



FRAMER SUMMIT
AT BCMC



Digital Tools That Drive Performance

Henry Hoeg, *Shelfmark*

Nouran Ghaly, *Crowdbuild*

David Dozer, *Cadynce*

Dario Schmidt, *Stiles Machinery*

Moderated by Greg Dahlstrom & Jason Hikel

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Introductions



Henry Hoeg
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Dario Schmidt
Product Manager
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Session Format

- **Moderator Introduction: Greg Dahlstrom and Jason Hikel**
- **4/12: 4 Panelists, 12 Minutes Each**
 - The challenge – *What problem, inefficiency, or opportunity exists within today's plant/operation?*
 - The traditional approach – *How is this typically handled, and where are the limitations?*
 - The digital opportunity – *What becomes possible when technology is applied to this area?*
 - The operational impact – *How can this affect productivity, labor, quality, downtime, profitability, etc.?*
 - Real-world application – *What does this look like in practice, and what results or lessons have emerged?*
 - The takeaway – *What should manufacturers be thinking about as they evaluate or implement this?*



Shelfmark

AI Visual Inspection & Production Intelligence



~40,000,000

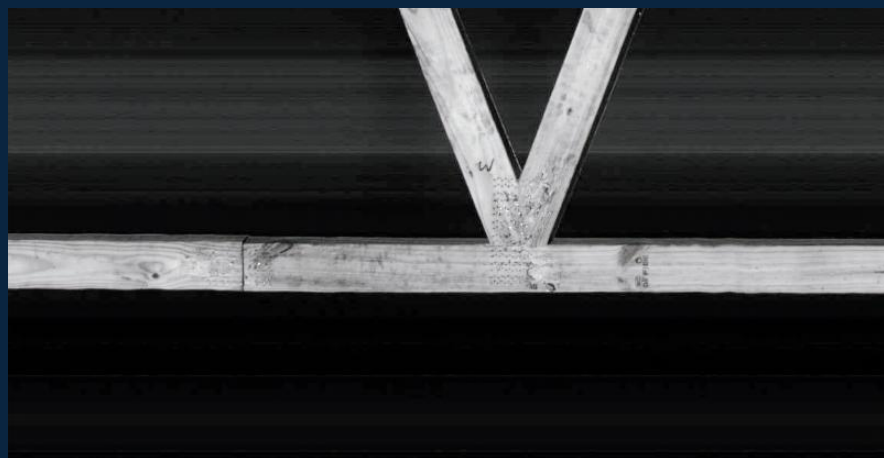
Roof trusses built in the USA last year. About a billion plates, every one checked by a person looking.

Estimate. Roof trusses only. Inspection today means somebody with eyes on it, one truss at a time.

● THE CHALLENGE

The problem: missed plates that ship

Every plant gets this call. Some come from the framer, some a year after delivery.



~2,000

New AI companies funded in the U.S. last year. Some of them are pitching your plant.

Stanford AI Index, 2026. Newly funded AI companies, 2025. The hard part isn't finding AI. It's knowing which one will work on your floor.

The pitch alone can't tell you if it works

- The pitch looks the same whether it helps or not.
- The difference shows up on your floor, not in the demo.

This session: how to evaluate an AI tool for your floor before you spend a dollar.

One plant. Four experiments. One method.

How Stark Truss in Ohio evaluated AI for its own floor, step by step. It ends with four questions to ask any vendor, including us.

Mirror

Webcam

Yard

Inline

Mirror

Webcam

Yard

Inline

CHAPTER 01

The mirror on a stick

TRIED

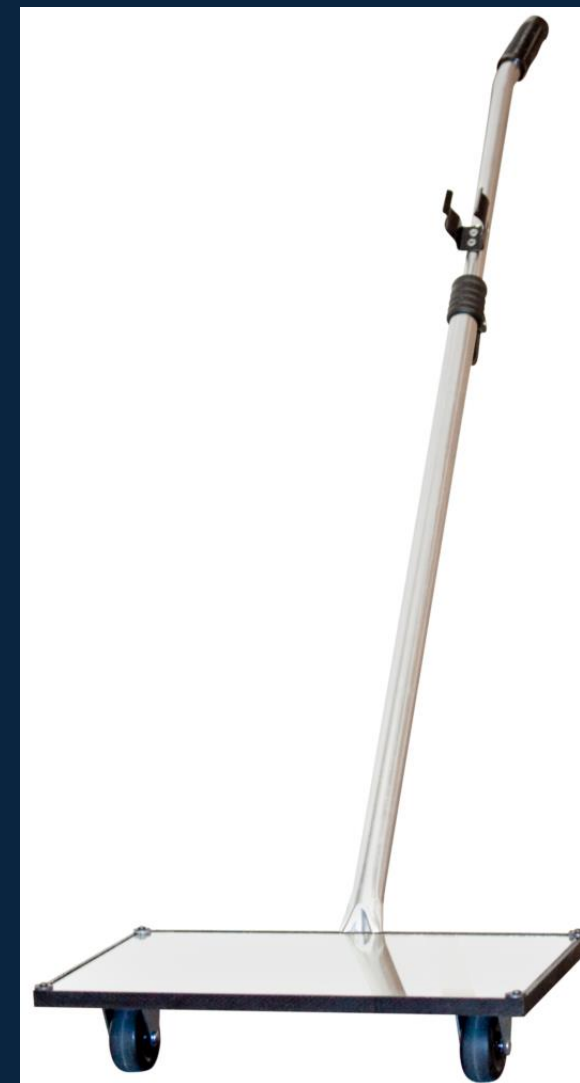
A mirror on a stick, checking the underside as trusses came off the table.

CAUGHT

Missing plates on the bottom face. One truss at a time.

LEARNED

The person closest to the problem builds the first fix.



Why a person looking isn't enough

~80%

**of defects a trained
inspector catches**

visual inspection research

30%

**missed when the defect
is rare (1 in 100)**

Wolfe et al., Nature, 2005

~30 min

**before attention on a
watching task drops**

vigilance research since
1948

It isn't the people. It's what eyes and attention do over a ten-hour shift.

Mirror

Webcam

Yard

Inline

CHAPTER 02

Webcams on the line

TRIED

Cheap cameras pointed at the line.

CAUGHT

More eyes, more trusses, and a look after the fact.

LEARNED

Images are worth keeping. Shop lighting and a moving truss beat a cheap camera.



Most technology is build as a product, then squeezed into your plant

- Does it fit your process, or do you change yours to fit it?
- Whose numbers are on the ROI slide, yours or theirs?
- Was anyone who works the table in the room?

It works, but not quite enough. And not enough ends up under a tarp!

Mirror

Webcam

Yard

Inline

CHAPTER 03

A camera in the yard

TRIED

A camera where trusses get flipped anyway.

CAUGHT

Both faces, better images.

LEARNED

Too late. The truss is already built. And someone still has to look.



Not enough people to do the looking

3.8M

**manufacturing jobs
to fill by 2033**

Deloitte / Manufacturing
Institute

409K

open today

BLS JOLTS, Aug 2025

Mirror

Webcam

Yard

Inline

CHAPTER 04

Inline. Every truss.

TRIED

Cameras on the line, both faces, as it's built.

CAUGHT

Every plate, before it ships. Not three a week.

LEARNED

A picture of every truss. Patterns nobody could see from the floor.



What changed on Stark's floor

● QUALITY

Caught at the table, not the jobsite.

● LABOR

**One person, every table.
Confirming, not searching.**

● RECORD

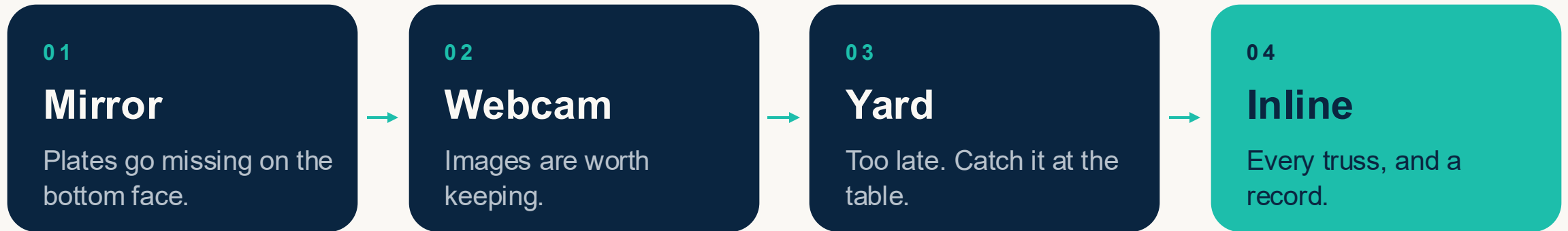
Every truss, on file, when the callback comes.

● ROOT CAUSE

Fix the press once, not the truss.

Nobody bought anything until step four

Each step was the cheapest way to learn the next thing.



“The goal wasn’t to invest in new QC technology; the goal was to identify and correct missing plates on the bottom side of the truss. Everything else just followed from there.”

President, Stark Truss

“AI is going to replace my QC guy.”

Not quite.

The machine does the looking. The person keeps the deciding.

GOOD AT

Looking at the same thing ten thousand times without blinking.

BAD AT

Knowing which of those things matters in your plant.

Not fewer people. **More capable people.**

Four habits to take back to your plant

- 1 Start with the problem that wakes you up.
- 2 Run the experiment you can start this week.
- 3 Put the people who work the table in the room.
- 4 Automate the looking. Keep the deciding.

● THE TAKEAWAY

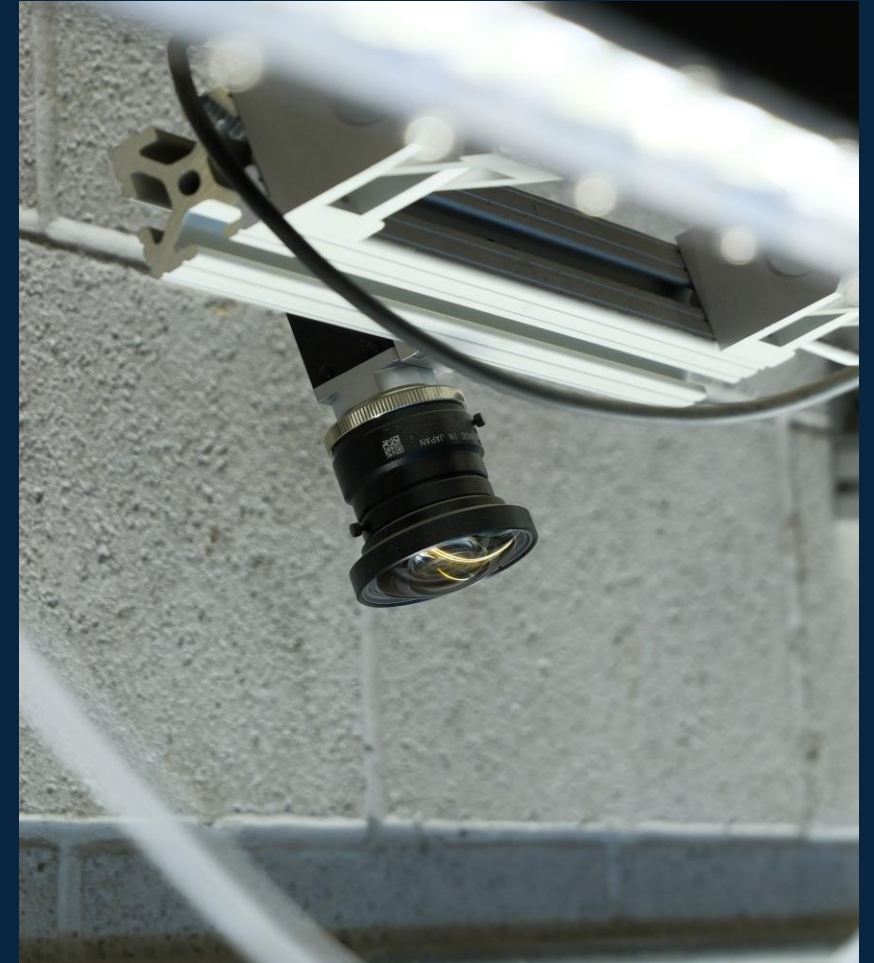
How we built Shelfmark

THE SAME WAY STARK BUILT THE MIRROR

Inline plate inspection for truss lines. One plant, one problem, cheapest experiment first.

NOW

One plant at a time. Their problem, not a spec sheet. Built around the people already doing the job. Ask us the same three questions.





~40,000,000

**Forty million trusses a year, and somebody in your plant is already holding the mirror.
Start there.**

Henry Hoeg | Shelfmark | shelfmark.com | Booth 206



Crowdbuild

Automated 4D & 5D Intelligence



Own process. Own software. Own team.



Drawings



Estimating



Material



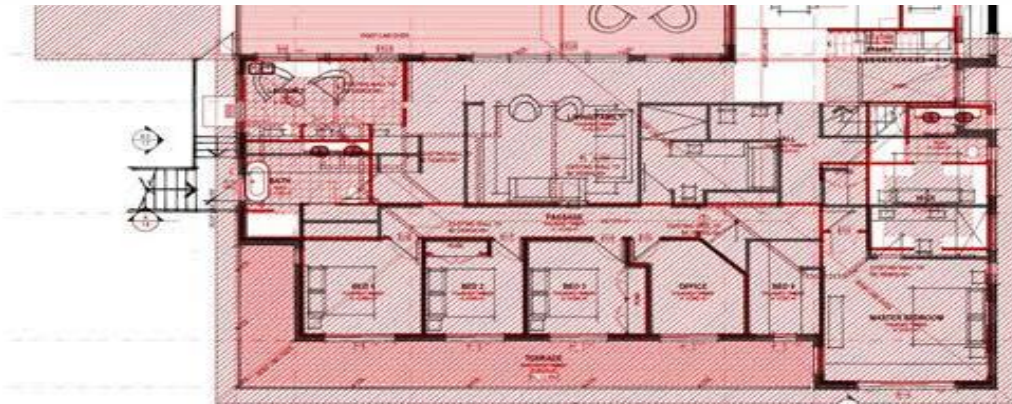
Scheduling



Cost

Reinterpreting the same information, over and over.

But they are one chain.



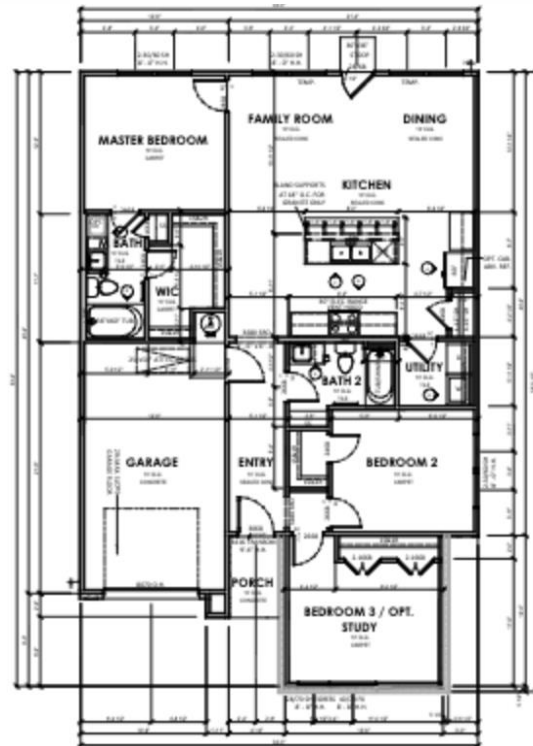
A revision lands.

You find out what it meant far too late.

Not missing information.

**Missing automation around
coordinating between it.**

Read once. Structure it.



1ST FLOOR PLAN
SHEET 100 1/16" x 11 1/2" x 1/8" 1/4" = 1"

Drawings in



Structured building information out

Two more dimensions.



4D Time

Field Timeline			
Phase	Weeks	Workers	Hours
Layout, plate cutting and sill prep	0.54	2	43
Floor system - I-joists, rim board and sheathing	0	0	0
Wall framing, sheathing, headers and bracing	1.55	4	247.75
Roof framing and roof sheathing	0.17	2	13.4
Window and exterior door installation	0.22	2	17.5
Interior door hanging and opening trim-out	0.28	2	22.5
Punchlist, QC inspection support and site cleanup	0.4	2	32.06
Total working weeks 3.15 Average crew size 2.98			



5D Cost

Overview

Detailed Breakdown

Austin Estimate

V1

Created Sep 9, 2026 | Market Rates in CA

TOTAL ESTIMATED COST

\$52,972.60

Materials Cost

\$33,902.30

Labor Cost

\$14,254.61

Total Working Days

15.75

Average Crew Size

2.98

Subtotal

\$48,156.91

Contingency (10%)

\$4,815.69

Grand Total

\$52,972.60

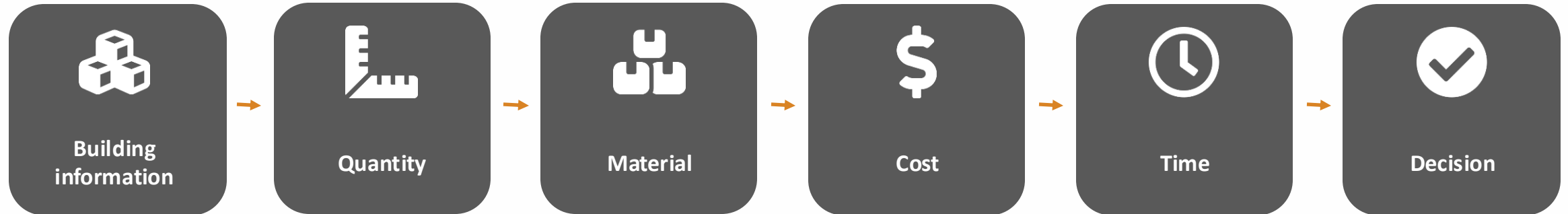
Key Differences

Foundation/Floor System

Takeoff shows 0 sf framed area and no I-joist, rim board, or floor sheathing line items, indicating a slab-on-grade foundation rather than the raised floor framing common on many Austin plans.

Eliminates floor-framing labor and material scope entirely for this phase (0 hours assigned).

Not two steps. Six.



Automated — so it can be changed, compared, and decided on.

What it changes.



Visibility



Speed



Scenarios



Coordination



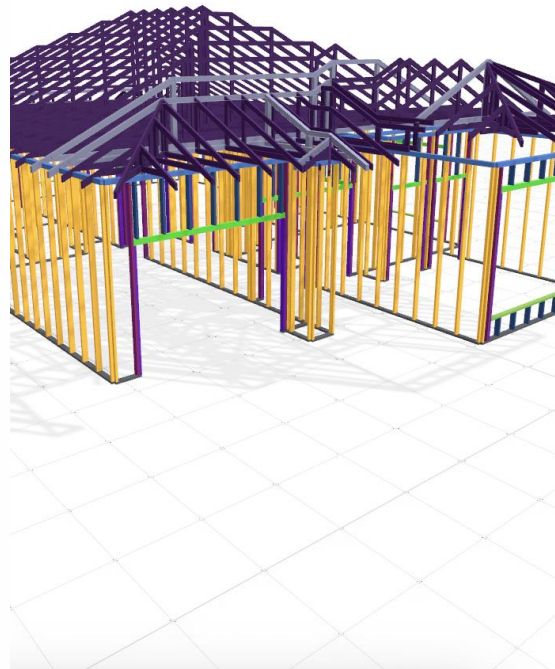
Scale

Time and cost, connected to the building itself.

In practice.



The drawing



Structured

Field Timeline

Phase

Layout, plate cutting and sill prep

Floor system - I-joists, rim board and sheathing

Wall framing, sheathing, headers and bracing

Roof framing and roof sheathing

Window and exterior door installation

Interior door hanging and opening trim-out

Punchlist, QC inspection support and site cleanup

Total working weeks **3.15** Average crew size **2.98**

4D

Unit Price	Total Price
\$214	\$856
\$299	\$299
\$212.89	\$638.67
\$329	\$329
\$13.49	\$26.98
\$254.99	\$254.99
\$249	\$747
\$149.99	\$149.99
\$15.27	\$61.08
\$1,301.37	\$1,301.37
\$33.48	\$66.96
\$47.12	\$26,198.72
\$12.25	\$416.50
\$7.97	\$589.78

5D

A connected information model.



Cost connected to the building?



Time connected to the building?



**Impact understood
automatically?**



Early enough to matter?

It isn't knowing more
about the building.

**It's doing more
with what you know.**

Booth 208



Cadynce

AI Takeoff & Workflow Management



The least automated station in your plant

The challenge

- The most automated station in a modern component plant is the saw. The least automated is the bid desk.
- The bid desk is a bottleneck— a handful of experienced estimators, years to train one, and no way to hire your way out of it quickly.
- And it's the one bottleneck in the building nobody measures. Unlike every other constrained area in the plant, it carries no digital signal: no reminders, no alerts, no feedback.
- You know yesterday's produced BF exactly. Ask what's sitting unquoted right now and you'll get a shrug.

Takeoffs waiting. Spreadsheet sprawl. Nobody knows.

The spreadsheet isn't the villain. It's the symptom.

The traditional approach

THE PLANT FLOOR

- A project board on the wall (Sometimes digital)
- BF counted hourly
- You know how long a job takes
- Downtime logged and costed

THE BID DESK

- No board
- No count of what's waiting / late
- Nobody knows how long a quote takes
- Status in somebody's head
- Relies on "cut and paste"

We solved the plant with process. We tried to solve the bid desk with people.

The digital opportunity: three layers, and the order matters

- **Visibility**

- every bid becomes a record with an owner, a stage and a clock on it
- The cheapest layer to build, and the biggest first win. Many are trying to use spreadsheets for this, but it doesn't scale well.

- **AI Assistance**

- plans read and the takeoff pre-populated, so the estimator reviews instead of starting from a blank screen.
- Not a replacement for estimator judgment. It moves your scarce resource out of data entry.

- **Historical data**

- Your own history — win rate, quote turnaround and margin by customer, job type and location.
- The layer nobody talks about, and the only one that compounds.

Start at the second layer and skip the first, and you have automated a process you still can't see.

The operational impact: upstream decides downstream

WHAT CHANGES UPSTREAM

- At capacity, your inbox chooses your work. With headroom, you choose.
- Speed wins bids — but selectivity is the larger effect, and it lands on the floor rather than at the desk.
- What gets designed should match what got priced. When design can't see the quote's assumptions, the job gets engineered to different ones and the margin quietly goes away.

WHAT MOVES ON THE FLOOR

- Mix — repetitive work versus one-offs, and the setup time that follows
- Labor — a week of similar jobs runs differently than a week of **cut-ups**
- Downtime — a plan problem caught at quoting is an email; found after it's designed and cut, it's scrap.
- Ceiling — a plant running work it's good at **ships more than** one running whatever came in

Your bid backlog is a leading indicator. Your truck count is a lagging one.

Real-world application: the order it happened in

WHAT THE SEQUENCE LOOKED LIKE

- Step one — **every bid request** into a system: an owner, a stage, a timestamp. No automation at all.
- Step two — assisted takeoff, starting with the most repetitive work in the building.
- Step three — reading what came back: win rate and quote turnaround by customer and job type.

TWO LESSONS

- The win wasn't speed. With room to quote more, they could finally see what they won and at what margin — and started declining work. The mix got more repetitive, and that showed up on the floor.
- The rollout that worked wasn't the first one. Plants that succeed start with visibility and earn their way to automation. The ones that stall start with automation and never fix the process underneath.

4 numbers

Measure these in your own operation Monday morning:

- How many bid requests are in your queue right now?
- Average time from request received to quote sent — and the spread, not just the average.
- What share of incoming requests you quote at all.
- Your win rate, broken out by customer and by job type.

If you can't answer all 4 in 2 minutes without asking someone, that's the finding.

Not a software problem — a process problem, and it sits upstream of every saw in your plant.



Stiles Machinery

Automated Sealing-Tape Application &
Integrated Robotic Sheathing Cell Solution



INNOVATION

INNOVATION

means

make
WORK

SIMPLER



make
WORK more

PRODUCTIVE

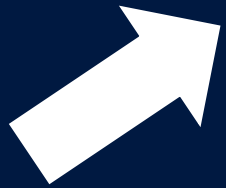


make
WORK more

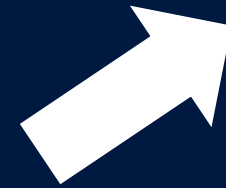
RELIABLE



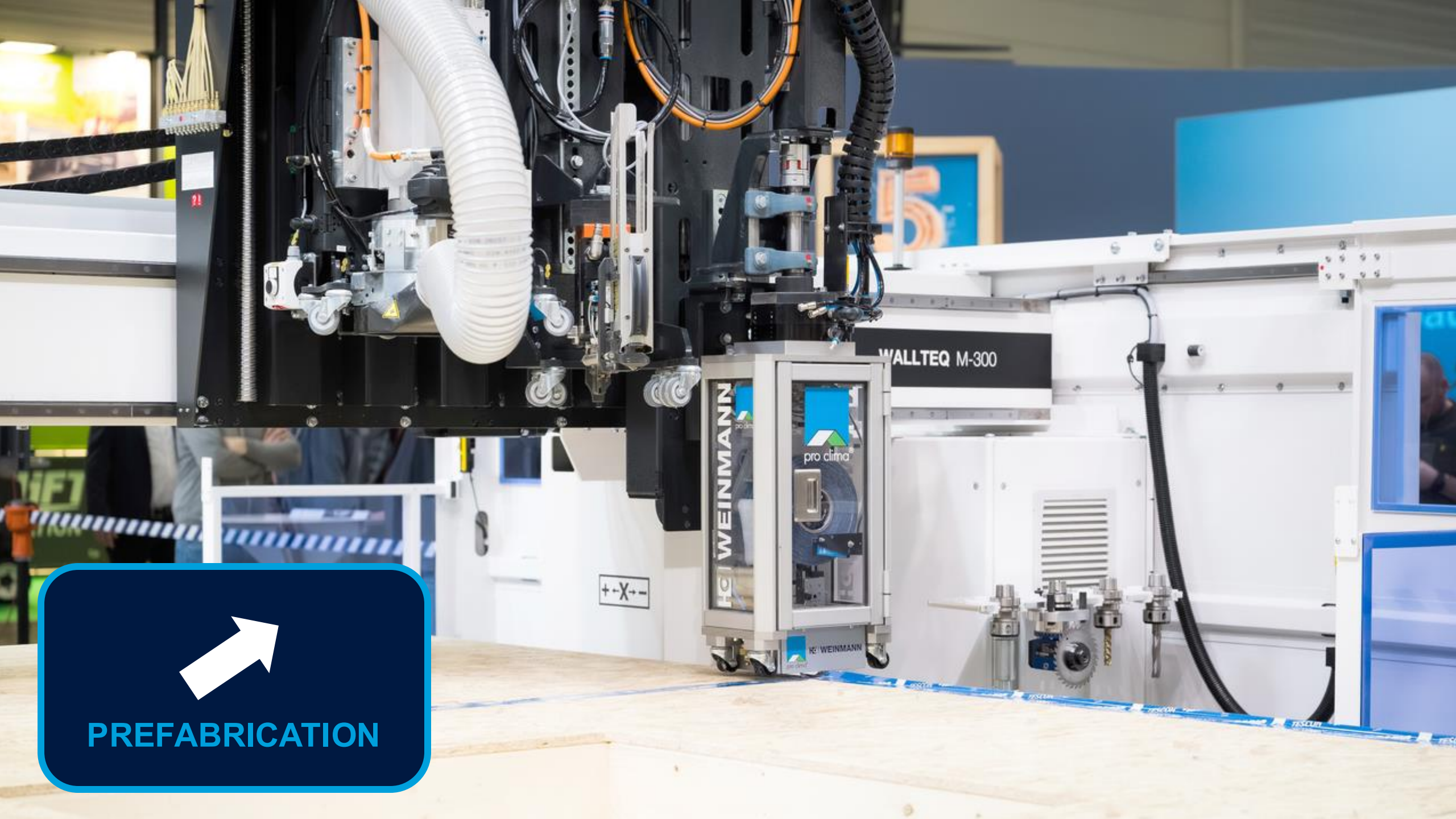
NEW IDEAS?



AUTOMATION



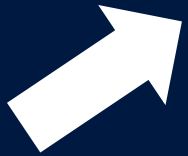
PREFABRICATION



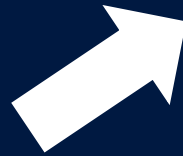
PREFABRICATION

Automated Sealing-Tape Application

- Automated software-driven application of sealing-tape on panels (no mistakes)
- Eliminates the need to apply sealing-tape on-site (manual labor)
- Prototypes tested in EU, and sold to first customers



Value-Add to Panels

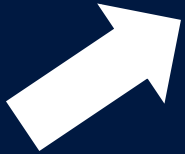
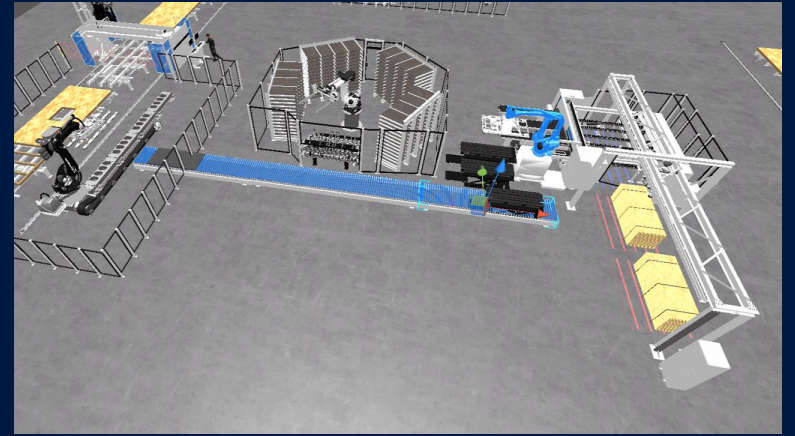
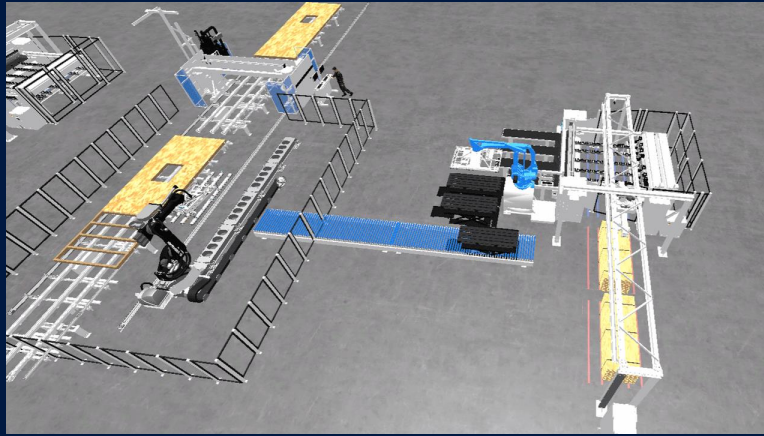
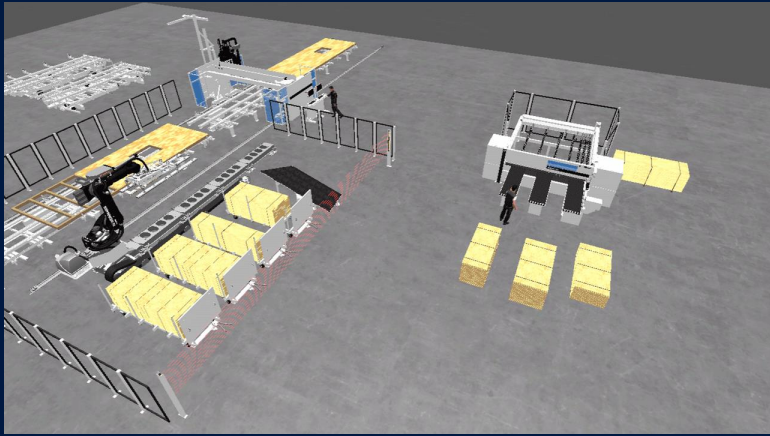


On-Site Installation



Labor Need

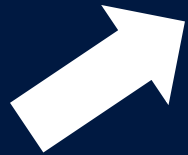
Replacing Pictures on Monday



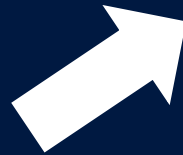
AUTOMATION

Integrated Robotic Sheathing Cell Solution

- (Semi-) automated combination of a pre-cutting solution w/ a sheathing robot
- Increases automation level of two major process steps in the wall panel manufacturing process
- Tested solutions (panel saw, sorting and buffering, robotic, multi-function bridge) combined to an integrated robotic sheathing cell



Material Yield



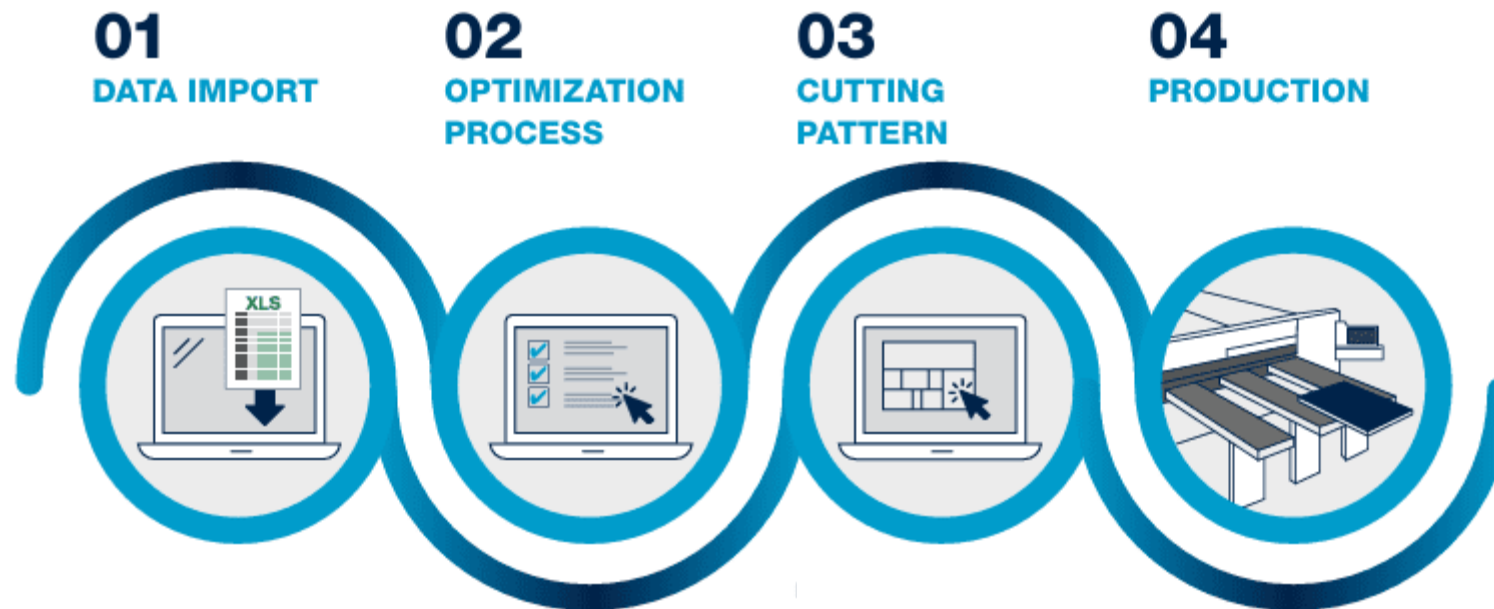
Output



Labor Need

Integrated Robotic Sheathing Cell Solution – Panel Saw

make
WORK more
PRODUCTIVE



HOMAG CutRite Optimization and Off-Cut Management

Integrated Robotic Sheathing Cell Solution – Panel Saw

make
WORK
SIMPLER



HOMAG IntelliGuide

Q&A

Education Session
Evaluation

SCAN HERE





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