3rd Presentation:
AI POWERED PROJECT CONTROLS & PREDICTABLE PROJECT DELIVERY AT SCALE

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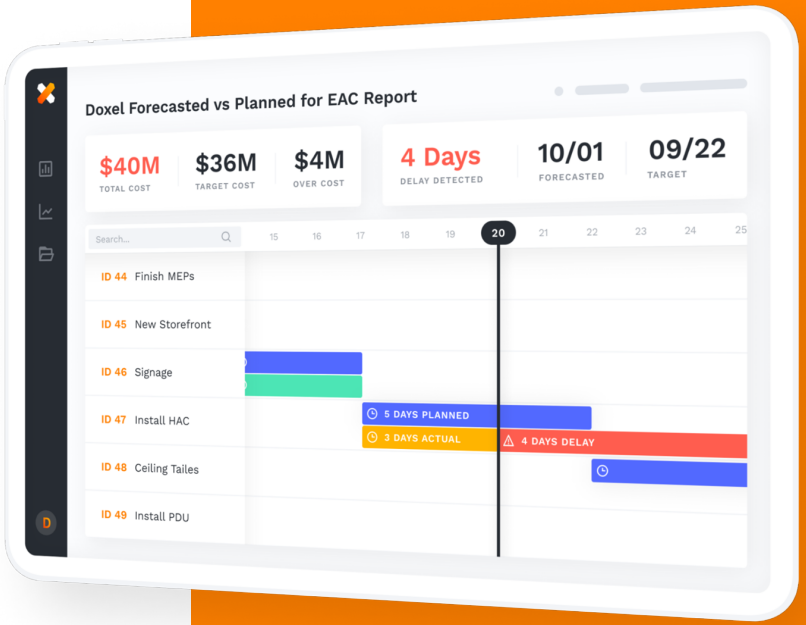
Optimizing Construction with AI



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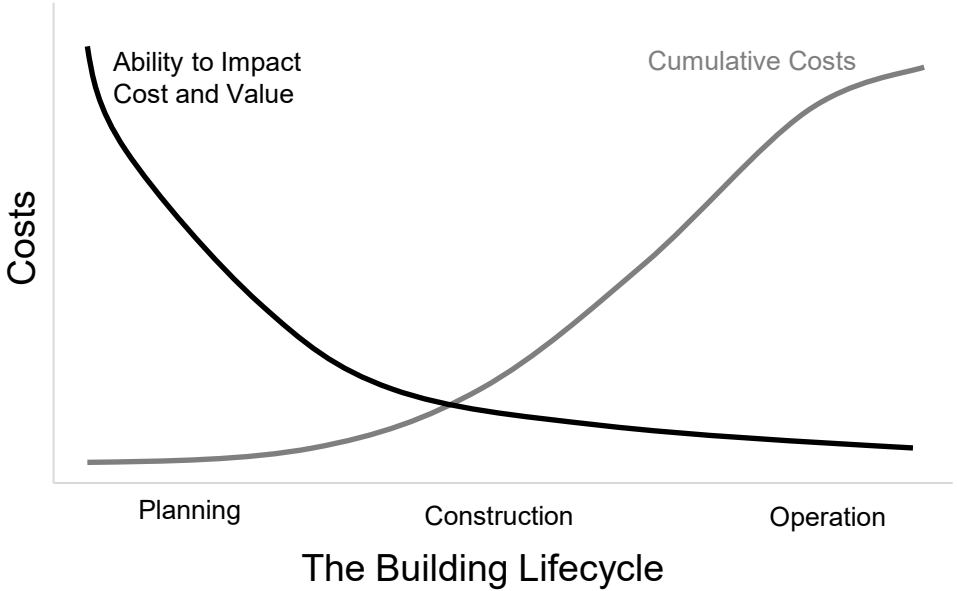
How do you control cost, schedule, and quality throughout the building lifecycle?



- Plan: Budget, Design, Schedule
- Compare actual execution to the plan
- Respond quickly to unforeseen changes

Planning is Not Enough

Executing to Plan is Everything

Plan

"5D" Building Information Model

- Building Information Model
  -> What the owner wants
- Schedule
  -> When the contractor commits to deliver
- Budget
  -> How much the owner budgets to pay

Construction

Construction Information Model

- Quality: How close is actual to designed?
- Time: How much time is it taking?
- Money: How much is it costing?

Operation (aka Digital Twin)

Operating Information Model

- What did we build?
- How is the building performing? How are people performing in the building?
- How much is it costing?

Planning is Not Enough

Executing to Plan is Everything

Plan
"5D" Building Information Model

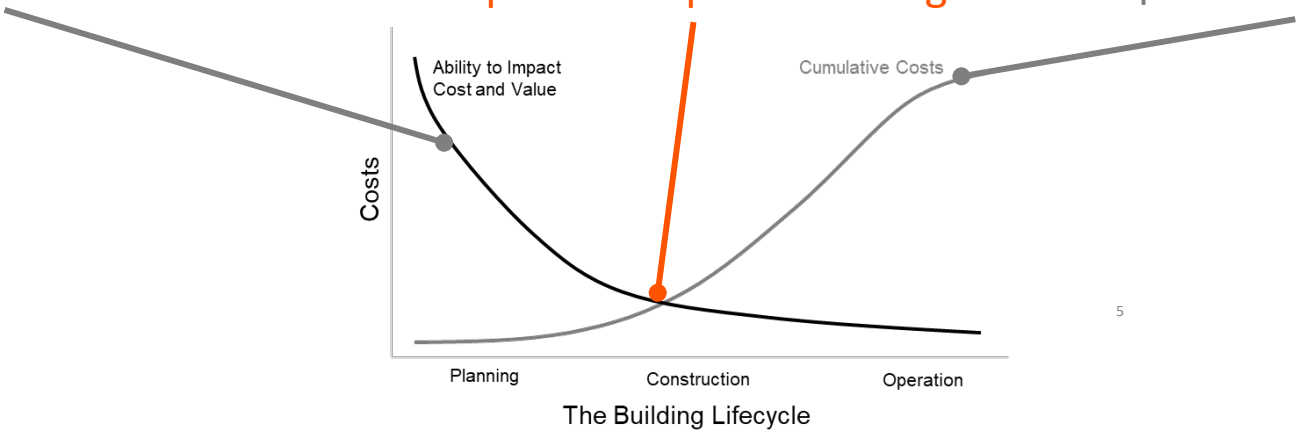
Construction
Construction Information Model

Operation
Operating Information Model

$ spent
easy to change

$$$ spent
adapt to unexpected change

$$$$$ spent
impossible to change



Executing to Plan Requires

Objective, Frequent, and Precise Feedback Loops

Plan

"5D" Building Information Model

- Building Information Model -> What the owner wants
- Schedule -> When the contractor commits to delivering
- Budget -> How much the owner plans to pay

Construct

Measure Actual

Construction Information Model

- Quality: How close is actual to designed?
- Time: How much time is it taking?
- Money: How much is it costing?

Measuring Actual: The Status Quo

Subjective

Relies on human perception of progress

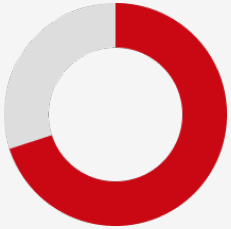
Infrequent

Occurs every 3-6 weeks

Imprecise

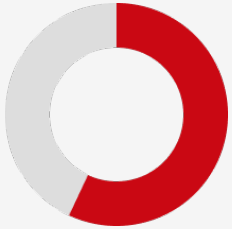
Not sufficiently detailed, nor structured to benchmark

Which Results In..



70%

Of projects are over-budget and delivered late



57%

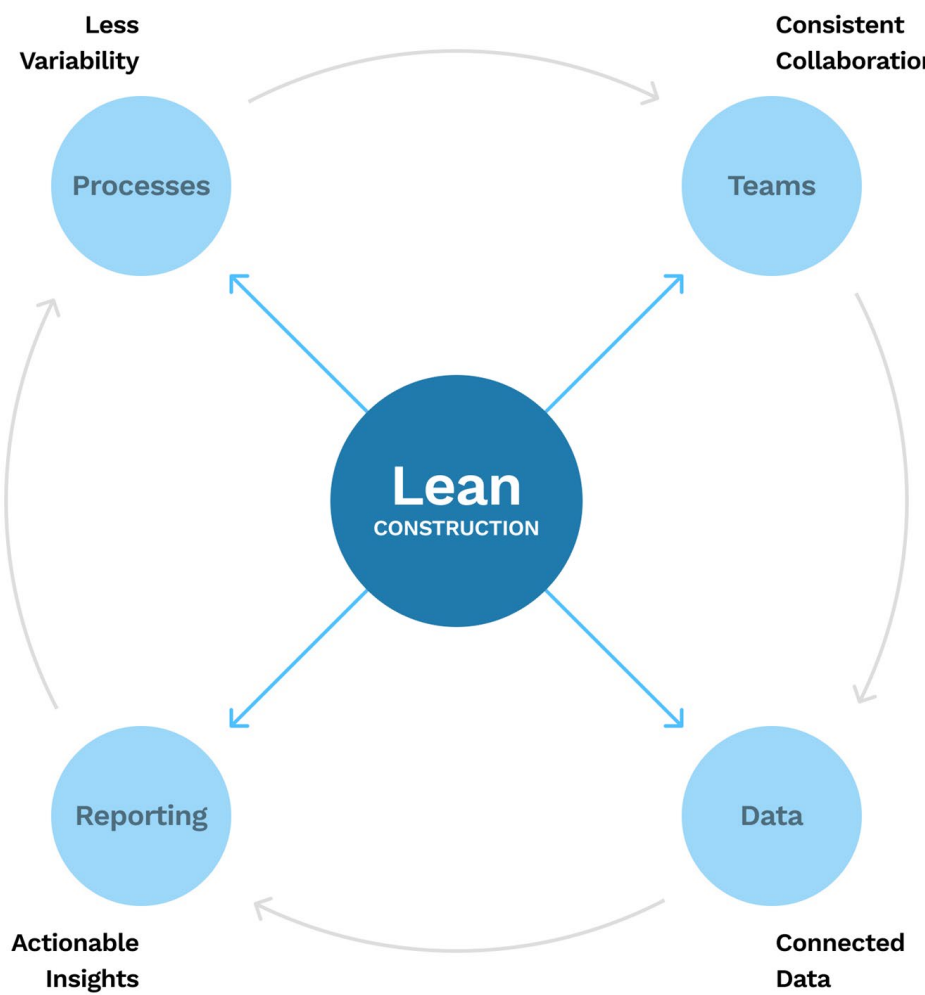
Of project spend is still lost to waste

Source: Dodge Analytics + Autodesk Lean Construction Report

How can we objectively, frequently, and precisely compare actual vs planned?

3x

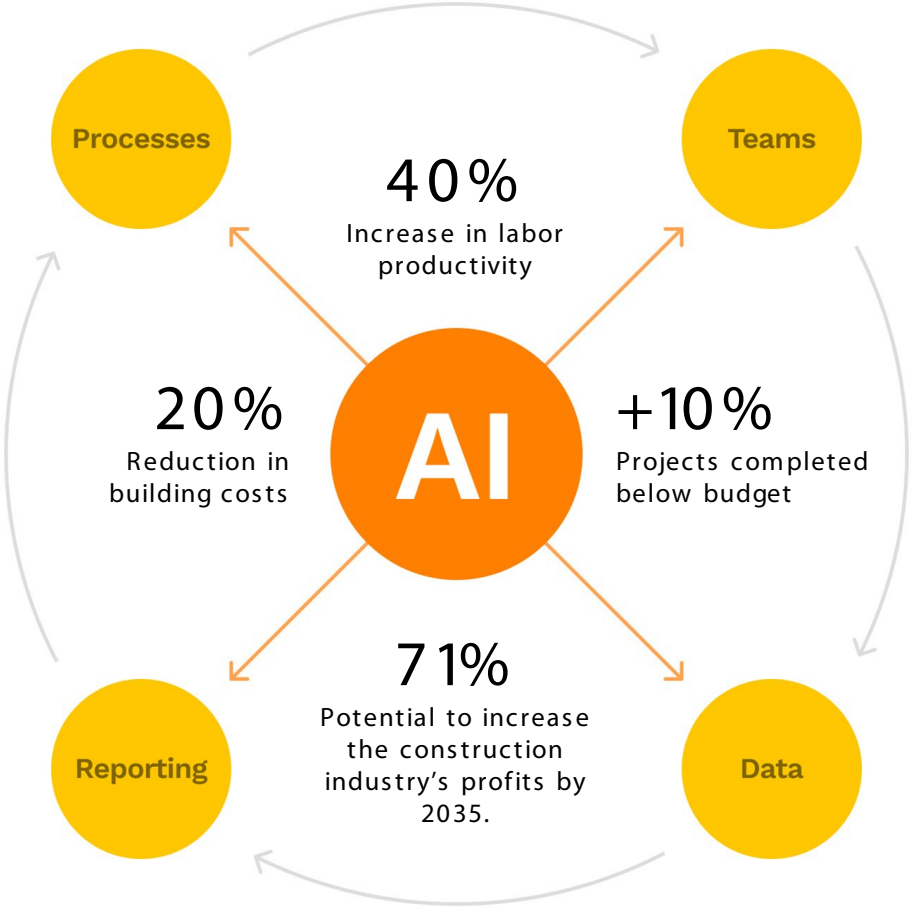
More likely to complete ahead of schedule.



2x

More likely to complete under budget

Source: Lean Construction Institute



Source: Trimble.com | Roland Berger Study

How does this work?

Computer vision
OBJECTIVELY
measuring progress

FREQUENT
360 video capture of site

Object-by-object install status for
PRECISE
measument

Projects
On Time
On Budget
As Designed

OK, but how does AI do that?

Level 1

✓	Image Location
X	Component Class
X	Type
X	Quantity
X	Dimensions
X	Spatial Coordinates
X	System Level Cash Profile
X	System Level Schedule Profile
X	Predictions

"This image is from **Zone 5**…"

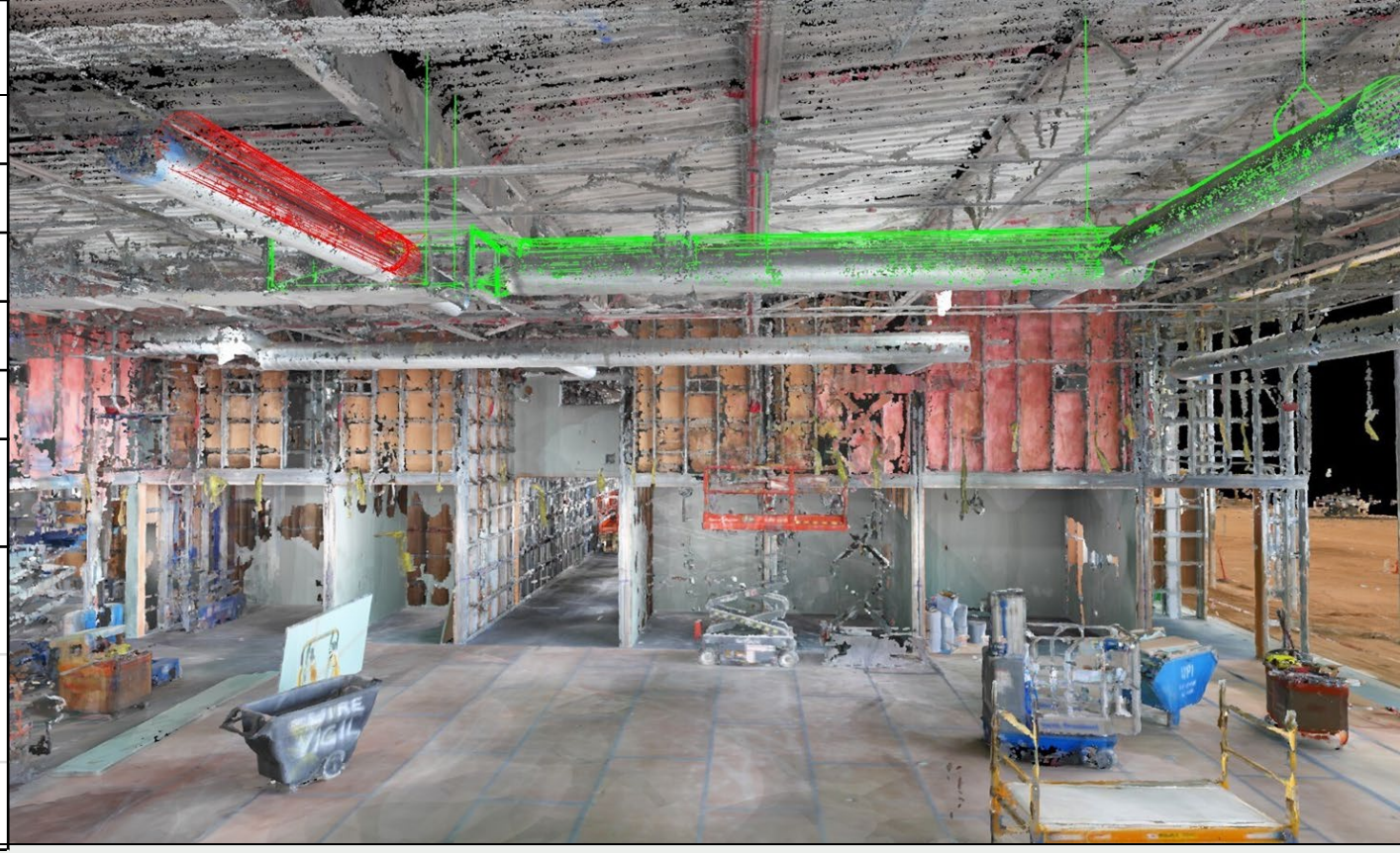
Level 2

✓	Image Location
?	Component Class
X	Type
X	Quantity
X	Dimensions
X	Spatial Coordinates
X	System Level Cash Profile
X	System Level Schedule Profile
X	Predictions

"This image contains **Conduit**"

Level 3

✓	Image Location
✓	Component Class
✓	Type
✓	Quantity
✓	Dimensions
✓	Spatial Coordinates
X	System Level Cash Profile
X	System Level Schedule Profile
X	Predictions



"... this scan contains 3 Pipes Type K Black Steel 2 ½" of 6.5 Linear Feet, 8 Clevis Hangers, and 2 Elbow Connectors 1 Design Deviation of 3 1/2" was detected."

Level 4

✓	Image Location	
✓	Component Class	●
✓	Type	●
✓	Quantity	●
✓	Dimensions	●
✓	Spatial Coordinates	●
✓	System Level Cash Profile	●
✓	System Level Schedule Profile	●
X	Predictions	●

"... this should have cost **$12,213** and taken **1 week** to install but has cost **$18,281** and taken **2.5 weeks** to install."

Level 5

✓	Image Location
✓	Component Class
✓	Type
✓	Quantity
✓	Dimensions
✓	Spatial Coordinates
✓	System Level Cash Profile
✓	System Level Schedule Profile
✓	Predictions

"System cost at completion will be **$42,814** over budget and end date will be **4 days** behind schedule."

Impact of AI Powered Comparison of Actual Vs. Plan

Direct Savings

100%

Misreporting Averted

Using objective reporting and deviation analysis on progress tracking

10-30%

Inspection Savings

Using automated processing of site data

20-40%

Data Entry Savings

With automated progress and schedule integration

Indirect Savings

3-9%

Increased Production Rate

By flagging delay risks early & highlighting work tracking ahead

30-50%

Reduction in Rework Delays

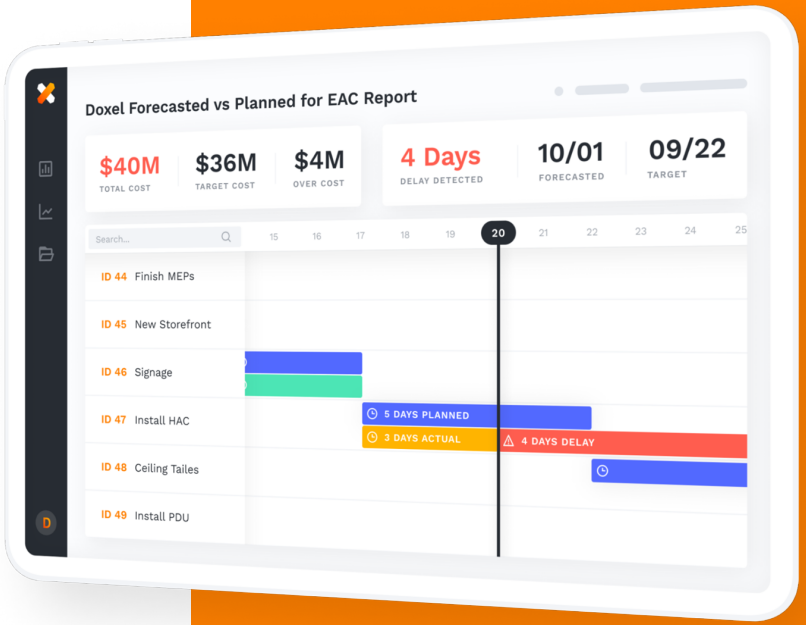
By flagging mis-installations earlier

5-10%

Total Project Time Savings

By forecasting critical path activity & milestone delays

Optimizing Construction with AI



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