WRXFLO

The housing gap is a factory-floor data problem

Why the next gains in modular and offsite construction will come from connected operations, not more floor space.

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Martin Rees with WrxFlo CEO Tim Crowe on a visit to Daiwa House Modular Europe during World of Modular.

The demand is there. The operating structure isn’t.

The world is short of homes in almost every market modular manufacturers serve. UN-Habitat estimates 2.8 billion people lack adequate housing, and meeting that need by 2030 would take 96,000 new homes every day.

In the major modular markets the pattern is the same: ambitious targets, and delivery running well behind them.

Market	What’s needed	Delivery against the pace required
Canada	417,000–469,000 homes a year to 2036	**About 52%.** On pace for roughly 231,000 a year.
England	1.5 million net new homes this Parliament	**About 66%.** 29% delivered with 44% of the time gone; on pace to miss by 500,000+.
Australia	1.2 million homes by mid-2029	**About 74%.** 355,817 built in two years, about 124,000 behind.
Ireland	300,000 homes by 2030	**About 62%.** Around 40,000 in 2026; set to fall 123,400–136,100 short.
United States	Shortage estimates range from about 1 million to 10 million homes	No national target. Analysts disagree on the size of the gap, not its direction.

Bars compare current delivery with the pace each target requires: Canada against the midpoint of CMHC’s range; Ireland’s 2026 completions against the 65,000 a year needed from here.

Nearly every serious plan to close these gaps leans on modern methods of construction. So the demand case for modular is settled. What isn't settled is whether our factories can turn that demand into delivered homes at the rate the market needs.

I started my career as an ERP consultant and have spent more than 15 years since helping manufacturers digitise their operations. In modular plants, the bottleneck is rarely the jig, the roll-former or the crane. It is the information around them. Orders sit in the ERP, the build plan lives in a spreadsheet, progress is on a whiteboard, quality checks are on paper, and the truth about what shipped is in someone's inbox. Each system does its job. The gaps between them are where capacity disappears.

Where modular capacity leaks

Every modular line has a rated output: modules per week on a good week, with materials in, crews in place and no surprises. Delivered output is lower, and the difference is mostly an information problem.

The scale of the problem is easy to underestimate. A typical mid-sized manufacturer runs 10 to 20 separate systems, and three in four supply chain leaders say they rely on disconnected ones, according to McKinsey.

Here is a real starting point we have seen and fixed: a modular building manufacturer running three UK factories. Every team was good at its job. None of them could see what the next team was doing, so the business ran on phone calls, paper and Excel.

Team	What it looked like before
Sales	Enquiries logged in Excel; order progress tracked by hand
Design	Drawings requested by email; work in and out of design tracked on paper
Parts	Paper job sheets and timesheets, not linked to production demand
Production	Paper ITPs, timesheets scanned with OCR, materials not tracked in real time
Procurement	Parts bought on the production manager's knowledge; stock out of date; MRP outputs not trusted
Shipping	Paper transport lists; QC sheets, delivery notes and certificates on paper

Team	What it looked like before
KPIs	Gathered by hand in Excel; admin heavy and never real time

Every stage worked. None of them could see the next one. That is the pattern: most of the lost time in a modular business sits in the hand-offs, not in the work itself. The job leaves sales and design doesn't know. Design releases a drawing and procurement finds out a week later.

Sales and customer	Design	Supply chain
Enquiry	Design freeze: BOM and routings	MRP and procurement
Quote and price		Stock and picking
Order and contract		

Factory	Quality	Logistics and site
Parts manufacture	Inspection and ITP	Transport to site
Module assembly		Install and close out

Six teams, eleven hand-offs. The fix is a discipline before it is a system: every hand-off becomes a checkpoint, nothing moves on until its checklist is complete, and the next team is told automatically. The data that matters sits at those hand-offs: drawing release, BOM confirmed, stock by location, start and finish per job, inspection points, delivery to site, snags and sign-off.

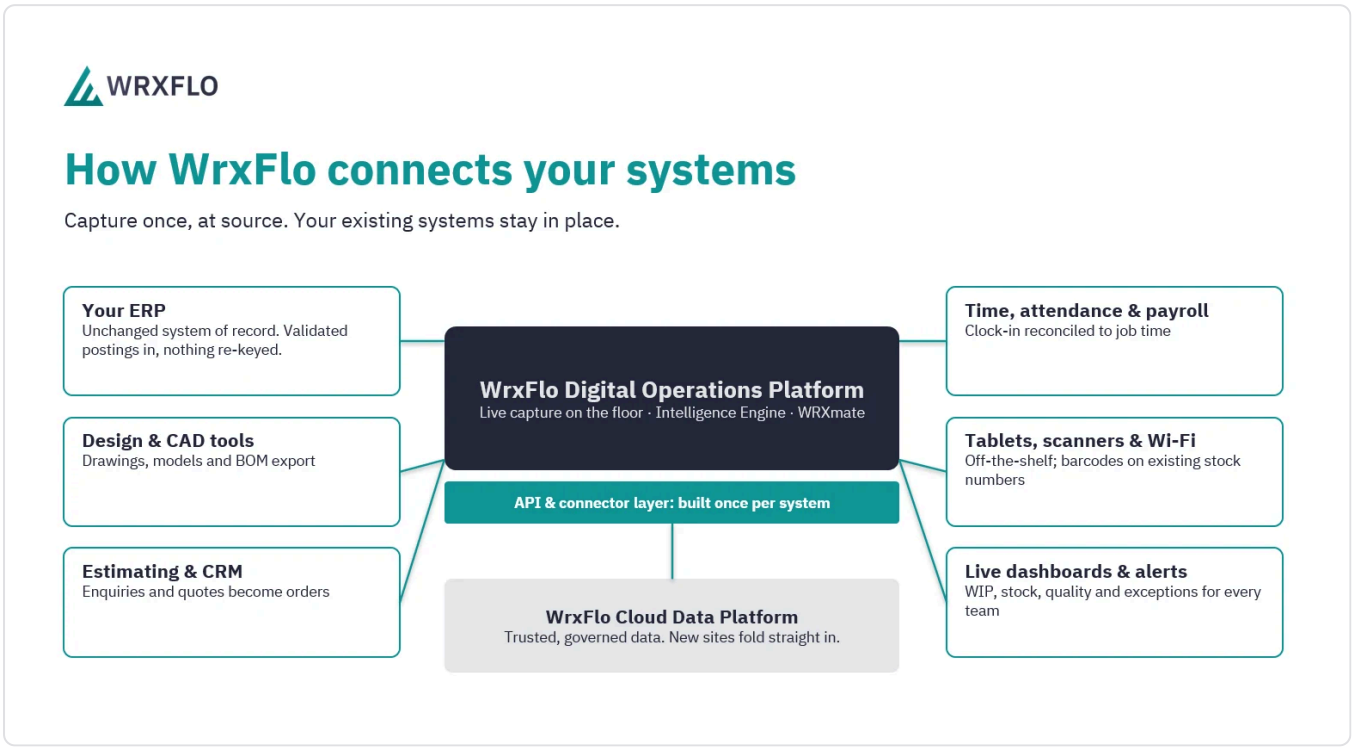
None of these are solved by a bigger factory or a faster machine. Adding capacity on top of disconnected information just produces the same delays at greater scale.

What a connected modular factory looks like

The answer is not another standalone system. Most modular manufacturers already have an ERP, design tools and a planning method that broadly work. What they lack is one live operational picture that links them. That is what we built WrxFlo to provide: an orchestration layer that connects ERP, people, machines and processes without ripping anything out.

How WrxFlo closes the software gap

The rule is simple: capture each piece of data once, at source, and leave your existing systems in place.



Your ERP stays put

It remains the system of record. WrxFlo sends validated postings into it, so nothing is re-keyed.

Design and CAD tools

Drawings, models and BOM exports flow straight to the floor.

Estimating and CRM

Enquiries and quotes become production orders without retyping.

Time, attendance and payroll

Clock-ins are reconciled to job time, which removes the timesheet errors that cost crews and trust.

Tablets, scanners and Wi-Fi

Off-the-shelf hardware, with barcodes on your existing stock numbers.

Live dashboards and alerts

WIP, stock, quality and exceptions, visible to every team as they happen.

At the centre, the WrxFlo Digital Operations Platform handles live capture on the floor, alongside our Intelligence Engine and WRXmate. Each connector is built once per system, then reused. Underneath, the WrxFlo Cloud Data Platform keeps data trusted and governed, so a new site folds straight in.

Strategy before technology

Most digital projects fail because they start with a tool, not an operational strategy. You don’t need more data. You need more intelligence from the data you already create. Our framework runs in four steps, and the order matters.

1

Define the vision

Link operational bottlenecks to measurable goals.

2

Identify the critical data

Across design, factory, site and supply chain.

3

Build a phased roadmap

Quick wins first, scaling to a fully connected factory.

4

Engage the people

Factory teams, installers and partners use it every day.

Step one is the one most factories skip. Start with the bottlenecks that cost you margin today, write down the number that would prove each one is fixed, then ask what data produces that number automatically.

Bottleneck	Measurable goal	Data you need
Modules leave late and the site waits	On-time delivery by project	Job status by stage, schedule adherence, live alerts on slippage
Design holds up the factory	Design lead time; drawings released to plan	Work in and out of design, change approvals, design freeze checklist
Materials aren’t where they’re needed	Material availability; stock accuracy	Live stock by location, PO status, supplier on-time delivery, shortages
Labour cost is only known at payroll	Actual versus standard time	Clock-in, start and finish per job, hold and downtime reasons

Bottleneck	Measurable goal	Data you need
Quality problems found on site	First-time-right; snags per project	Digital inspection points, NCRs with photos, site sign-off

Almost none of that data is new. It already exists on paper, in Excel or in someone's head. If a goal can't be measured from data the factory already creates, it isn't a goal yet. It's a wish.

Quick wins first, AI last

Each phase delivers its own results before the next one starts, which means faster wins, less risk and better adoption.

1. **Sales and KPIs**
   Capture demand clearly and automate the board report.
2. **One contained area**
   Job tracking, quality and digital timesheets in a single department.
3. **Full production**
   Tracking across the plant and first scheduling insights.
4. **Warehouse**
   Real-time material tracking and digital picking.
5. **BOMs, MRP and procurement**
   Accurate stock drives automated planning and buying.
6. **Finance and job costing**
   Close the loop between operations and the numbers.
7. **AI at scale**
   Scheduling, forecasting, quoting and assistants, running on clean data.

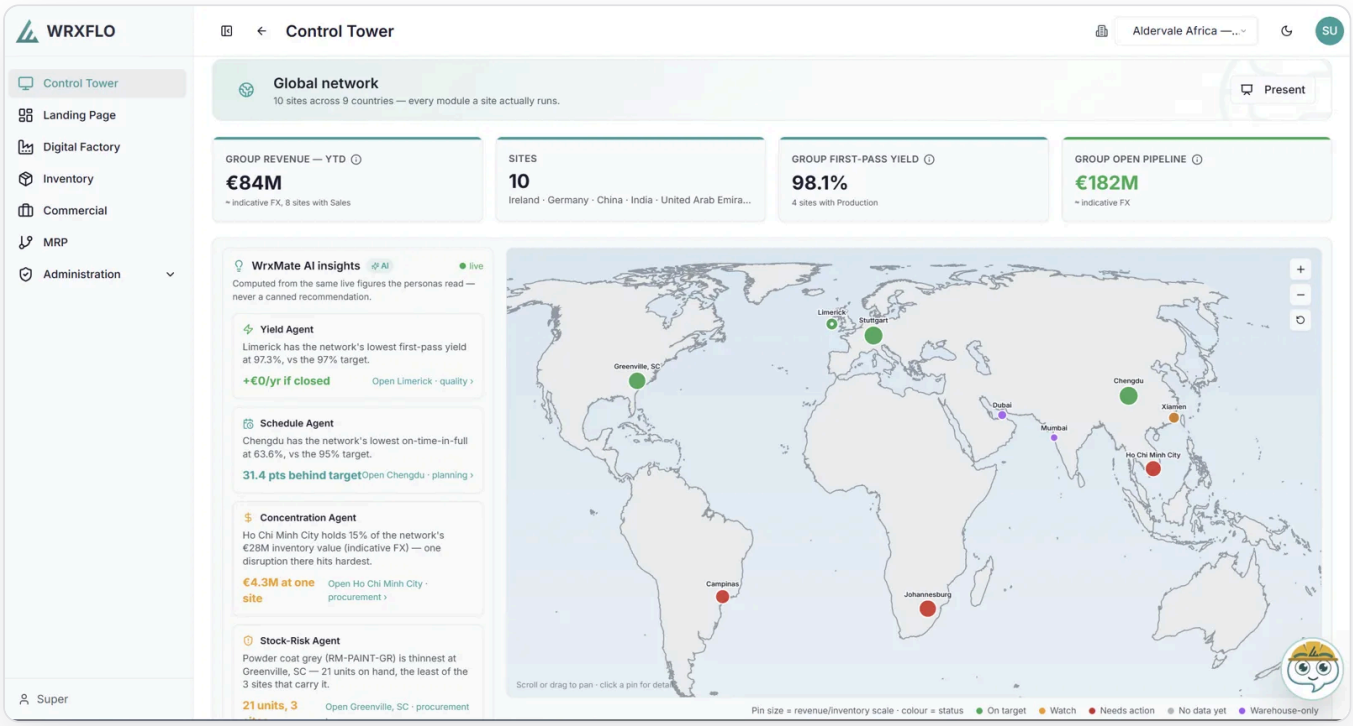
Warehouse comes before MRP because MRP is only as good as your stock accuracy. And AI comes last, because AI on bad data just makes faster bad decisions. The first phases typically go live in about 90 days, without replacing core systems.

The principle underneath is People, Process, Technology, in that order. Software only sticks when it matches how people actually work, so operators help design the screens they use.

One view across every factory

Our founders learned this running Dell's global manufacturing network. WrxFlo CEO Tim Crowe ran global engineering there, set up the Limerick and Poland factories and led the Chengdu factory setup. A network of plants on three continents only works when every site runs on the same data.

Modular is heading the same way. Growing operators are adding a second factory, a regional hub, a new product line or a fleet of install crews, often in another country. Because WrxFlo keeps data in a governed layer rather than inside the ERP, each new factory, hub, installer or even a future ERP folds straight into the same data model. Nothing is rebuilt.



The Control Tower's global network view: 10 sites across 9 countries on one map, with WrxMate AI agents flagging the yield, schedule and stock risks that need attention. Demo data.

For the leadership team, that becomes the Control Tower: group, factory, line and job on the same live data, so the numbers agree before the meeting starts.

WrxFlo Control Tower

Group view · 3 factories · 2 site teams · Week 42

LIVE

On-time delivery	Modules in WIP	Capacity used
91%	318	84%
+4 pts	vs plan 322	of standard hours

Material shortages	Labour productivity
7	1.08
3 critical	actual vs standard

Factory 1, North

Volumetric modules

OTD	94%
WIP	126
Shortages	1
Quality holds	2

Factory 2, Midlands

Panels and pods

OTD	87%
WIP	142
Shortages	5
Quality holds	4

Factory 3, Netherlands

Timber frame

OTD	93%
WIP	50
Shortages	1
Quality holds	0

Site teams

2 crews, 6 live projects

Installs on plan	5 of 6
Open snags	11
Deliveries today	4
Sign-offs due	2

EXCEPTIONS THIS MORNING

- Factory 2: cladding brackets short for project HL-114, 3 modules at risk of slipping Friday delivery. Owner: Purchasing. Alternative supplier quoted.
- Factory 2: 4 quality holds on pod line 2, same fault code twice. Owner: Production manager. Root cause review booked 14:00.
- Site teams: 2 sign-offs overdue on project RD-203, 11 open snags, 6 awaiting client. Owner: Site lead.

Illustrative data

Drill down in three clicks
From the group number to the factory, the line, the job and the person who logged it.

Exceptions find you
Slippage, shortages and quality holds are escalated automatically, with the owner already named.

Ask it a question
An AI assistant answers from the connected systems: which projects are at risk this week, and why.

Decisions, not discovery
The Monday meeting is about what to do next, not finding out what happened.

Proof from the factory floor

Thurston Group: four sites, one live picture

Thurston Group, an offsite manufacturer in Yorkshire, was growing faster than its paper-based reporting could keep up with. It chose WrxFlo to capture live production data while keeping its existing ERP. The rollout started with digital job tracking, quality checks and timesheets, and employees tested and shaped the interfaces in phased trials. Thurston invested £250,000, including a new sub-assembly area with digital displays aligned to machine operations. WrxFlo now runs Thurston's process from lead management and design through material planning, production, quality, logistics and siteworks.

Matt Goff, Thurston's Group Managing Director, started from a familiar place: he wanted to double the business, but paper processes were already breaking. Stock was never accurate and MRP runs were wrong. Manual timesheets risked payroll errors that could drive crews off site. Automating timesheets and procurement gave his team back hours and the headroom to grow.

+25% Productivity	**+27%** On-time delivery	**−22%** Defect rate	**−18%** Module cycle time
−14% Material waste	**85%** Production data captured digitally	**1,000+** Admin hours saved per year	**Live** Reporting, down from days

> “The improvements WrxFlo have helped us to unlock, process standardisation, operational efficiency gains and cultural shifts on the shopfloor, have been astounding.”
>
> Matt Goff, Group Managing Director, Thurston Group

Results reported by Thurston.

The point I’d draw from Thurston is the order of work. They fixed data discipline and adoption first, and the productivity followed. Phase 2 now builds on that base with automation, predictive maintenance and AI-led forecasting.

Framespace: traceability built into LGS production

Framespace designs and manufactures light gauge steel panelised and volumetric systems in Longford. It runs factory production control on WrxFlo alongside Autodesk Construction Cloud as its common data environment. On the floor that means:

- the latest drawings and manufacturing information available to operators in real time;
- factory quality checks recorded in WrxFlo, with a quality passport for every panel;
- material consumption tracked so every profile made in the plant is fully traceable;
- project scheduling and planning held in the same platform.

That level of control matters when the stakes are high. Framespace’s 166-unit emergency modular housing project for Sisk and the OPW saw some homes manufactured and occupied within four months. In 2024 it also earned NSAI’s first MMC ancillary certification for a panelised LGS building.

What modular leaders tell us

WrxFlo’s modular clients stretch from Ireland to China, including CIMC Modular Building Systems, CSCEC, Hangxiao Steel Structure, Deep Blue Smarthouse and Atlantic Modular System. Their leaders describe the same starting point I see in plants today.

Terry Madden, business partner at a modular manufacturer

He found full ERP and MES suites too costly and too broad. WrxFlo configured procurement, warehouse, planning, scheduling, manufacturing and shipping around how his business actually works, with users shaping the screens.

Kieran McNamara, COO at a global modular manufacturer

He struggled with conflicting information from multiple systems. Once WrxFlo unified them, he says, he could run the business “with efficiency and confidence.”

Sean O’Callaghan, Finance Director, Cygnum

He called the project a huge leap forward on the company’s digital journey.

Across our customers

The pattern repeats across WrxFlo customers: up to 90% improvement in on-time delivery, productivity up 25% or more, 30% more capacity from existing people and machines, and 40% less administrative effort. In a tight labour market, that third number is the one that funds everything else.

The approach itself comes from mainstream manufacturing. Across WrxFlo clients in other sectors, we have seen manufacturing capacity rise by 40%, overdue orders fall by 98% and on-site paper use fall by 99%. Modular is now catching up with lessons other industries have already paid for.

Three questions to ask this week

1. Can you see, right now, which modules are behind and why?
2. When a defect is found, how long does it take to trace it to its source?
3. If you added a second shift tomorrow, would your information keep up?

If any answer makes you hesitate, that is where your hidden capacity is. Book a factory assessment. We'll walk your floor, map your process and data flows, and hand you the bottleneck-to-goal table for your own factory. No obligation.

Prefer to start with a conversation? Take a 30-minute strategy call with your management team, and we'll work through your bottlenecks against your own numbers.

Book a factory assessment Or book a strategy call

The housing need won't wait. Neither should the factories built to meet it.

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About Martin Rees

Martin is Director of Sales for the UK and US at WrxFlo. He has spent more than 15 years helping manufacturing and engineering businesses get real value from technology. He started as an ERP consultant and has since led sales for manufacturing technology businesses, delivering digital transformation projects with manufacturers across the UK. At WrxFlo, he works with modular, offsite and wider manufacturing businesses to connect the systems they already run into one live view of production, materials and delivery.

WrxFlo was built by people who built and ran factories, including CEO Tim Crowe, who ran global engineering at Dell. Its platform is proven on the factory floor at Thurston, Cygnum, Framespace, Trojan Baths and Lufthansa, and WrxFlo is an associate member of the Modular Building Institute.