Effectively Mitigate Risk in Construction Using Data, AI, and Machine Learning

Justin Levine
Head of Risk Strategy, BuildingConnected



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Safe Harbor Slide

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These presentations include certain non-GAAP financial measures. Please see the section entitled "Reconciliation of GAAP Financial Measures to non-GAAP Financial Measures" in the Appendices attached to the presentations for an explanation of management's use of these measures and a reconciliation of the most directly comparable GAAP financial measures.



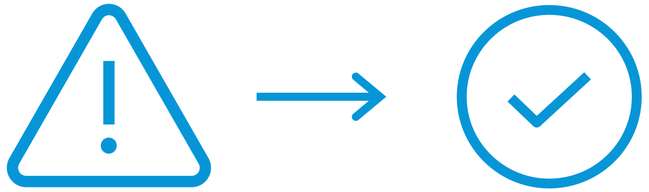
About the speaker

Justin Levine

Head of Risk Strategy for BuildingConnected

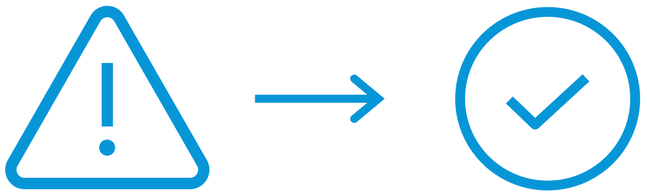
- Co-founder and former CEO of TradeTapp
- BS in Civil Engineering
- Industry experience at Granite Construction and Hunter Roberts Construction Group

How do we assess risk today?



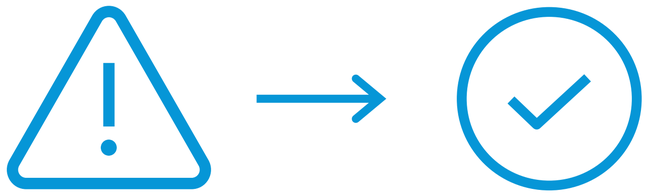
IDENTIFY RISKS

ADDRESS RISKS



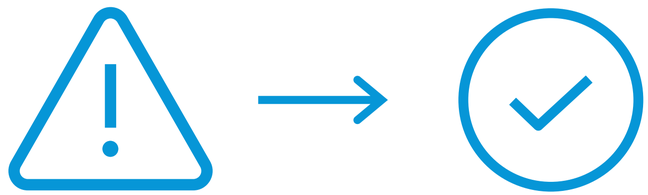
IDENTIFY RISKS

ADDRESS RISKS



IDENTIFY RISKS

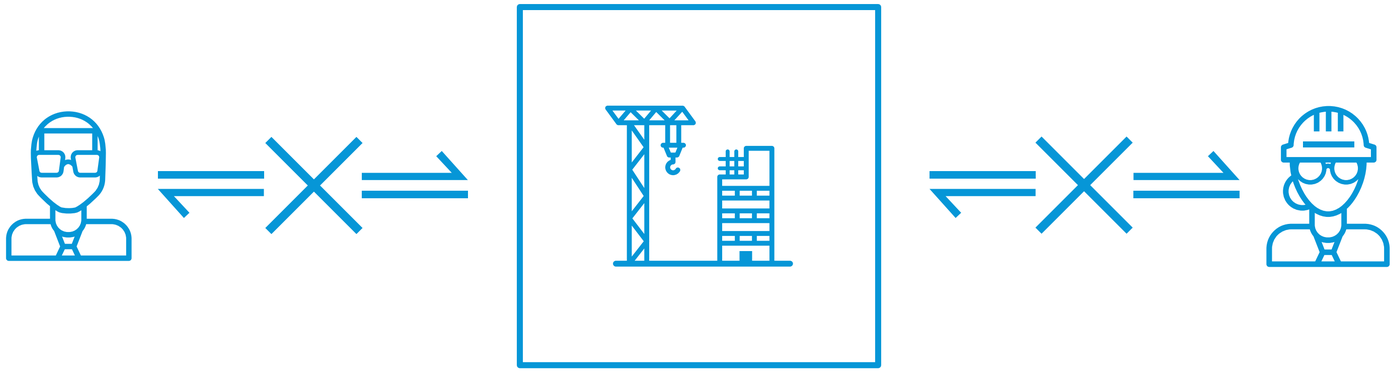
ADDRESS RISKS



IDENTIFY RISKS

ADDRESS RISKS

Data and knowledge become trapped within a project



An example scenario

You mitigate a sub’s liquidity risk by implementing joint checks pre-award.



The project goes smoothly and is completed on-time and on budget.



Your PM notices the sub required several change orders during the construction phase.



Fast forward six months.

The same sub bids on another project. Because they’re still qualified, they are awarded the bid.



This time, the volume of change orders puts the project behind schedule. Profit is eroded.



What happened here?

Crucial performance data didn’t transfer from the field back into the next precon cycle.

What do field teams know anecdotally that preconstruction teams don’t?

- Change management
- Production
- Safety
- Quality
- Team (who is the PM, Super, etc.)
- Organizational changes coming

What others have done to capture this information and make it actionable for risk teams.

- Post project surveys
- Performance evaluations
- Internal meetings
- Word of mouth

The Problem

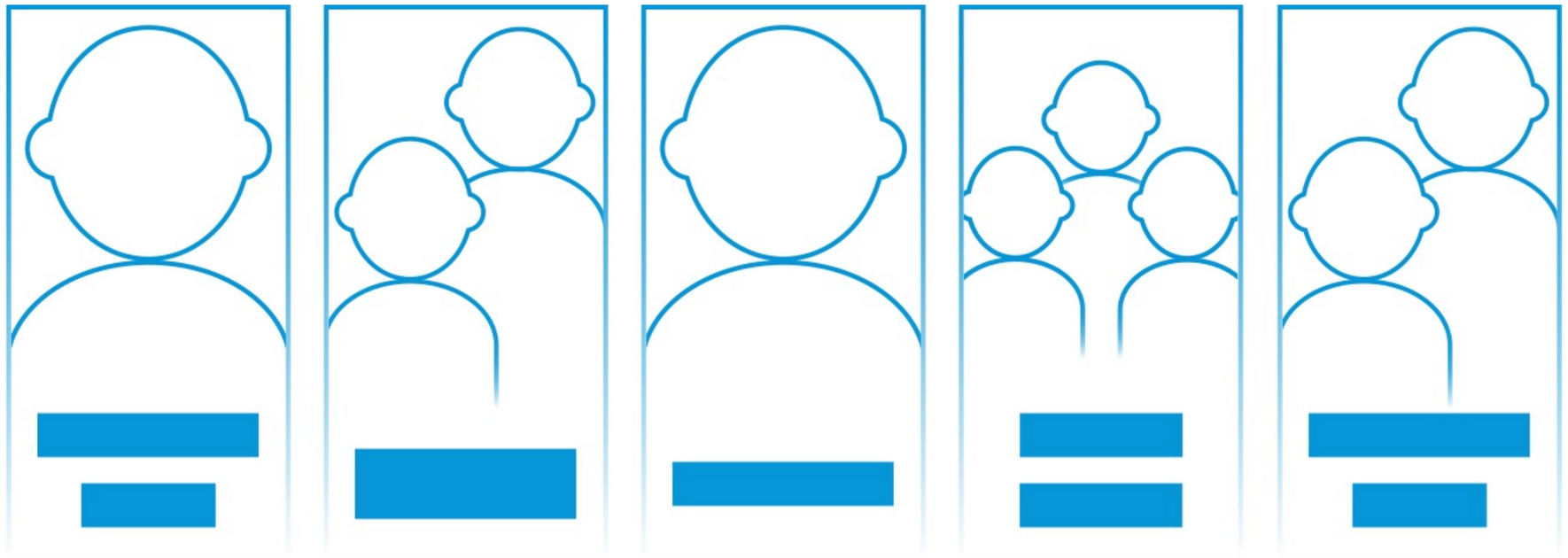
- Not scalable
- Inconsistent
- Data leaves when employees leave
- Not easy to record & maintain

How do we fix this?

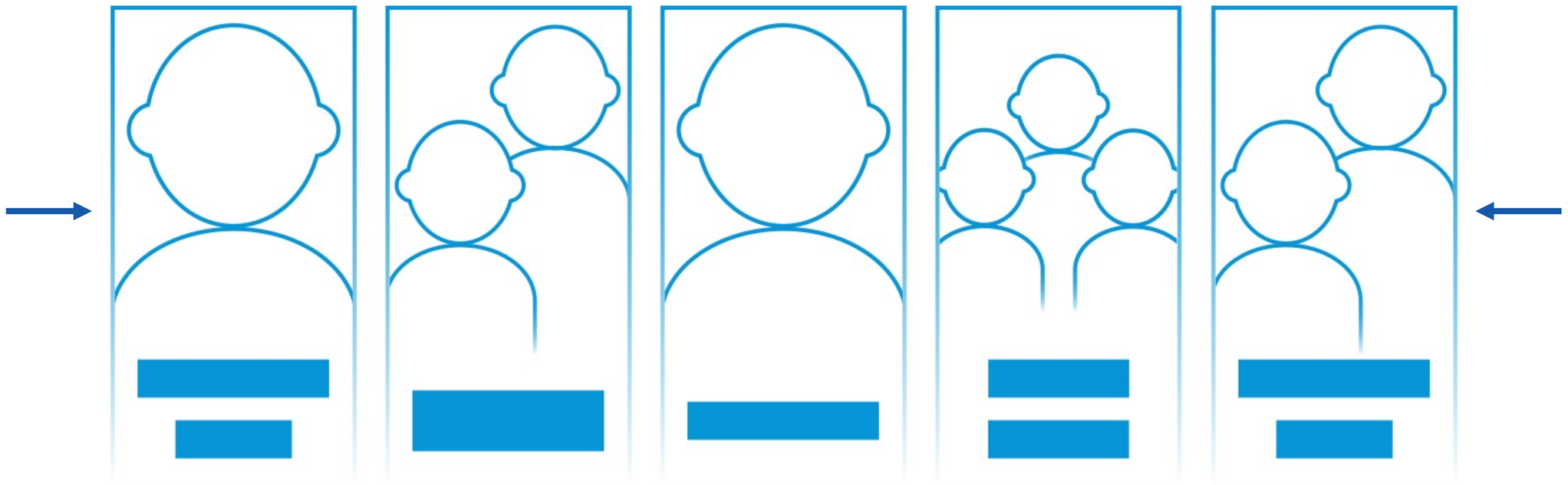


FEEDBACK LOOPS

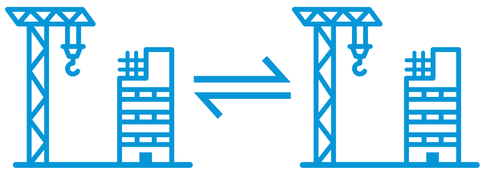
Netflix Suggestions



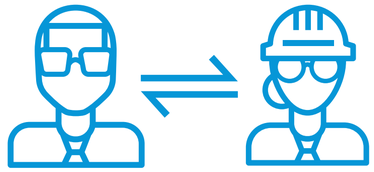
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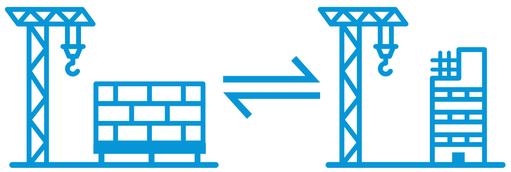
Technology creates feedback loops



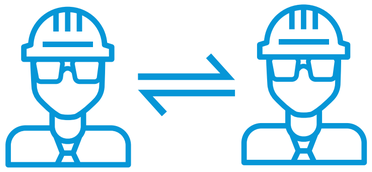
BETWEEN PROJECTS



BETWEEN TEAMS



BETWEEN PHASES

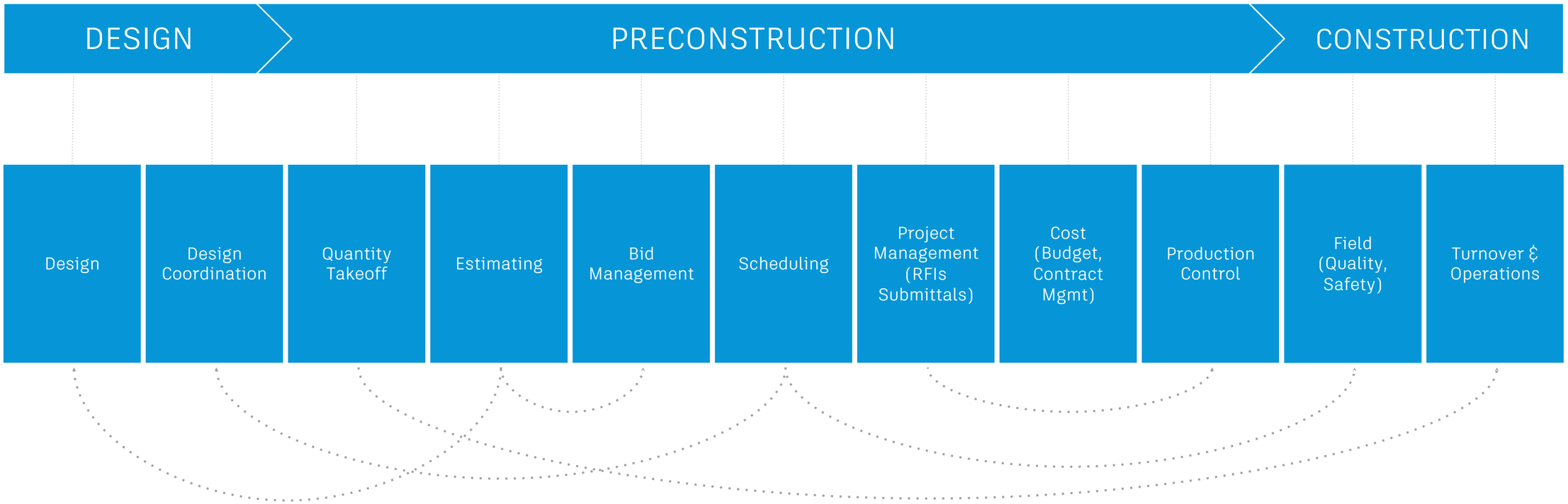


BETWEEN GCS

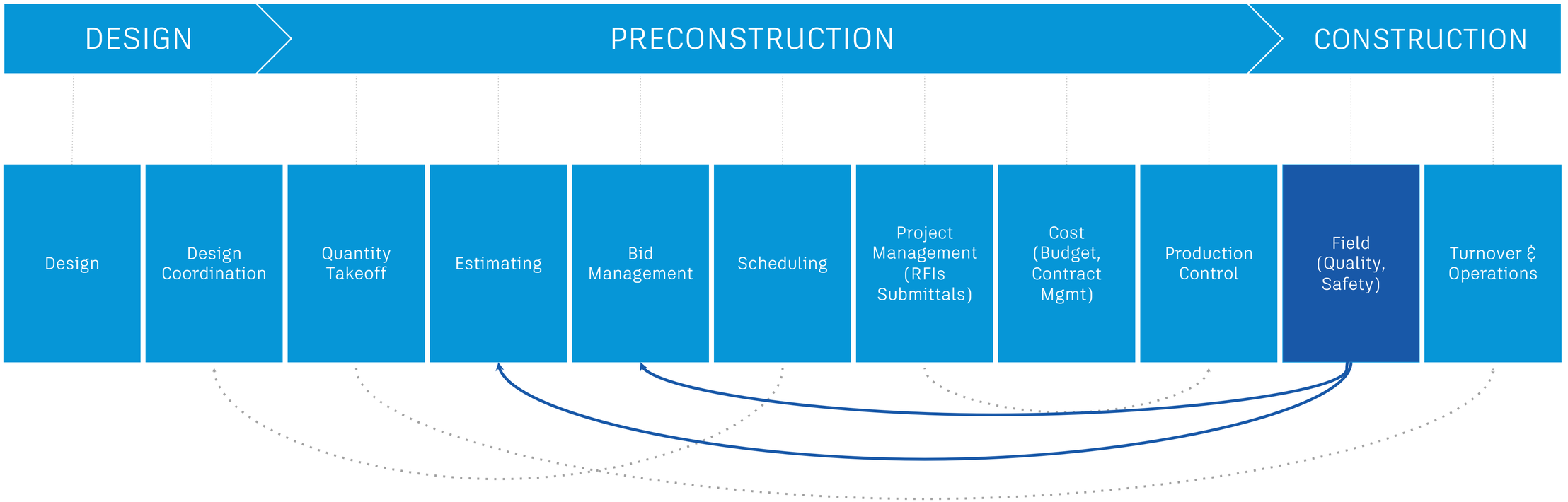


BETWEEN PARTNERS

Feedback loop between stages of construction



Feedback loop between stages of construction



Issue tracking



Issue data

FREQUENCY & TIMING

OWNER TYPE

TRADE / SCOPE

MARKET SECTOR

- What is the magnitude of the issues?
- When were the issues recorded?
- Who was the primary driver (sub, owner, etc.)?

Issue data

FREQUENCY & TIMING

OWNER TYPE

- Is this a public project or private project?
- What is the history with this particular client?

TRADE / SCOPE

MARKET SECTOR

Issue data

FREQUENCY & TIMING

OWNER TYPE

TRADE / SCOPE

MARKET SECTOR

- Is this a high impact trade?
- What will be the anticipated cost of rework?

Issue data

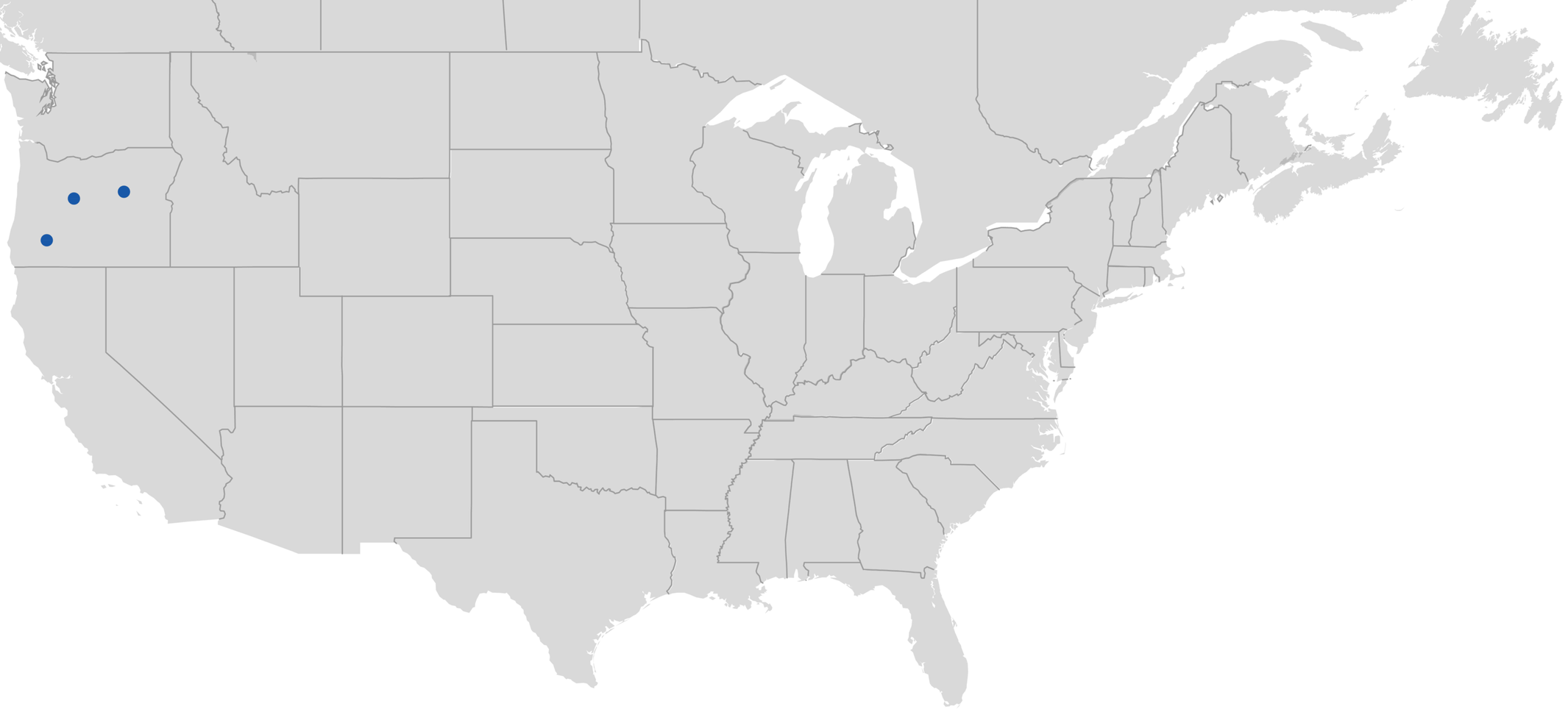
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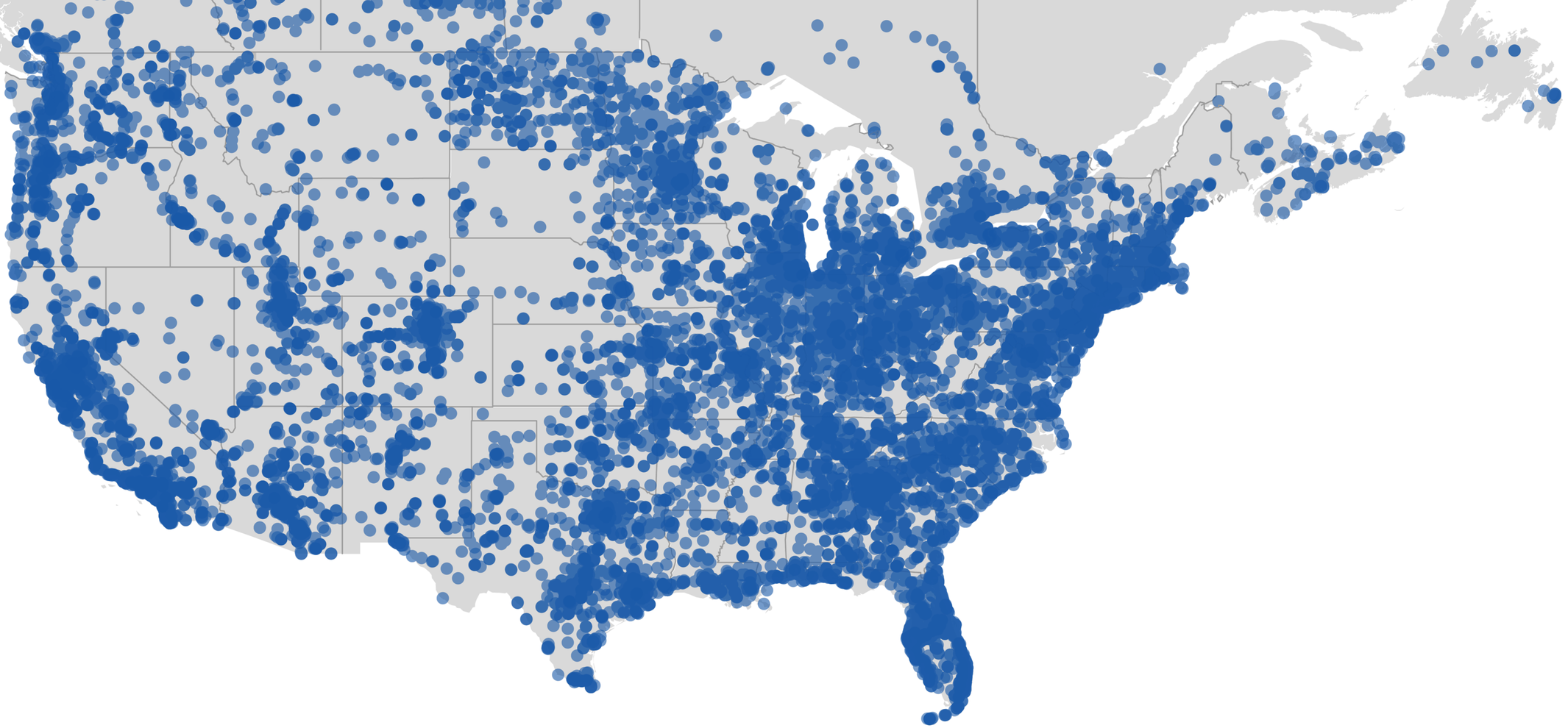
MARKET SECTOR

- How do we normalize for projects of this type?
- How challenging or domain specific is the work (i.e. healthcare)?



Feedback loop breadth

Insights for one GC



Feedback loop breadth

Insights for all GC

Other jobsite data

Jobsite Data

SAFETY

- Were there any incidents on the job?
- What was the impact of the incident?
- Were there any near misses?

QUALITY

- Overall performance of a subcontractor's work.
- Was rework ordered?
- Were there any issues post job completion?

WEATHER

- Daily weather recaps recording rainfall, snow, wind conditions, and more.
- Schedule interferences based on weather.

PERSONNEL

- Who was on the jobsite? How many individuals?
- Were there any changes in personnel?
- Was extra labor requested or needed?

Jobsite data

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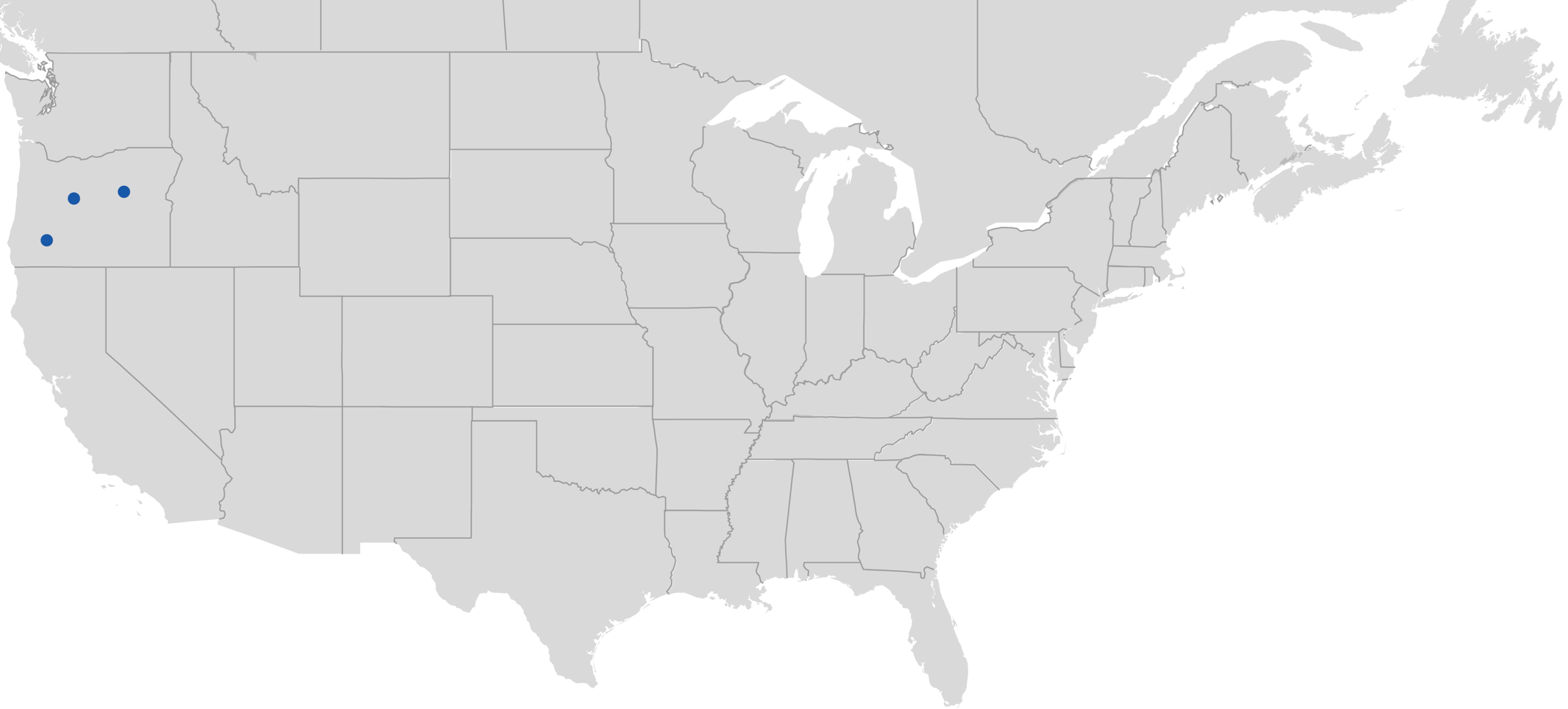
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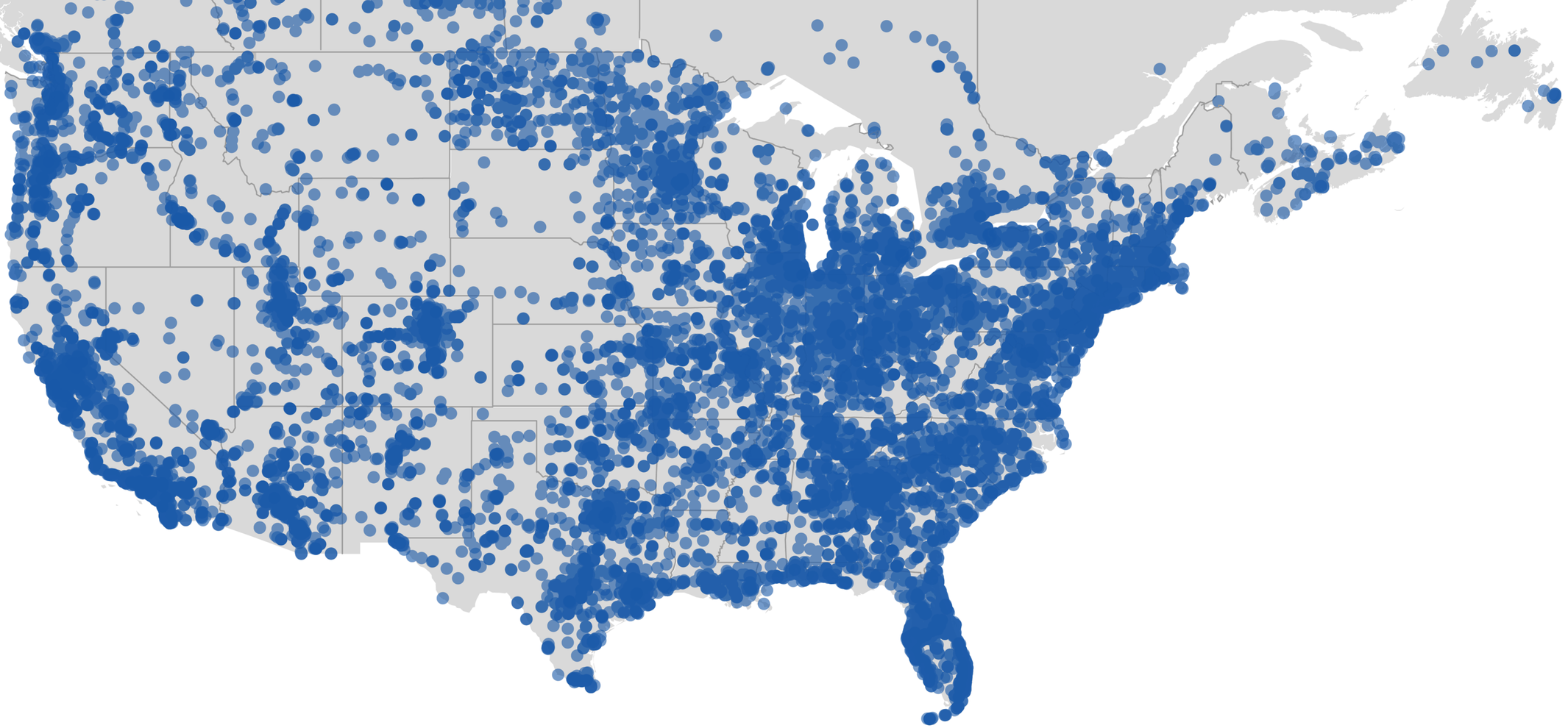
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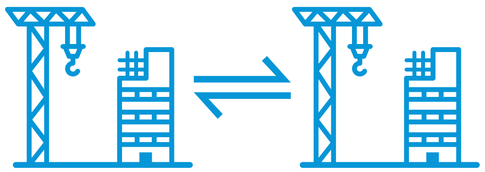
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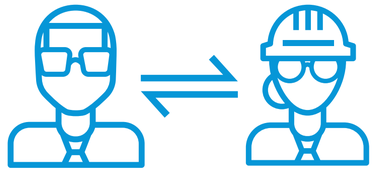
Feedback loop breadth

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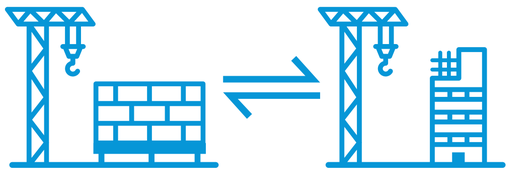
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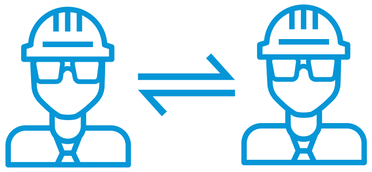
BETWEEN PROJECTS



BETWEEN TEAMS



BETWEEN PHASES



BETWEEN GCS



BETWEEN PARTNERS

Where do we see these insights?

REDUCE SAFETY RISKS

REDUCE QUALITY RISKS

REDUCE SCHEDULING RISKS

REDUCE SUBCONTRACTOR RISKS

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REDUCE SUBCONTRACTOR RISKS

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How can we do this?

Standardize jobsite data through technology

Share jobsite data between field and precon platforms

Store historic records of data

Allow the model to learn with more data

Q&A



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