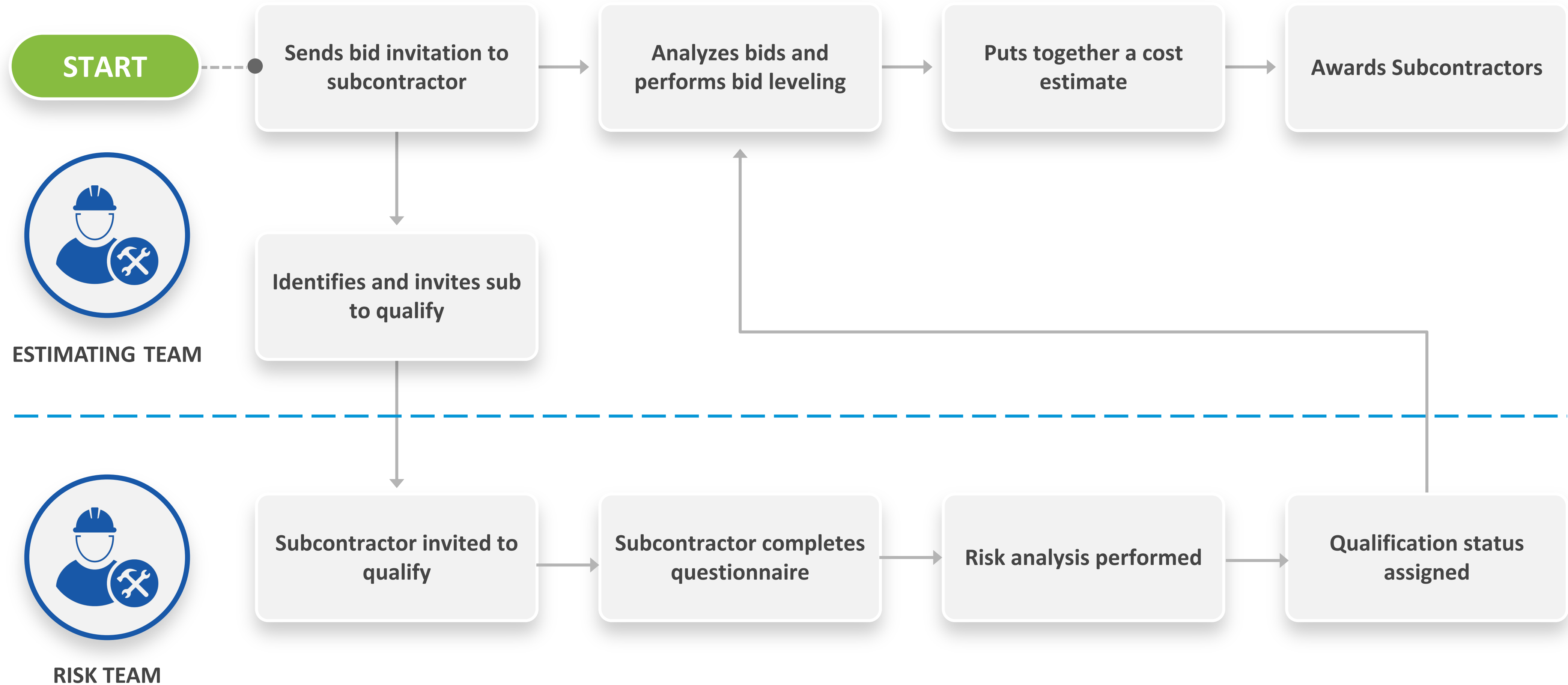


# Connecting estimating & risk teams





# Connecting risk & estimating workflows





# Integrating your prequalification & bid management processes

## Smart Bid Lists

BUILDING CONNECTED

Search for people or companies

Add Bidders: AHU - Delta Phase 2.1

X

SEARCHIMPORTEMAIL

FILTER

Willing to travel to:  
New York, NY, USA  
[Search by office location instead >](#)

Work Performed  
Concrete Finishing x

Tags

Qualification Status

- ☒ Qual invitation sent
- ☒ Application in progress
- ☐ Application submitted
- ☐ Qualified
- ☒ Qualified w/ exceptions
- ☐ Qualification denied

Labor Requirements

- ☐ Union
- ☐ Non-Union
- ☐ Prevailing Wages

Country

- ☒ Domestic bidders only

Enterprise Type

35 companies best match your filters. ? Add multiple best matches with slider >

+ Add 35 companies

Consolidated Carpet

New York, NY

Invited 0 times | Submitted 0 | Bidding 0 | Not Bidding 0

Invite to qualify »

TT-6701

PREFER

+ Add

Dave White

Executive Vice President

+ Add

Bibi Khan

Estimator

+ Add

Eric Meberg

Sales Operations Manager

View all contacts

Best match

OConnors Carpet

Bronx, NY

Invited 0 times | Submitted 0 | Bidding 0 | Not Bidding 0

Invite to qualify »

PREFER

+ Add

bids@oconnorscarpets.com

+ Add

Keith Oconnor

View all contacts

Best match

Sherland and Farrington, Inc.

New York, NY

Invited 0 times | Submitted 0 | Bidding 0 | Not Bidding 0

Invite to qualify »

PREFER

+ Add

Jonathan Magalnick

Account Executive

+ Add

Corina Herrera

Estimator/Sales Assistant

View all contacts

Best match

Abbruzzese Floors Inc

Central Islip, NY

Invited 0 times | Submitted 0 | Bidding 0 | Not Bidding 0

Invite to qualify »

PREFER

+ Add

Nicholas Abbruzzese

+ Add

Tony Abbruzzese

President

View all contacts

Best match

Pyramid Floor Covering, Inc.

Port Washington, NY

Invited 0 times | Submitted 0 | Bidding 0 | Not Bidding 0

Invite to qualify »

PREFER

+ Add

David Liepper

Vice President Business Development

+ Add

Bob Bond

Account/Project Manager

+ Add

Brian DeGaray

View all contacts

Best match

# Integrating your prequalification & bid management processes

Quickly  
Identify Subs

Invite Bidders: Concrete

SEARCHIMPORTEMAIL

FILTER

Willing to travel to:  
85 2nd Street, San Francisco, CA, '  
[Search by office location instead »](#)

Work Performed  
Concrete x

Tags

Qualification Status  
☒ Qual invitation sent  
☐ Application in progress  
☐ Application submitted  
☒ Qualified  
☒ Qualified w/ exceptions  
☐ Qualification denied

Labor Requirements  
☐ Union  
☐ Non-Union  
☐ Prevailing Wages

6 companies

Bradley Concrete  
Milpitas, CA, USA

Invited 0 times  
Invite to qualify  
Nationwide

Imbimbo  
Dallas, TX, USA

Invited 0 times  
Invite to qualify

Case Force  
Hayward, CA, USA

Invited 0 times  
Invite to qualify

TB Penick & Sons, Inc.  
San Diego, CA

Invited 0 times  
Invite to qualify »

Best match

PREFER

Invite to Qualify

Powered by TRADETAPP

Select the primary contact to invite to qualify on TradeTapp.

Primary Contact

Select the primary contact below

Bradley Concrete

Milpitas, CA, USA

SELECT

Brandon Nissen | Cost Engineer

SELECT

Dennis Bohl

SELECT

Eduardo Martinez | Intern

SELECT

Gina Torrisi | Office Manager

SELECT

Neil Netzer

SELECT

Rafael Mancera

SELECT

Ryan Lester | Sr. Project Engineer

SELECT

Scott Bradley

SELECT

Spencer Harris | Estimator

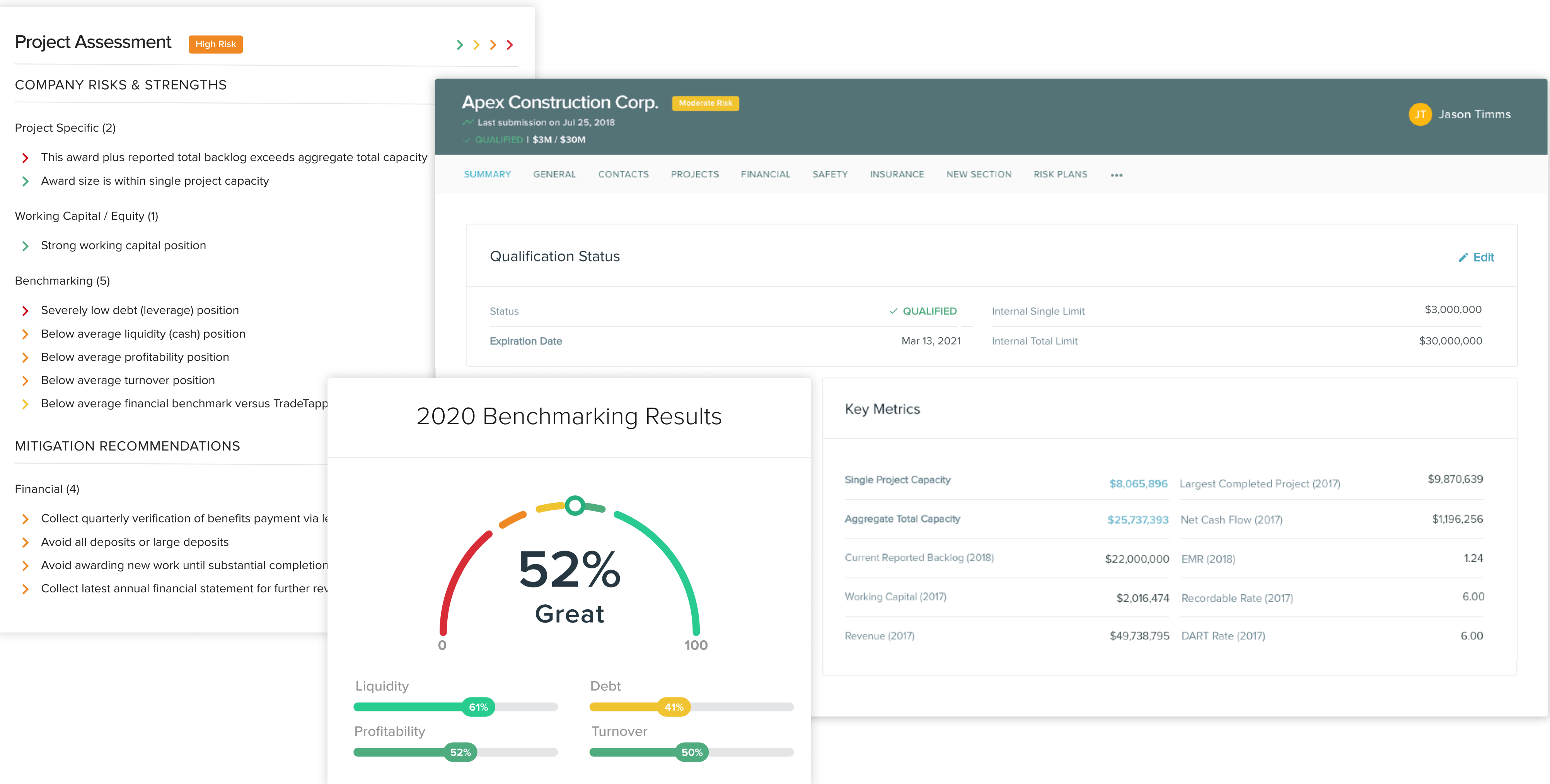
Cancel

Send Invite



# Integrating your prequalification & bid management processes

## Automated Analysis



2020 Benchmarking Results

52% Great

Liquidity61%

Debt41%

Profitability52%

Turnover50%



# Integrating your prequalification & bid management processes

## Setting Status & Limits

Approvals

Geothermal Services

2020

Low Risk

CONTACTS

PROJECTS

FINANCIAL

SAFETY

INSURANCE

ew

ation Status

arking Results

58%

Documents

Set Qualification Status

Currency in 

USD

Qualified

Internal Single Limit

\$9,000,000

Internal Total Limit

\$30,000,000

Expiration

11/10/2020

Summary

Setting to qualified, but keep an eye on outstanding balances and backlog.

Save

INTERNAL OUTSTANDING BALANCE

QUALIFICATION

✓ QUALIFIED

\$9M / \$30M

Aut

Jun 30, 2020

Today

ected Services Team set the Qualification Status to Qualified.

ected Services Team set Internal Single Limit to \$9,000,000.

ected Services Team set Internal Total Limit to \$30,000,000.

ected Services Team edited the Qualification Status Expiration Date.

ected Services Team edited the Qualification Status Summary.

Currency su

10 Largest Completed Project (2019)

Aggregate Total Capacity

\$4,306,610

Net Cash Flow (2018)



# Integrating your prequalification & bid management processes

Optimized  
Bid Leveling

Q Search

Stan

PROJECT:

200109

HUDSON'S SITE DEVELOPMENT

← Back to Project

Add a Bid Package

Jump to...

BID PACKAGES:

00.1: Enclosure ECI

00.2: MEP ECI

00.3: FP ECI

00.4: Automated Parkin...

BP 01-01: Deep Foundati...

BP 01-02 : Demolition

BP 01-03: Deep Foundat...

BP 02-01: Civil Site Utiliti...

BP 03-01 : BSE Core and...

BP 03-02: BSE Core and...

BP 03-03: BSE Core and...

BP 04-01: Wet & Dry Sid...

BP 04-02: Electrical

BP 04-03: Fire Protection

BP 06-01: BLK Enclosure

OVERVIEW

FILES

MESSAGES

BIDDERS

BID FORM

BID LEVELING

Plugs ON

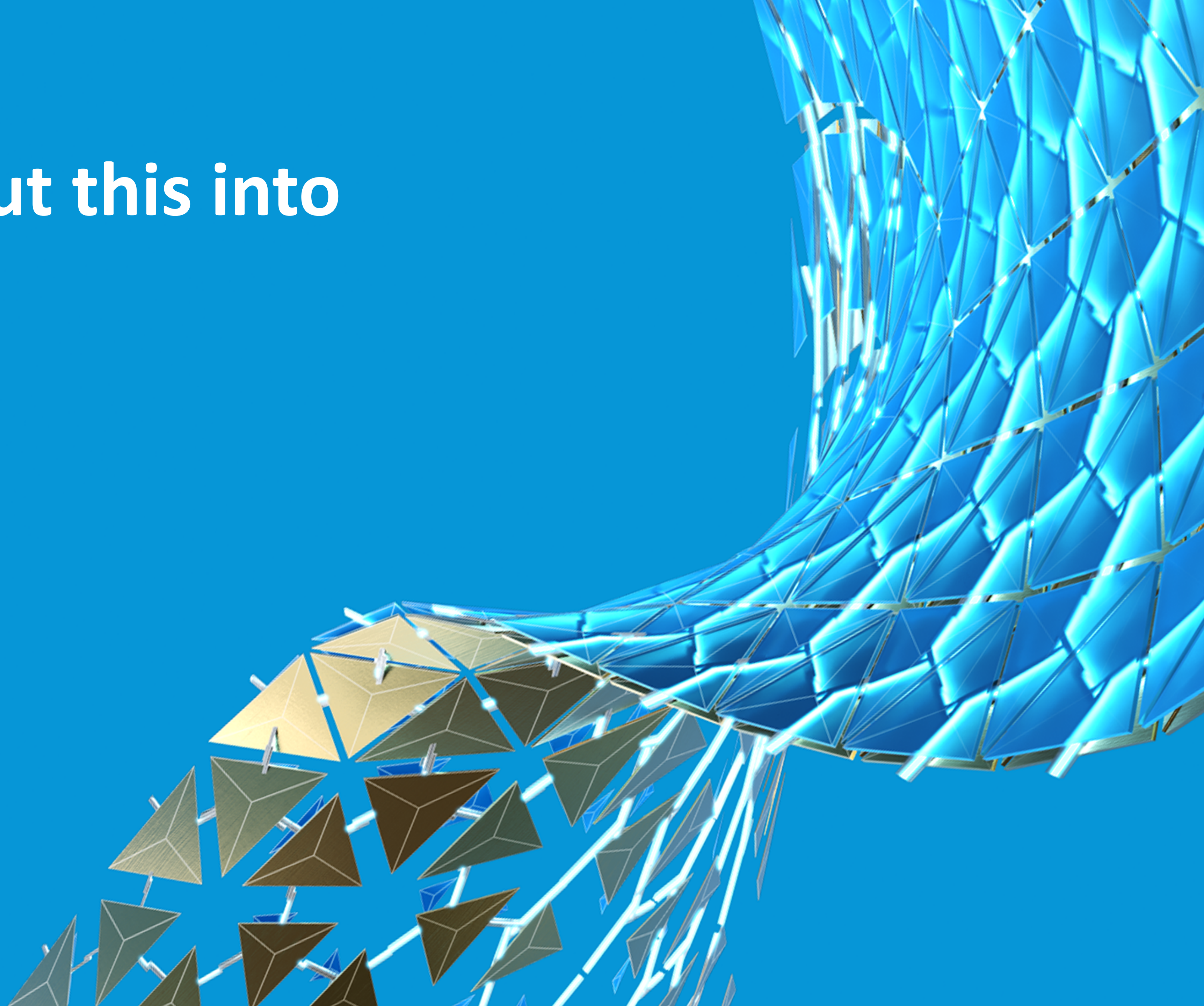
Export

Sort

<div><div></div><div>FIELDS</div></div> <div>GC</div> <div>ESTIMATED COST</div> <div>\$48,942,300.00</div>	<div><div></div><div>Bay Area DBS</div></div> <div>\$27,820,971</div>	<div><div></div><div>New Valley Structures</div></div> <div>\$3,515,000</div>
\$ Spread from Estimated Cost	- \$21,121,329	- \$45,427,300
% Spread from Apparent Low	+691.49%	-
\$ Spread from Apparent Low	+ \$24,305,971	-
% Spread from Base Bid	-	-
\$ Spread from Base Bid	-	-
<div>QUALIFICATIONS</div> <div>Powered by  TRADEAPP</div>		
Status	Qualified w/ exceptions	Qualified
Expiration Date	Jun 30, 2021	Before proj. start date Dec 31, 2020
Project Limit / Total Limit	\$5.7M / \$8.4M	\$10M / \$13M
Leveled Bid as % of Project Limit	488.1%	35.2%



How do we put this into  
motion?





# Identifying & quantifying financial risk

Can my subcontractors complete my job within my timeline and budget?

## Identifying Risk Factors:

- 1. Automated risk and safety analysis
- 2. Qualification status
- 3. Single / total project limits
- 4. Risk mitigation plans
- 5. Internal project backlog

Evaluation Engine

Subcontract Award Value\*

\$1,000,000

Project Location

Project Duration (months)

Labor

Union

Trade Type

03 00 00 Concrete

Project Ownership Type

Select

Generate Evaluation

Project Assessment

High Risk

COMPANY RISKS & STRENGTHS

Project Specific (2)

This award plus reported total backlog exceeds aggregate total capacity

Award size is within single project capacity

Working Capital / Equity (1)

Strong working capital position

Benchmarking (5)

Severely low debt (leverage) position

Below average liquidity (cash) position

Below average profitability position

Below average turnover position

Below average financial benchmark versus TradeTapp network

MITIGATION RECOMMENDATIONS

Financial (4)

Collect quarterly verification of benefits payment via letters from applicable union(s)

Avoid all deposits or large deposits

Avoid awarding new work until substantial completion of ongoing project

Collect latest annual financial statement for further review

## Quantifying Risk Examples:

- 1. Accounting for additional administrative costs for lien waivers or joint checks
- 2. Comparing labor hours on the bid submitted against outstanding backlog

Bids for this project were due more than a month ago. Would you like to close it?

PROJECT:  
03-070-2966  
AMAZON DISTRIBUTION  
CENTER

← Back to Project

Add a Bid Package

Jump to...

BID PACKAGES:

01012: Dumpsters

01012: Trailer Rental

01082: Aerial Photos

01113: Final Clean

01170: Security Guards

01170: Temporary and P...

01300: Surveying

01400: Testing Engineers

02200: Grading and Pav...

02206: Soil Treatment

02210: SWPPP

02700: Dry Utilities

02701: Wet Utilities

02845: Pavement Markl...

02900: Landscape

02900: Landscape

OVERVIEW FILES MESSAGES BIDDERS BID FORM BID LEVELING

Plugs ON Export Sort

	GR8 BUILDERS ESTIMATED COST \$250,000.00	Eidolon Landscaping \$130,110	Frank and Sons \$281,540	Star Land \$379,5
LINE ITEMS TOTAL		\$125,110	\$253,540	
OTHER COSTS				
Flooring Protection			\$20,000	
Lien Waivers Admin Cost		\$5,000		
OTHER COSTS TOTAL		\$5,000	\$20,000	
ALTERNATES				
Playground				
Bioswale				
Flagstone pavers				
ALTERNATES TOTAL		\$0	\$0	
INCLUSIONS				



# Identifying and quantifying safety risk

Can my subcontractors complete my job without safety issues?

## Identifying Risk Factors :

1. EMR
2. OSHA Records
3. Collecting safety standards
4. Project history

## Quantifying Risk Examples:

1. Additional onsite supervision

The screenshot shows a web application interface for subcontractor evaluation. The top navigation bar includes 'Invitations' and 'Approvals'. Below it, a secondary navigation bar lists various categories: SUMMARY, GENERAL, CONTACTS, PROJECTS, FINANCIAL, SAFETY, INSURANCE, INTEGRITY, APPROVALS, and a menu icon. The main content area is divided into two columns. The left column contains five input fields: 'Subcontract Award Value\*' with a dollar sign icon, 'Project Location' with a location pin icon, 'Project Duration (months)' with a clock icon, 'Labor' with a briefcase icon and a 'Select' dropdown, 'Trade Type' with a magnifying glass icon and a 'Select' dropdown, and 'Project Ownership Type' with a house icon and a 'Select' dropdown. At the bottom of this column is a blue button labeled 'Generate Evaluation'. The right column is titled 'Company Risks & Strengths' and contains three sections: 'Benchmarking (3)' with three bullet points (two orange, one green), 'Annual Trends (1)' with one orange bullet point, and 'Data Quality (1)' with one orange bullet point. Below these is a section titled 'Mitigation Recommendations' which includes 'Financial (1)' with one orange bullet point and 'Safety (1)' with one orange bullet point.

Invitations Approvals

SUMMARY GENERAL CONTACTS PROJECTS FINANCIAL SAFETY INSURANCE INTEGRITY APPROVALS ...

Subcontract Award Value\*

Project Location

Project Duration (months)

Labor Select

Trade Type Select

Project Ownership Type Select

Generate Evaluation

Company Risks & Strengths

Benchmarking (3)

- > Below average profitability position
- > Below average turnover position
- > High financial benchmark versus TradeTapp network.

Annual Trends (1)

- > 3 year increasing EMR

Data Quality (1)

- > Internally compiled financial statement

Mitigation Recommendations

Financial (1)

- > Collect latest annual financial statement for further review

Safety (1)

- > Require additional on-site safety supervision during construction phase



# Implementing project approval workflows



Approval Request

Gr8 Builders Inc

Hard Rock Hotel

DETAILS

RISK ASSESSMENT

REVIEWS & ACCEPTANCE

⬇️ DOWNLOAD SUMMARY

Risk Assessment (Evaluation Engine)

PROJECT ASSESSMENT

Severe Risk

COMPANY RISKS & STRENGTHS

> > > >

Project Specific (2)

> Award size exceeds single project capacity

> Award size exceeds 25% of annual revenue

Backlog Aggregation (1)

> This award plus reported total backlog exceeds twice aggregate total capacity

Benchmarking (4)

> Below average liquidity (cash) position

> Below average debt (leverage) position

> Below average turnover position

> Below average financial benchmark versus TradeTapp network

Annual Trends (1)

> 3 year decreasing liquidity (cash) position

Cash Flow (1)

> Negative net cash flow

MITIGATION RECOMMENDATIONS

Financial (3)

> Collect lien waivers from secondary tier subcontractors or suppliers as part of each vendor payment requisition

> Collect latest annual financial statement for further review

> Avoid awarding new work until substantial completion of ongoing projects

Key Metrics

Single Project Capacity	\$2,324,834	Largest Completed Project (2015)	\$11,000,000
Aggregate Total Capacity	\$12,599,084	Net Cash Flow (2018)	-\$350,375
Reported Total Backlog (2020)	\$23,000,000	EMR (2020)	0.87
Working Capital (2018)	\$1,738,754	Recordable Rate (2018)	7.60



# Identifying and quantifying COVID risk

How have my subcontractors been affected by COVID?

## Identifying Risk:

1. Understanding people impact
2. Understanding liquidity impact
3. Understanding supply chain impact

## Quantifying Risk Examples:

1. Adjusting labor hours
2. Adjusting materials being used onsite

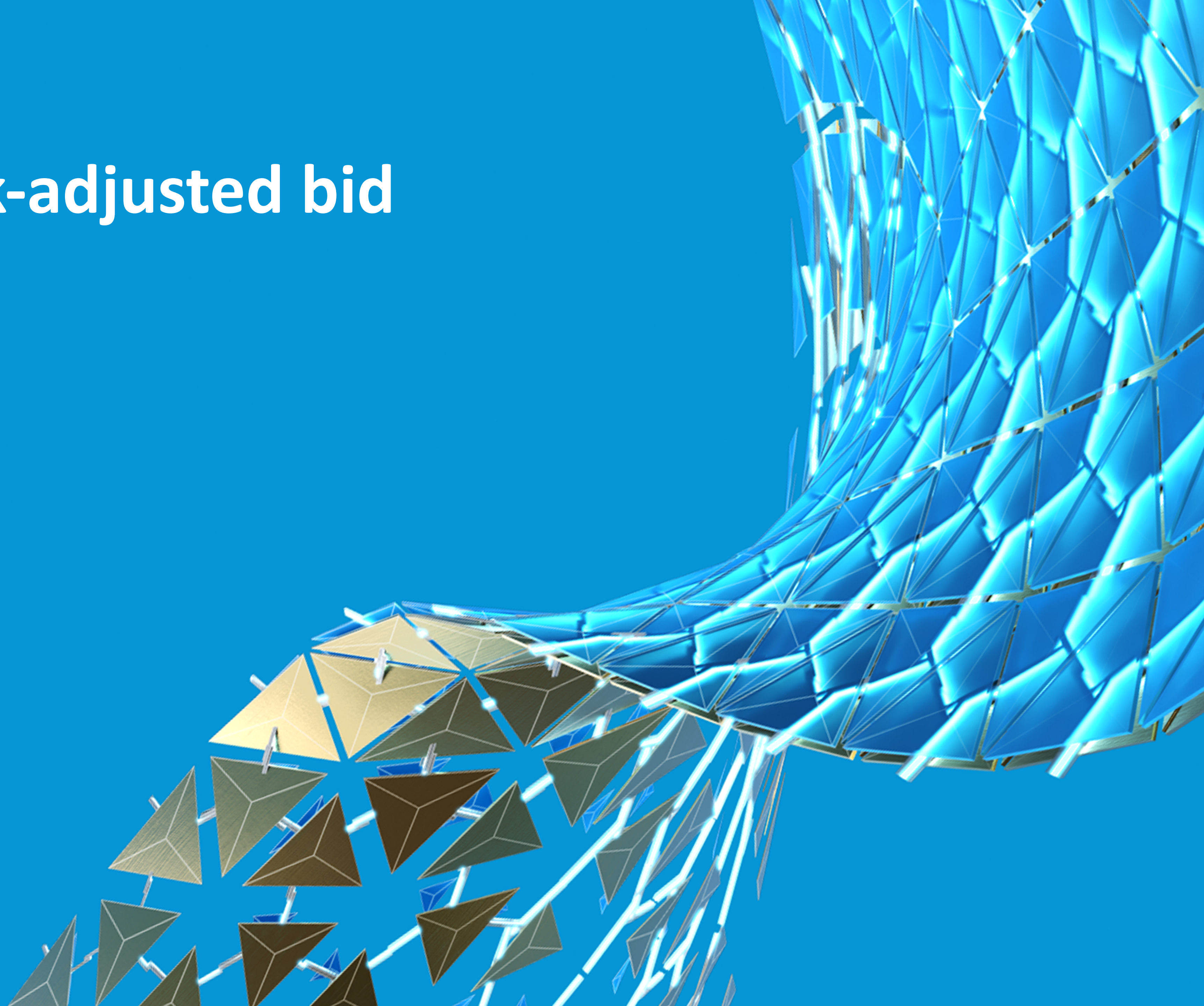
The screenshot displays a web application interface for 'Gr8 Electrical Services'. The top navigation bar includes 'Invitations' and 'Approvals'. The company name 'Gr8 Electrical Services' is prominently displayed, along with a note 'Last submission on Oct 01, 2020' and a 'No Financials' status. On the right, there are buttons for 'INTERNAL OUTSTANDING BALANCE' and 'QUALIFICATION STATUS'. The main menu includes 'SUMMARY', 'GENERAL', 'CONTACTS', 'PROJECTS', 'FINANCIAL', 'SAFETY', 'INSURANCE', and 'COVID-19 IMPACT: SUPPLY CHAIN' (which is currently selected). Other menu items include 'COVID-19 IMPACT: PEOPLE & PROJECTS', 'COVID-19 IMPACT: LIQUIDITY', 'APPROVALS', and 'Auto-renewal' (with 'ON' and 'OFF' toggle buttons). The main content area is titled 'Custom COVID-19 Impact: Supply Chain Questions' and contains a table of questions with 'No' as the selected answer for each.

Custom COVID-19 Impact: Supply Chain Questions	
Do you anticipate any large cost escalation risks in your supply chain? If yes, provide detail of the steps you are taking to protect against their impact.	No
Do you anticipate any supply availability risks in your supply chain? If yes, provide detail of the steps you are taking to protect against their impact.	No
Are you expecting any significant delays on material shipments? If yes please provide details.	No
Do you have any concerns about impact to downstream subcontractors or suppliers that you rely upon? If yes, please provide any details so that we can work with you.	No
Will you be suggesting any use of alternative or substitute materials? If yes, please indicate which projects and who we should contact to discuss.	No
Do you collect security from lower tiers (via unconditional or conditional lien waivers or other instrument) If yes, how often?	No
Have you verified the financial and operational standing of all your subcontractors/suppliers since quarantine started (March 2020)? If yes, please indicate any that are not in good standing.	No

At the bottom of the interface, there are links for '0 Comments' and '0 Documents'.



# The future of risk-adjusted bid management





# How are you adapting your processes during COVID for improved risk assessment?



## People & Projects

- Recent company lay-offs or furloughs
- Effects on staff or manpower
- % of projects that have been shut down



## Supply Chain

- Protection against large supply chain risks
- Material delays

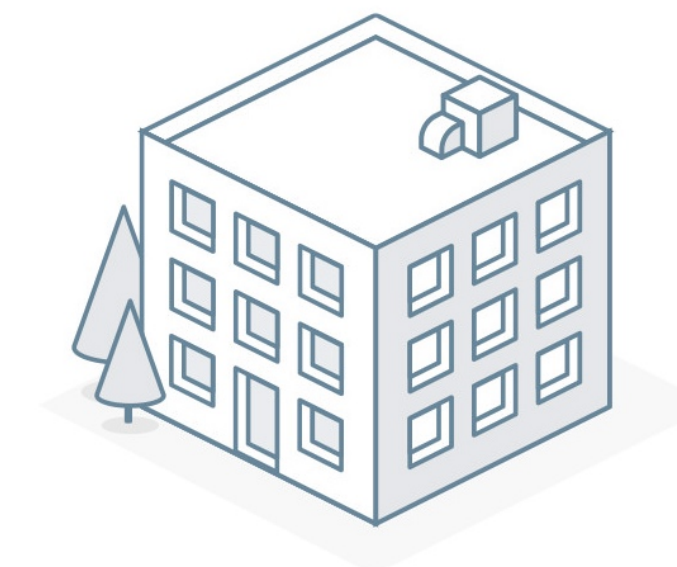
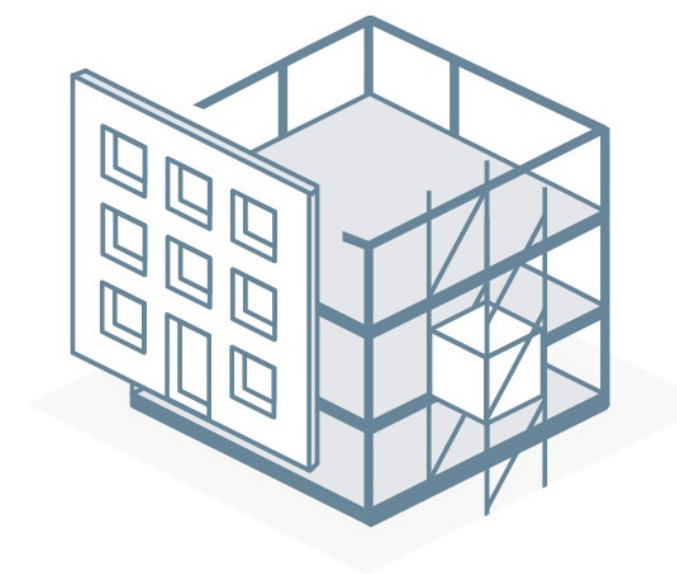
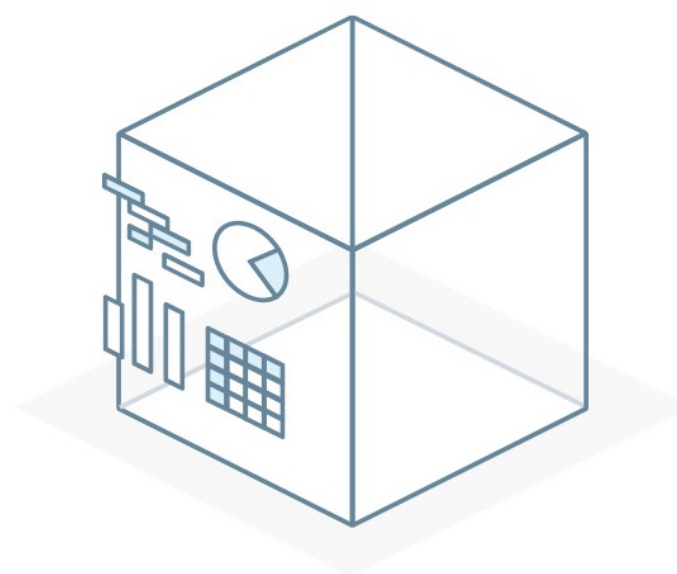
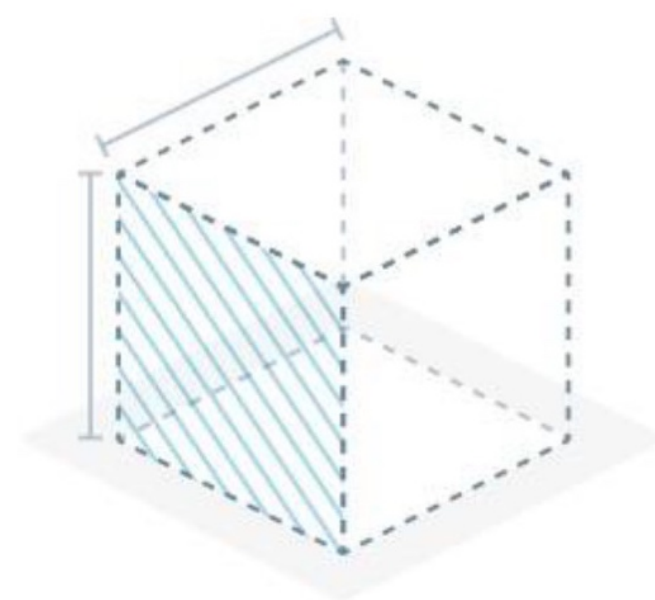


## Liquidity

- Federal loans
- Aging projects



# Connected risk data throughout the project lifecycle

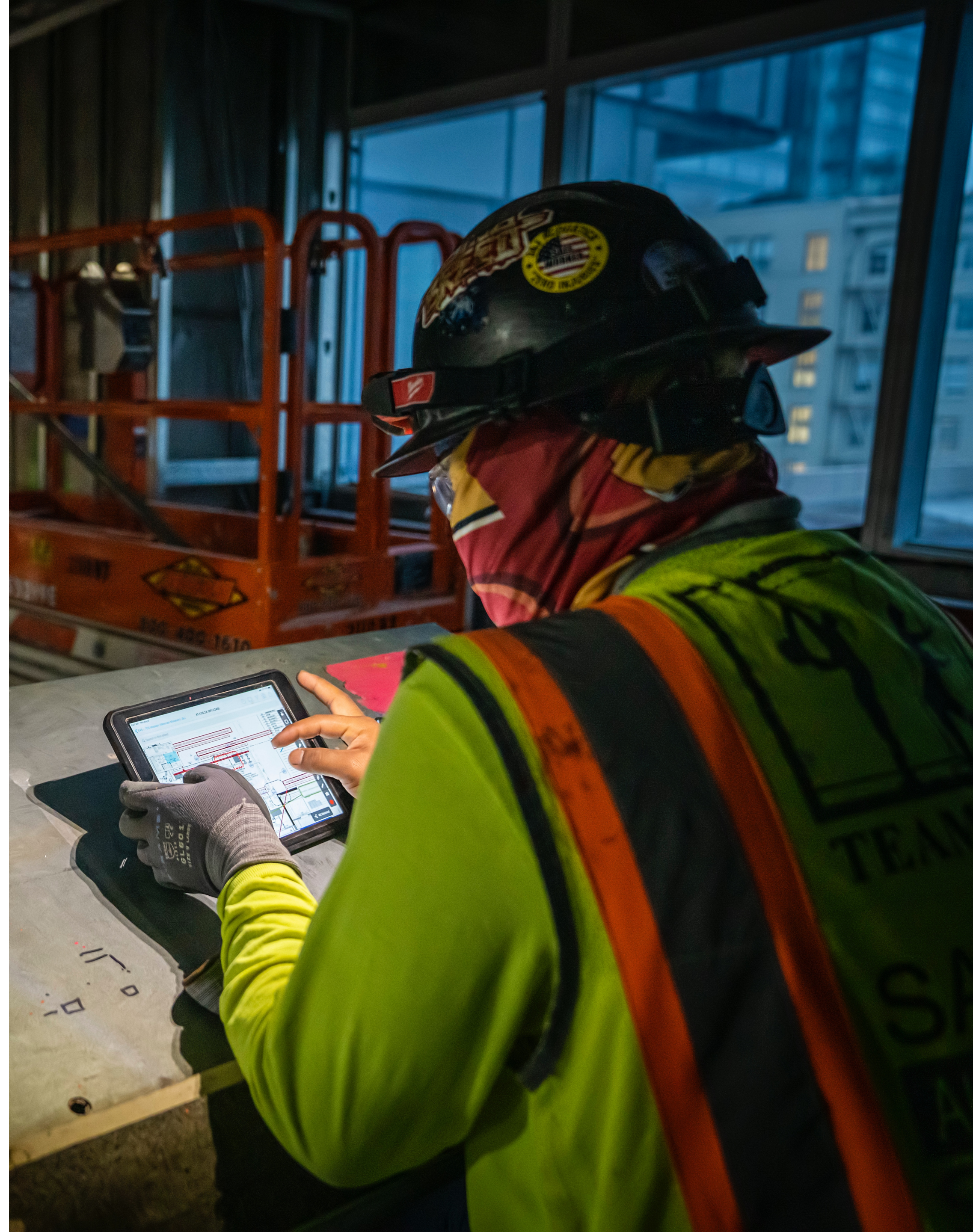


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Insight	Predictive Analytics & Risk Management Predictive Analytics · Benchmark Reports · Mitigation Strategies			
Network	Builders Network			



# Final thoughts

- How can you get your project teams to think more like your risk teams?
- How is the technology you're using helping you adapt to today's current complexities?
- How can you start better predicting potential risk to protect your profit margins?







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