

# Risk-Adjusted Estimating & Bid Management for General Contractors

**Laura Watts**

Manager, ACS Customer Success

# About the speaker

## Laura Watts

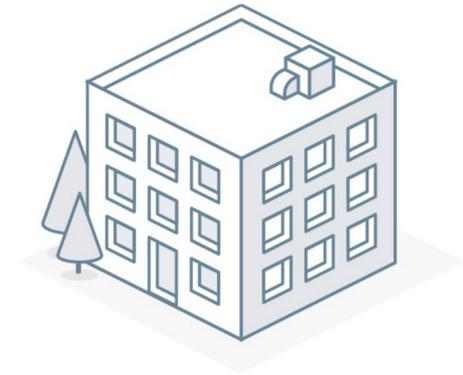
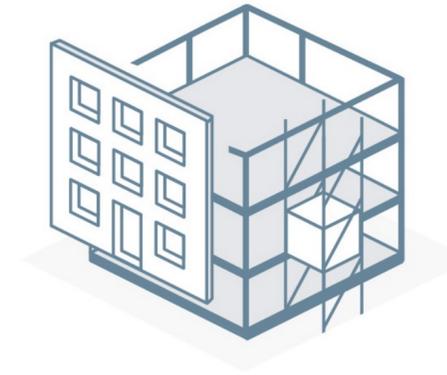
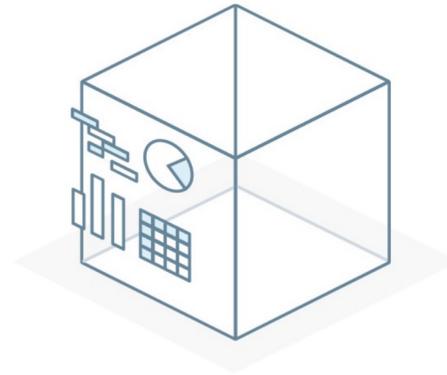
- Joined BuildingConnected in early 2019 as a Customer Success Manager focusing on helping general contractors enhance their preconstruction and prequalification workflows.
- Previously, spent the last 6+ years working in a variety of roles focused on the customer experience for software companies.
- 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

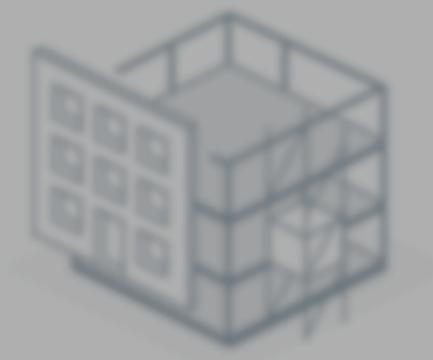


# Connected workflows in construction



Apps	DESIGN	PLAN	BUILD	OPERATE
<b>Workflows</b>	<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>
<b>Shared Data</b>	<p style="text-align: center;"><b>Data</b></p> <p style="text-align: center;">Models · Drawings · Issues · Specifications · RFIs · Cost · Assets · As-Builts</p>			
<b>Insight</b>	<p style="text-align: center;"><b>Predictive Analytics &amp; Risk Management</b></p> <p style="text-align: center;">Predictive Analytics · Benchmark Reports · Mitigation Strategies</p>			
<b>Network</b>	<p style="text-align: center;"><b>Builders Network</b></p>			

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Network	<b>Builders Network</b>			

**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

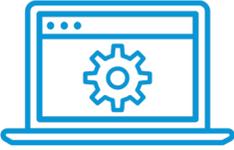
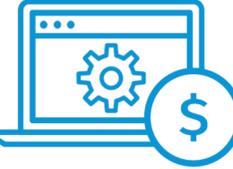
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General labor & supply chain shortage trends

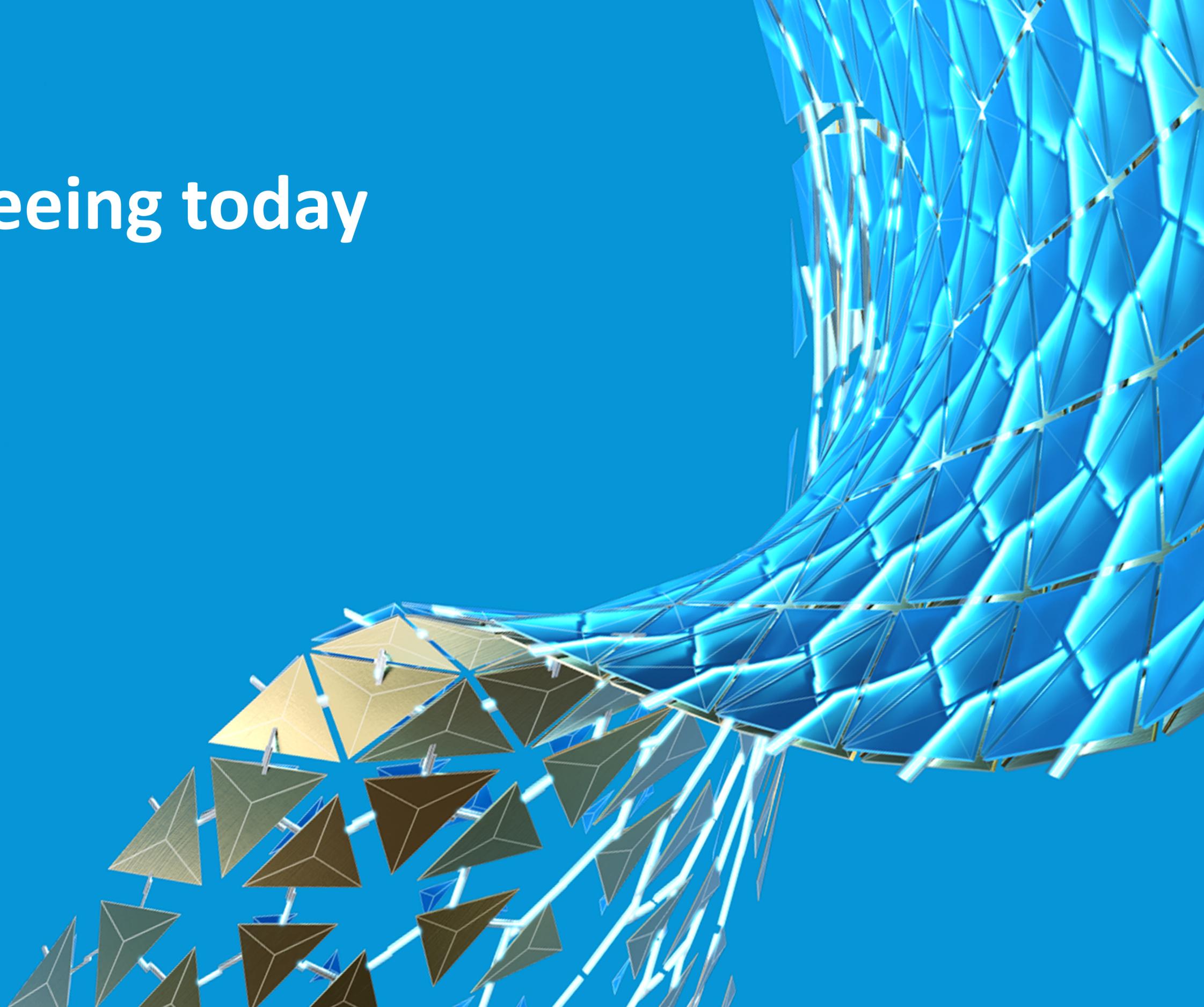
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Devastating weather conditions

# Top challenges & technology investments

	 <b>Challenges</b>	 <b>Current Software Investments</b>	 <b>Planned Software Investments</b>	 <b>Innovative Tech Investments</b>
<b>1</b>	Data security	Enterprise resource planning	Client relationship management	Predictive analytics/big data
<b>2</b>	<b>Effectively managing risk</b>	Project management	<b>Estimating</b>	Internet of Things
<b>3</b>	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.



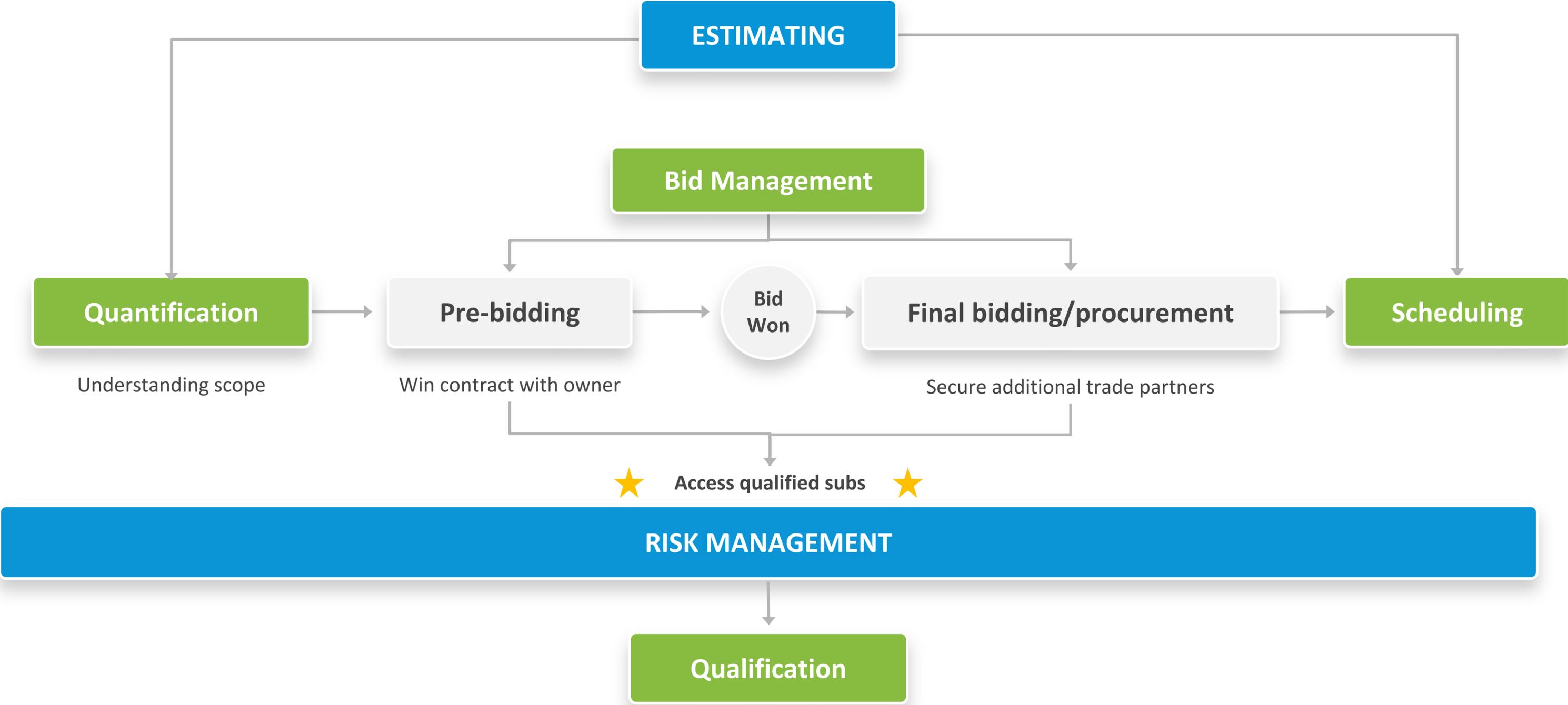
Increased safety issues.



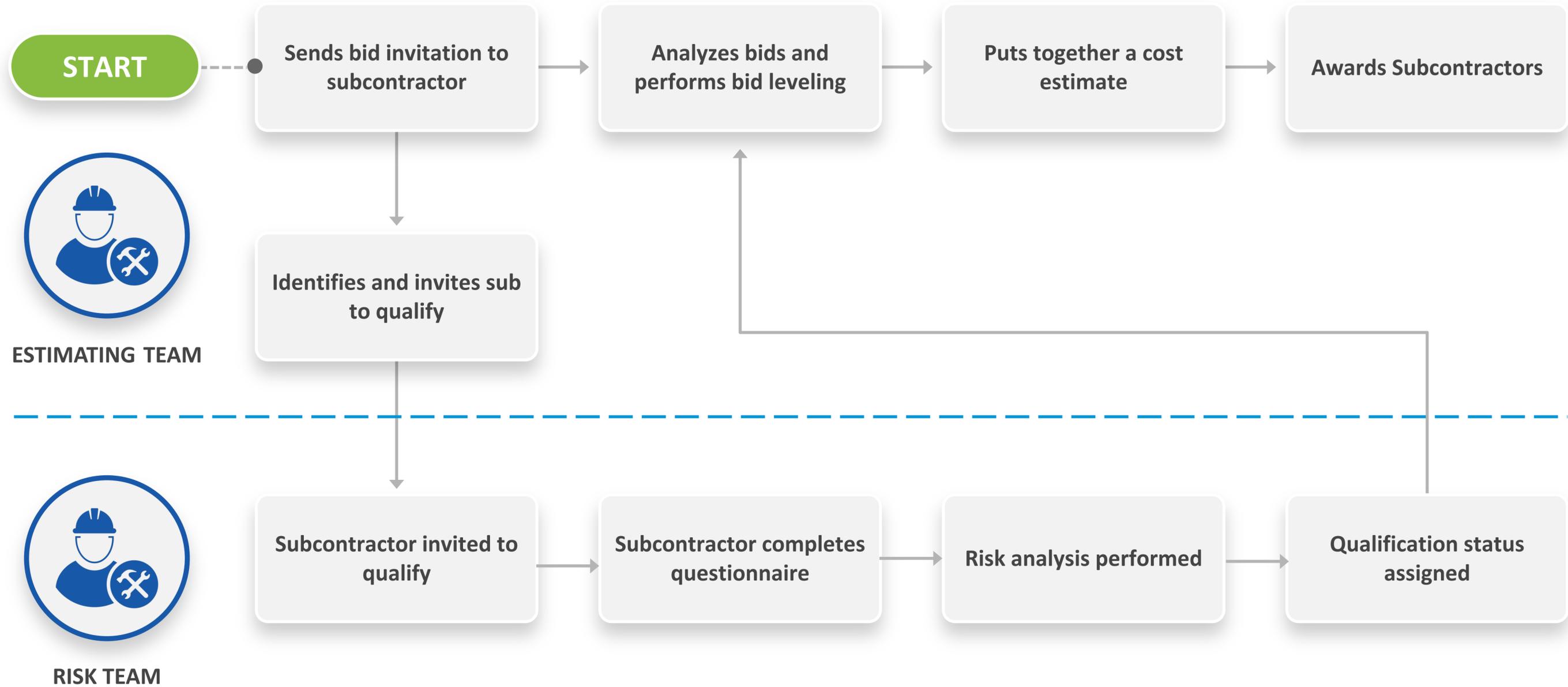
Extended project timelines.



# Connecting estimating & risk teams



# Connecting risk & estimating workflows



# Integrating your prequalification & bid management processes

## Smart Bid Lists

**BUILDINGCONNECTED** Search for people or companies

### Add Bidders: AHU - Delta Phase 2.1

SEARCH IMPORT EMAIL

**FILTER** Search for companies

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

Work Performed: Concrete Finishing

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 <sup>?</sup>

- Domestic bidders only

Enterprise Type

35 companies **best match** your filters. [Add multiple best matches with slider >](#) [+ Add 35 companies](#)

<b>Consolidated Carpet</b> New York, NY	☆ PREFER	+ Add	<b>Dave White</b> Executive Vice President
Invited 0 times   Submitted 0   Bidding 0   Not Bidding 0		+ Add	<b>Bibi Khan</b> Estimator
Invite to qualify >		+ Add	<b>Eric Meberg</b> Sales Operations Manager
TT-6701	✓ Best match	View all contacts >	
<b>OConnors Carpet</b> Bronx, NY	☆ PREFER	+ Add	<b>bids@oconnorscarpets.com</b>
Invited 0 times   Submitted 0   Bidding 0   Not Bidding 0		+ Add	<b>Keith Oconnor</b>
Invite to qualify >	✓ Best match	View all contacts >	
<b>Sherland and Farrington, Inc.</b> New York, NY	☆ PREFER	+ Add	<b>Jonathan Magalnick</b> Account Executive
Invited 0 times   Submitted 0   Bidding 0   Not Bidding 0		+ Add	<b>Corina Herrera</b> Estimator/Sales Assistant
Invite to qualify >	✓ Best match	View all contacts >	
<b>Abbruzzese Floors Inc</b> Central Islip, NY	☆ PREFER	+ Add	<b>Nicholas Abbruzzese</b>
Invited 0 times   Submitted 0   Bidding 0   Not Bidding 0		+ Add	<b>Tony Abbruzzese</b> President
Invite to qualify >	✓ Best match		
<b>Pyramid Floor Covering, Inc.</b> Port Washington, NY	☆ PREFER	+ Add	<b>David Liepper</b> Vice President Business Development
Invited 0 times   Submitted 0   Bidding 0   Not Bidding 0		+ Add	<b>Bob Bond</b> Account/Project Manager
Invite to qualify >		+ Add	<b>Brian DeGaray</b>

# Integrating your prequalification & bid management processes

Quickly  
Identify Subs

**Invite Bidders: Concrete**

SEARCH IMPORT EMAIL

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

**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

Invited **Scott Bradley**

+ Invite **Neil Netzer**

+ Invite **Dennis Bohl**

View all contacts v

+ Invite **John Imbimbo**

+ Invite **John Imbimbo**  
Vice President

Invited **Thomas Lien**  
Vice President

+ Invite **Esmeralda Mendoza**  
Estimating Coordinator

View all contacts v

Invited **Zach Bell**

Best match

**TB Penick & Sons, Inc.**  
San Diego, CA v

PREFER v

# Integrating your prequalification & bid management processes

## Automated Analysis

### 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 TradeTap

MITIGATION RECOMMENDATIONS

Financial (4)

- > Collect quarterly verification of benefits payment via le
- > Avoid all deposits or large deposits
- > Avoid awarding new work until substantial completion
- > Collect latest annual financial statement for further rev

### Apex Construction Corp. Moderate Risk

✓ Last submission on Jul 25, 2018  
✓ QUALIFIED | \$3M / \$30M

Jason Timms

SUMMARY GENERAL CONTACTS PROJECTS FINANCIAL SAFETY INSURANCE NEW SECTION RISK PLANS ...

#### Qualification Status [Edit](#)

Status	✓ QUALIFIED	Internal Single Limit	\$3,000,000
Expiration Date	Mar 13, 2021	Internal Total Limit	\$30,000,000

### 2020 Benchmarking Results

**52% Great**

Liquidity	61%	Debt	41%
Profitability	52%	Turnover	50%

### Key Metrics

Single Project Capacity	\$8,065,896	Largest Completed Project (2017)	\$9,870,639
Aggregate Total Capacity	\$25,737,393	Net Cash Flow (2017)	\$1,196,256
Current Reported Backlog (2018)	\$22,000,000	EMR (2018)	1.24
Working Capital (2017)	\$2,016,474	Recordable Rate (2017)	6.00
Revenue (2017)	\$49,738,795	DART Rate (2017)	6.00

# Integrating your prequalification & bid management processes

## Setting Status & Limits

The screenshot displays a software interface for managing project qualifications. A modal window titled "Set Qualification Status" is open, allowing users to configure project parameters. The modal includes a currency selector set to USD, a status dropdown menu currently set to "Qualified", and input fields for "Internal Single Limit" (\$9,000,000) and "Internal Total Limit" (\$30,000,000). An "Expiration" date is set to 11/10/2020. A summary box provides a warning: "Setting to qualified, but keep an eye on outstanding balances and backlog." A "Save" button is located at the bottom of the modal. The background interface shows a project profile for "Geothermal Services" with a "Low Risk" status, navigation tabs for CONTACTS, PROJECTS, FINANCIAL, SAFETY, and INSURANCE, and a "Marking Results" section with a 58% progress indicator.

# Integrating your prequalification & bid management processes

Optimized  
Bid Leveling

**BUILDINGCONNECTED**  Stan

**PROJECT:**  
200109  
HUDSON'S SITE  
DEVELOPMENT

**BP 06-01: BLK Enclosure**

OVERVIEW FILES MESSAGES BIDDERS BID FORM **BID LEVELING**

Plugs ON Export Sort

	<b>FIELDS</b> GC	ESTIMATED COST <b>\$48,942,300.00</b>	<b>Bay Area DBS</b> \$27,820,971	<b>New Valley Structures</b> \$3,515,000
\$ 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			-	-
<b>QUALIFICATIONS</b> <small>Powered by TRADETAPP</small>				
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			<b>488.1%</b>	35.2%

← Back to Project

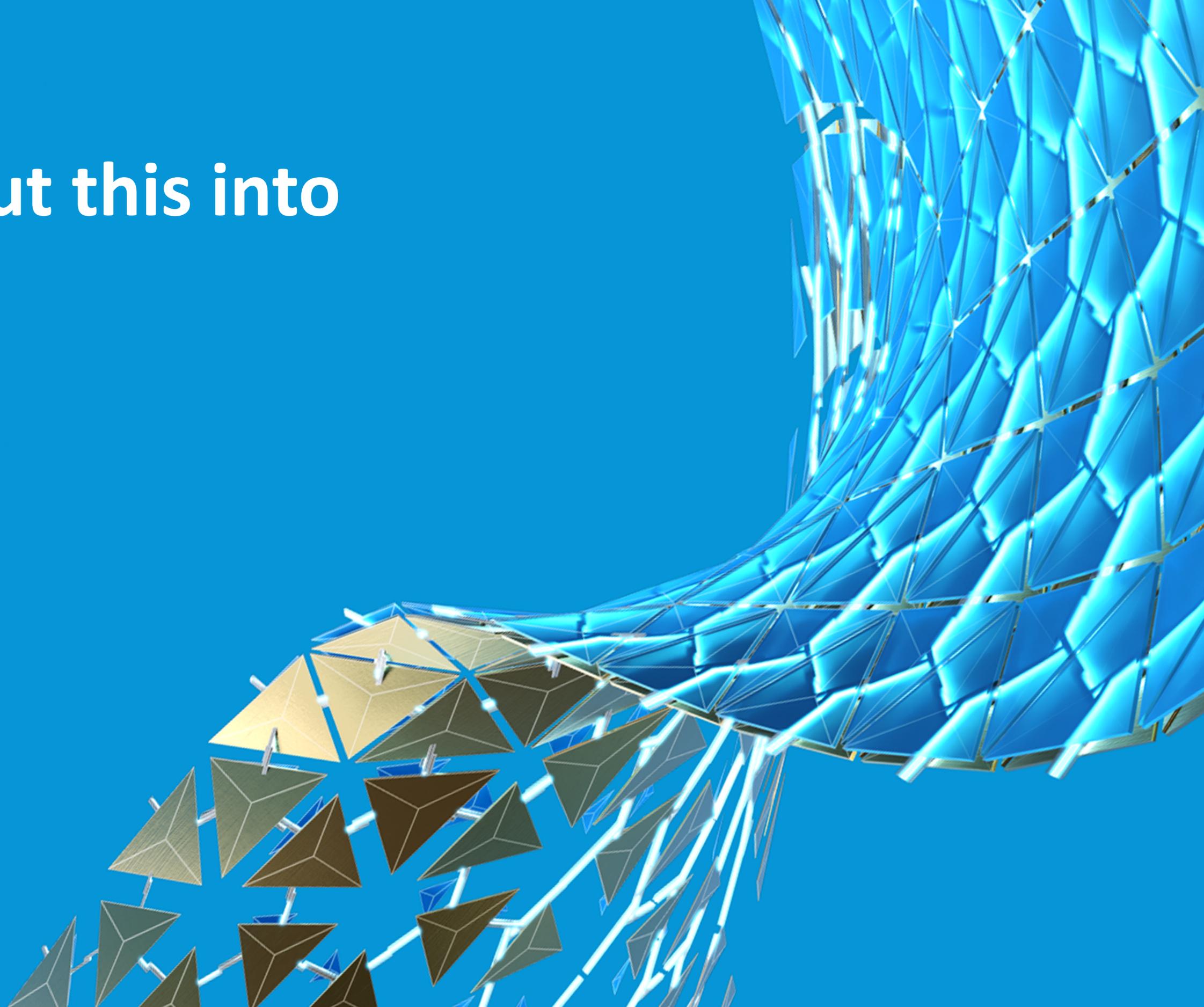
Add a Bid Package

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

**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

The screenshot shows a software interface for project evaluation. On the left, a sidebar lists various project parameters: Subcontract Award Value\* (\$1,000,000), Project Location, Project Duration (months), Labor (Union), Trade Type (03 00 00 Concrete), and Project Ownership Type (Select). A 'Generate Evaluation' button is at the bottom. The main panel displays a 'Project Assessment' window with a 'High Risk' indicator. It is divided into 'COMPANY RISKS & STRENGTHS' and 'MITIGATION RECOMMENDATIONS'. Under 'Project Specific (2)', it notes that the award plus reported total backlog exceeds aggregate total capacity and that the award size is within single project capacity. Under 'Working Capital / Equity (1)', it indicates a strong working capital position. Under 'Benchmarking (5)', it lists several areas where the project is below average: severely low debt (leverage) position, below average liquidity (cash) position, below average profitability position, below average turnover position, and below average financial benchmark versus TradeTapp network. The 'MITIGATION RECOMMENDATIONS' section includes: 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, and 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

The screenshot shows a bid leveling interface for a project named '02900: Landscape'. The interface includes a sidebar with navigation options like 'Back to Project', 'Add a Bid Package', and 'Jump to...'. The main area displays a table of bids from various subcontractors. The table has columns for the subcontractor name, estimated cost, and bid level. The estimated costs are: GR8 BUILDERS (\$250,000.00), Eidolon Landscaping (\$130,110), Frank and Sons (\$281,540), and Star Land (\$379,500). The table also shows line items for 'OTHER COSTS' and 'ALTERNATES'. The 'OTHER COSTS' section includes 'Flooring Protection' (\$20,000), 'Lien Waivers Admin Cost' (\$5,000), and 'OTHER COSTS TOTAL' (\$5,000). The 'ALTERNATES' section includes 'Playground', 'Bioswale', and 'Flagstone pavers'. The 'ALTERNATES TOTAL' is \$0. The 'INCLUSIONS' section is also visible.

Subcontractor	Estimated Cost	Bid Level
GR8 BUILDERS	\$250,000.00	
Eidolon Landscaping	\$130,110	
Frank and Sons	\$281,540	
Star Land	\$379,500	

# 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 displays a software interface for subcontractor evaluation. The top navigation bar includes 'Invitations' and 'Approvals'. Below it, a menu bar lists 'SUMMARY', 'GENERAL', 'CONTACTS', 'PROJECTS', 'FINANCIAL', 'SAFETY', 'INSURANCE', 'INTEGRITY', and 'APPROVALS'. The 'SUMMARY' tab is active, showing several 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). A blue 'Generate Evaluation' button is at the bottom. On the right side, the 'Company Risks & Strengths' section is visible, containing 'Benchmarking (3)' (with three items: 'Below average profitability position', 'Below average turnover position', and 'High financial benchmark versus TradeTapp network.'), 'Annual Trends (1)' (with one item: '3 year increasing EMR'), 'Data Quality (1)' (with one item: 'Internally compiled financial statement'), and 'Mitigation Recommendations' (with two items: 'Financial (1)' - 'Collect latest annual financial statement for further review' and '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:

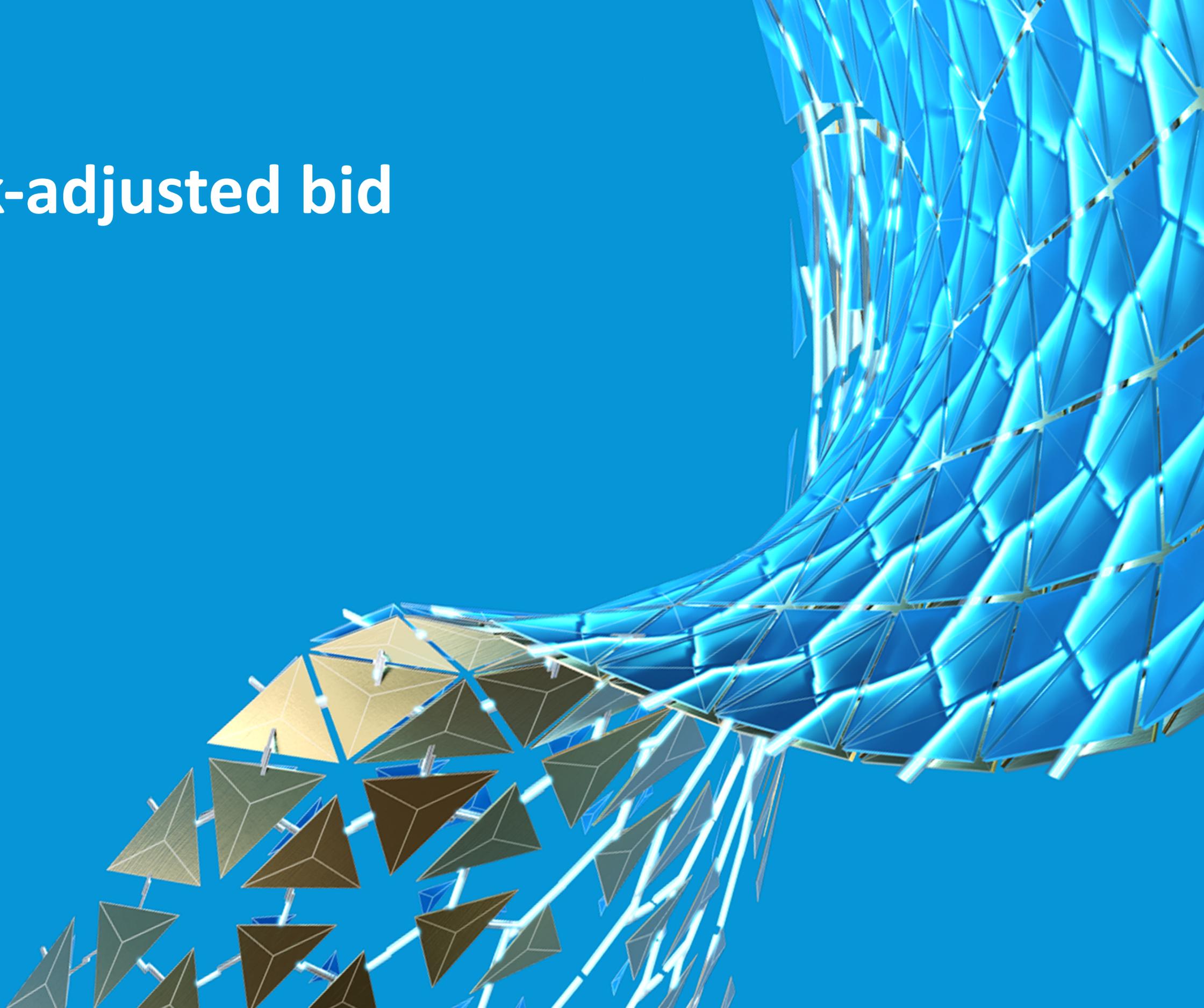
1. Adjusting labor hours
2. Adjusting materials being used onsite

The screenshot displays a software interface for 'Gr8 Electrical Services'. The top navigation bar includes 'Invitations' and 'Approvals'. The user is logged in as 'TradeTapp Admin'. The company name 'Gr8 Electrical Services' is prominently displayed, along with a 'Last submission on Oct 01, 2020' and a 'No Financials' status. 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.

Question	Answer
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 form, there are buttons for 'Comments' (0) and 'Documents' (0).

# 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

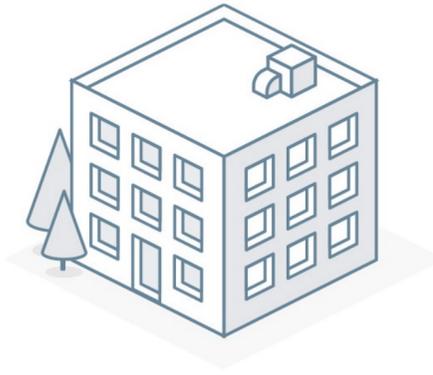
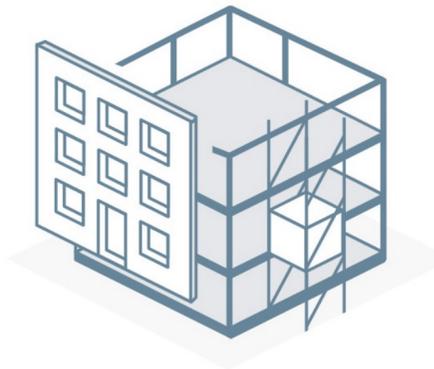
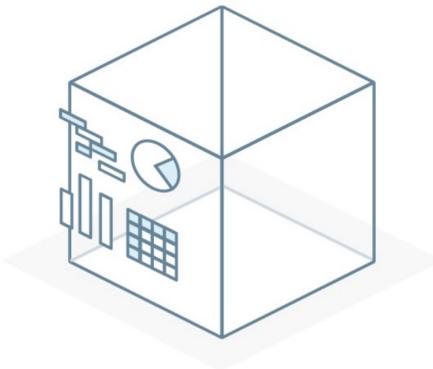
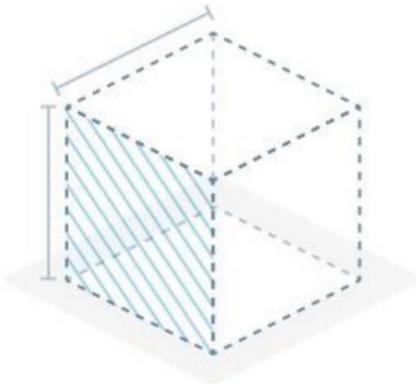
- Protection against large supply chain risks
- Material delays



## Liquidity

- Federal loans
- Aging projects

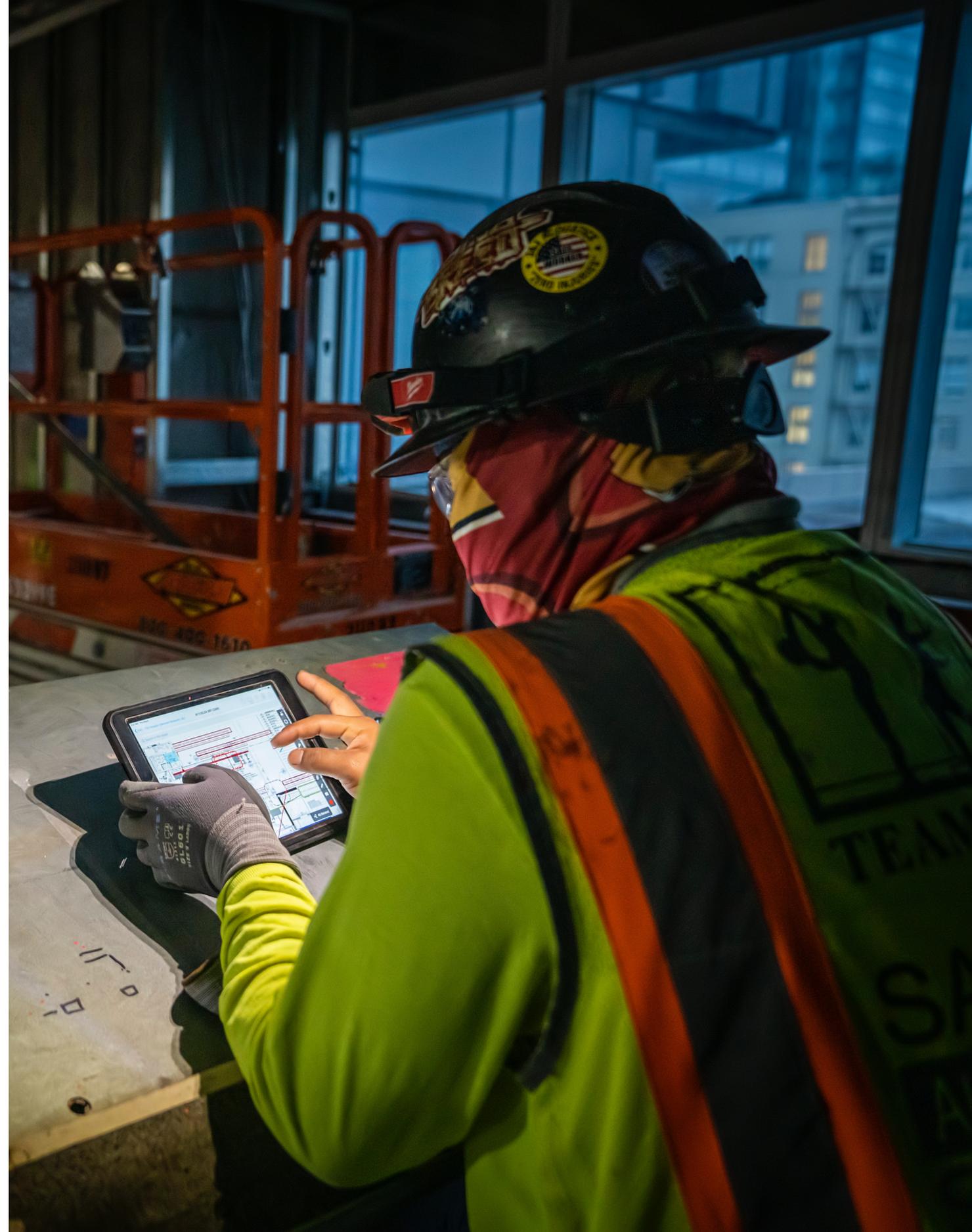
# Connected risk data throughout the project lifecycle



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<b>Network</b>	<p style="text-align: center;"><b>Builders Network</b></p>			

# 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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