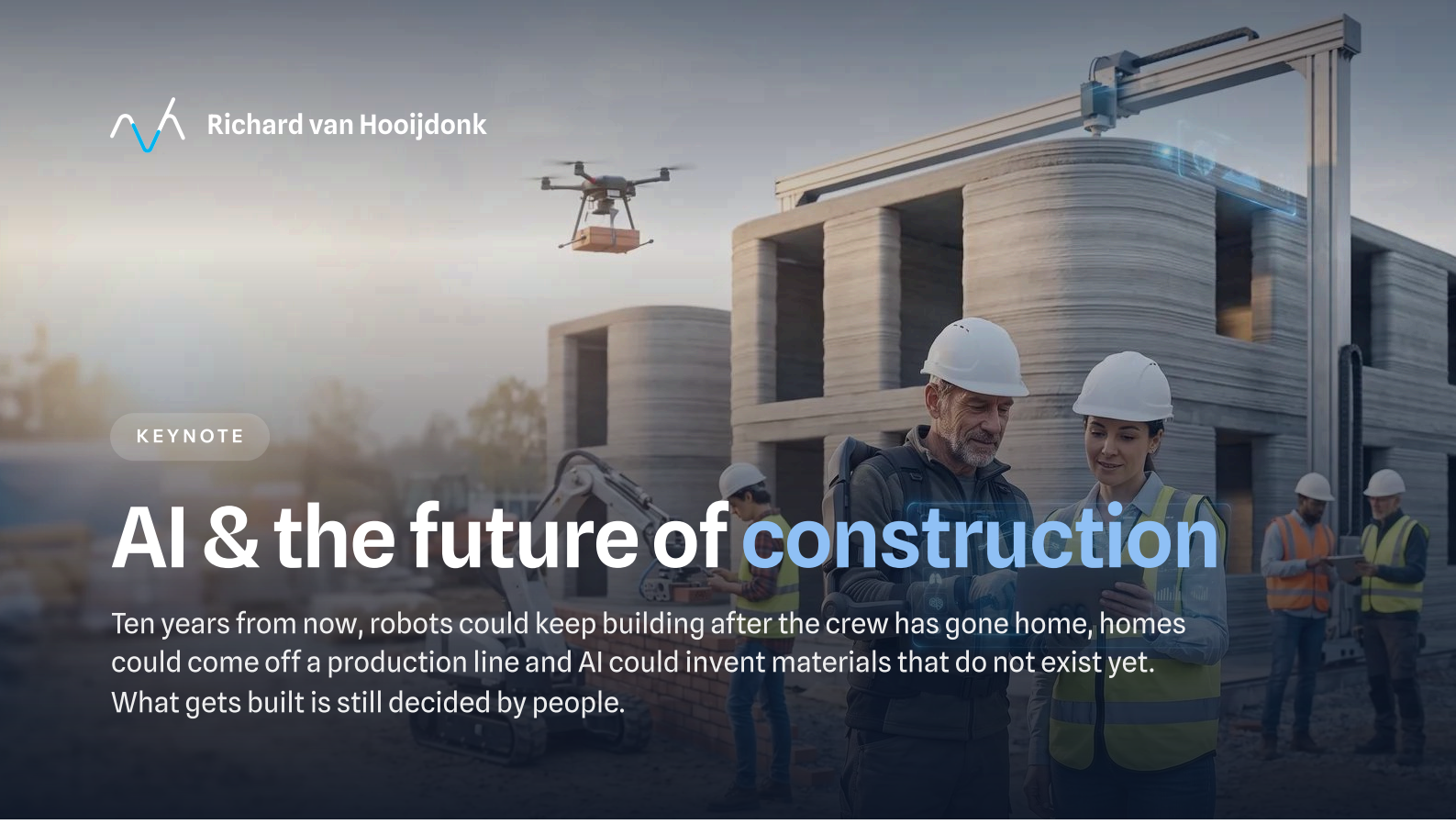


Richard van Hooijdonk

KEYNOTE

AI & the future of construction

Ten years from now, robots could keep building after the crew has gone home, homes could come off a production line and AI could invent materials that do not exist yet. What gets built is still decided by people.

More homes to build, ageing infrastructure and fewer skilled workers. How can AI and robotics help construction get more done with fewer people?

Trend watcher and futurist Richard van Hooijdonk looks at the technology already in use on building sites and at what is still coming. This keynote shows how AI and robotics are changing design, planning and building, and which possibilities will open up in the years ahead. AI has long been used well beyond the drawing office. It runs thousands of design options, reworks the programme after a week of rain, lays site camera footage over the building model and warns when someone walks too close to a slewing crane. Meanwhile, robots lay blocks and printers build walls layer by layer. Further ahead are sites that keep working after the crew has gone home, homes you order online and materials invented by AI. There is plenty of room to grow: according to McKinsey, construction productivity worldwide rose by about 10 per cent between 2000 and 2022, against 50 per cent for the economy as a whole. The hardest change is often not technical. It is about who does which work, how client, main contractor and subcontractors work together, and which investments a board is willing to make. In the keynote you see what works now, what is being trialled and which scenarios lie five to fifteen years out. AI and robots can bring relief first where things get stuck: on site, in the office or between the companies in the chain.



RICHARD VAN HOOIJDONK

Richard van Hooijdonk is a trend watcher, futurist and international keynote speaker. Many trend watchers and futurists look at the future from a distance. Richard van Hooijdonk lives in it. His team consists of people and AI agents, and he has several chips implanted in his body. He speaks about AI and new technology, the organisation of the future and leadership in the AI era. He takes you into a future you can barely picture today, and shows how you can steer it yourself.

3,000+	650,000+	30+	Bestselling
keynotes	participants	countries	author

What the keynote covers

NOW AI in construction

What AI already does at the drawing board, in preconstruction and on site.



01 Generative design

AI produces thousands of design options and tests them for daylight, cost and CO_2. In time, it will model housing, water, heat and energy in one go.



02 AI that plans the project

Planners let AI build the programme and rework it after rain, delays or a late delivery, showing the effect on the completion date.



03 AI agents in estimating and buying

IN PILOTS

AI agents read specifications and drawings, draw up estimates and request quotes. Soon they will agree lead times and prices with suppliers' agents.



04 Quality checks with cameras

Cameras, drones and 360-degree images compare the build with the model and spot deviations before they are boarded over.



05 Safer building sites

AI spots unsafe situations in camera images, such as missing fall protection or someone inside a crane's slewing radius.



06 Surveying with drones and scans

Drones and laser scanners capture a site or existing building in 3D. AI helps recognise its parts and turn them into a building model.



07 Checking building rules with AI

IN PILOTS

AI helps search building regulations and checks drawings and applications for completeness and compliance before they are submitted.



08 Carbon per project

IN PILOTS

Project by project, AI helps calculate the emissions of materials, transport and plant, and compares design options.



09 Construction robots

Robots lay bricks, drill and weld, and on some projects excavators dig on their own. AI teaches them to cope with a messy site.



10 Homes from the 3D printer

Printers build walls and structural parts layer by layer. In trials, AI monitors the shape and adjusts the printing process.



11 The digital twin of a building

The building model plus sensor data becomes a digital twin. AI fine-tunes the building services and flags maintenance before anything breaks down.

COMING NEXT The future of construction

Where construction could be in five to fifteen years, with AI as the engine.



12 The autonomous building site

FUTURE SCENARIO

Around 2040, robots and machines could keep building as one fleet after the crew goes home. AI divides the work from the building model.



13 Sketch to permit in days

FUTURE SCENARIO

Design, rule check, estimate and production order in one continuous flow. Around 2040, a permit could take days rather than months.



14 Ordering a home online

FUTURE SCENARIO

Around 2040, you could order a made-to-measure home online. AI adapts the design, and a factory builds the parts for fast assembly.



15 The humanoid on site

FUTURE SCENARIO

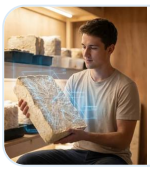
Robots with arms and legs are already on trial in factories. Around 2040, they could lift, fit and finish on the scaffolding.



16 Materials invented by AI

FUTURE SCENARIO

AI searches millions of compositions for binders without conventional cement and concrete that locks in CO_2. Builders rethink their raw materials.



17 Living building materials

FUTURE SCENARIO

Concrete that seals its own cracks, panels shaped by fungal threads. Towards 2040, a façade could partly maintain itself.



18 Self-repairing infrastructure

FUTURE SCENARIO

Asphalt that melts its cracks shut, concrete that measures its own stress, robots in the bridge. Around 2040, roads could partly repair themselves.



19 Renovating a street in a week

FUTURE SCENARIO

A drone scans the neighbourhood, AI designs each home, robots make the façades. Around 2040, a whole street could get a new shell in a week.



20 Building on the Moon

FUTURE SCENARIO

Space agencies want to build with lunar dust in the 2030s, using robots and AI. What works there could change how we build on Earth.

PEOPLE & ORGANISATION

The construction company of the future

What AI asks of roles, teams, leaders and culture in construction.



21 The AI-first organisation

Robots, AI agents and AI do repetitive work and make forecasts. Skilled people assess the situation and solve problems on site.



22 New roles in construction

Fleet directors, robot trainers and materials designers working with AI: roles still rare in construction that could grow in the years ahead.



23 People and AI on site

The AI agent prepares the programme and orders, the planner checks, the site manager solves what no programme foresaw.



24 Leadership in construction

Construction leaders take the initiative on AI and new technology, and get their people shaping tomorrow's construction together.



25 Culture and behaviour on site

On a building site, experience counts. Change succeeds when the tradesperson finds that a new tool helps rather than checks up on them.



26 The future academy

Construction companies train their own people. In a future academy, they learn to work with AI and new technology on their own projects.



27 An ecosystem for the future

Big challenges call for collaboration. Start-ups, scientists, partners and governments tackle them together, across borders too.

THE OTHER SIDE

The other side: responsibility and risk

Data, liability and the criminals who know the construction chain too.



28 Data as the foundation

AI can only work across departments when their data is available, reliable and connected. That is the foundation for AI across a construction company.



29 Who signs off the calculation?

Responsibility for a calculation does not pass to AI. Who is liable for a mistake depends on legislation, contracts and the cause.



30 Crime in construction

Ransomware that halts projects, hacked building systems, phishing with cloned voices: AI makes life easier for criminals in construction.

DURATION
30, 45, 60 minutes or longer, with time for questions

LANGUAGE
Dutch or English

FORMAT
On location or online

FEE
On request

PLUS

"Richard succeeded excellently in waking up our leaders and setting them on the path to the future: after the lecture, discussions took place across various parts of the organisation about the topics covered, and initiatives have been set in motion."

Aart van Haren Managing director, PLUS

Deloitte.

"A dazzling journey through new technology. The enthusiasm and energy during his presentation, combined with the visuals, provided a successful kick-off to our event."

Patrick Steemers Partner, Deloitte

Interested in a keynote for your construction event?

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