

# ONSIGHT



## THE PREDICTIONS ISSUE

WHAT TODAY'S DATA-DRIVEN DECISION  
MAKERS EXPECT FOR THE CONSTRUCTION  
INDUSTRY OF TOMORROW

PROJECTION  
REPORT 2026:  
HOW BIM CHAMPIONS  
ENVISION THE FUTURE

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5 HARD TRUTHS  
THE INDUSTRY  
NEEDS TO HEAR

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# A body with no nervous system still has all its organs

We know how to build. We've been doing it for thousands of years. The Pantheon. The Hagia Sophia. The Burj Khalifa. Construction is, by most measures, the largest industry on earth.

And somehow, we still can't guarantee to get a building delivered on time and on budget.

The reasons are not due to a lack of effort or talent. The architects are brilliant. The engineers are meticulous. The contractors are experienced. The project managers are working 72-hour weeks.

But the architect's model doesn't talk to the contractor's schedule. The contractor's schedule doesn't talk to the cost manager's spreadsheet. The cost manager's spreadsheet doesn't talk to anyone, because it lives in someone's inbox and that person is currently on holiday.

We have all the organs. We just don't have a nervous system.

**Having access to the correct data at the correct moment isn't a competitive advantage. It's the difference between a project that breathes and one that slowly bleeds out.**

In medicine, there is a word for the moment when a patient's data - the vitals - stop flowing accurately. When the readings are wrong, delayed, or missing entirely, the patient stops getting better and starts getting worse.

The same is true of construction projects. The moment decisions are made on outdated information, on gut feeling rather than data, on a version of the model that is technically the right one but practically the wrong one... That is the moment the project starts dying. It simply doesn't know it yet.

The industry has known this for years. Study after study confirms it. Design-construction handoff friction. Siloed BIM data. Teams working from different versions of truth.

We nod along at conferences, then go back to our spreadsheets. At least the spreadsheets are familiar.

But the tools now exist to connect all of it. The model to the schedule. The schedule to the cost. The cost to the decision. In real time. Across teams, disciplines, and the full lifecycle of a project. This isn't a utopian fantasy. It is, in fact, quite unglamorous. It is plumbing. But unglamorous plumbing is exactly what makes everything else work.

A construction project with connected data makes better decisions, faster. It sees problems before they become delays. It turns disconnected professionals into something that actually functions like an organism. Something vital.

VITUS connects your project data across design, construction and operation - so the right people have the right information to make the right decisions in real-time. Like a body's nervous system. And just as vital.



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# ONSIGHT

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## FROM DIGITAL AMBITION TO COMPETITIVE ADVANTAGE

More than a decade into the industry's digital transformation, we find ourselves at an interesting inflection point. The tools are in place. BIM has become the baseline. And yet, what came back from surveying 100 construction & BIM professionals was a story of transition.

Data confidence sits at 6.7 out of 10. Two-thirds of respondents still feel friction between design and construction handoff. These numbers tell us something important: we are still in transition, but its nature has changed.

The first wave was about digitising the drawing. The next is about digitising the decision. What sets organisations apart is how tools are integrated, whether data is structured, whether learning is retained, whether experience accumulates across projects. Digital maturity is a structural capability and a competitive advantage, and that is why digitalisation must live inside the leadership room.

The rise of AI makes all this even more pressing. It will accelerate outcomes for companies that have built consistent data structures, and expose the fragility of those that rely on scattered, siloed information.

This issue of ONSIGHT explores that territory, through survey data and the perspectives of leaders navigating it in practice. I hope it challenges your thinking as much as it did ours.

**CASPER GULLACH**, Editor in Chief & COO of Vitus

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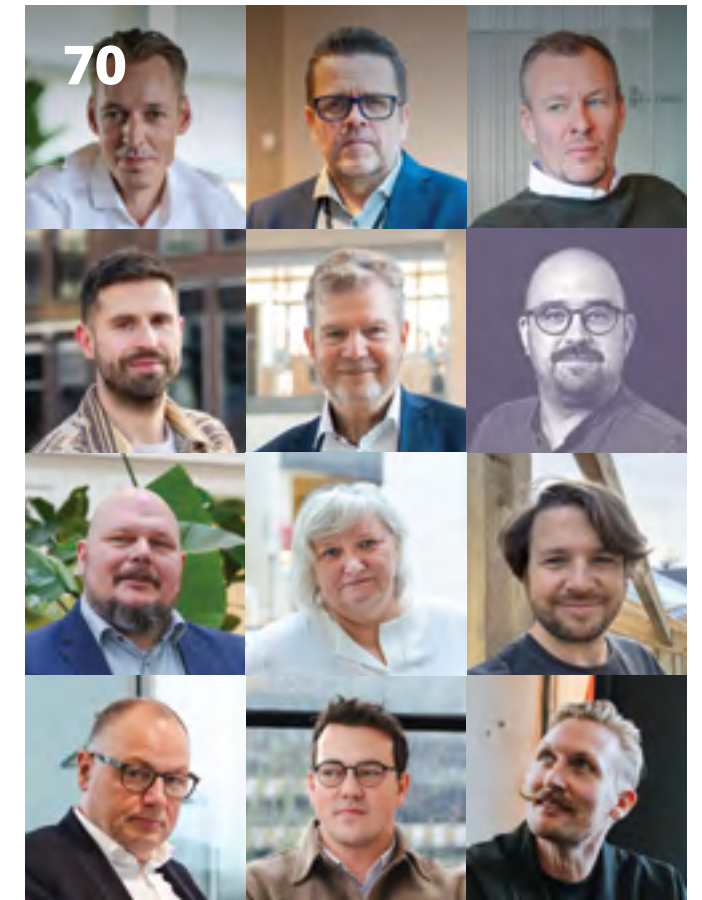
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# ARCHITECTURE MUST REDISCOVER ITS PURPOSE

Architecture has always lived in the space between culture and technology. For Aksel Alvarez, that space is not theoretical. It is something he has lived through across countries, systems, and radically different building cultures.



Celsius, Uppsala.  
Photo & copyright:  
Åke E:son Lindman

All photos:  
Courtesy of White Arkitekter

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**“ARCHITECTURE IS NOT LOSING RELEVANCE. IT IS REDISCOVERING RESPONSIBILITY.”**

Born and trained as an architect in Venezuela, he began his career in a context where resources were limited and improvisation was part of everyday practice. After five years in professional practice, he moved to Germany, where precision, engineering culture, and technical rigor reshaped his understanding of how buildings are conceived and delivered. Since 2016, he has worked in Sweden at White Arkitekter, one of Scandinavia’s most sustainability-driven firms, where he now operates at the intersection of Total BIM, climate data, and circular construction. This geographical and professional journey has shaped not only how he designs, but how he understands the role of architecture itself.

“Today, everyone calls themselves something new. Digital specialist, computational designer, technologist. But all these roles drift away from what architecture is actually about” he says. For him, architecture’s essence has never been the drawing itself, but rather the capacity to interpret society, balance competing interests, and bring coherence to complex conditions. “Architecture is less about visual expression and more about coordination.” he adds.

**A PROFESSION SEARCHING FOR ITS CENTER**

From inside a large international practice like White Arkitekter, Aksel sees clearly how the title “architect” has been stretched thin. New digital roles carve

the profession into fragments. Simulation experts here, parametric designers there, modelers somewhere else. Many of these roles now sit far from the societal responsibility that once defined architectural work.

He does not blame the shift. The tools are powerful, and the building industry depends on them. But he worries about what disappears in the process.

“In many studios, the digitally literate migrate toward performance and simulation, while others drift toward form-making,” he explains. “The middle ground, the space where architects once connected technology, culture, and meaning, is dissolving.”

From his BIM leadership role, he sees how easily technology becomes an end in itself rather than a means. Architecture, in his view, should remain deeply technological, but never technocratic. Technology must inform judgement, not replace it.

**ARCHITECTURE HAS REINVENTED ITSELF BEFORE**

To understand the present, Aksel often turns to history. He points out that the very concept of a “project”, taken from the latin “prōicere”, meaning to throw forward, emerged in Italy during the Renaissance. It marked the moment when architects moved away from secrecy and guild control. Knowledge became visible through drawings, perspectives, and shared representations. Designs could finally be communicated, discussed, challenged, and

Hubben, Uppsala.  
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Lumi, Uppsala.  
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Photography AB



Neu Medizinisches  
Klinikum Tübingen.  
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Lumi, Uppsala.  
Photo: Måns Berg  
Photography AB

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## WHAT AN ARCHITECT DOES IS ORCHESTRATE, NOT DECORATE.

reproduced. Mathematics, geometry, and new tools transformed how cities and buildings were imagined.

“But we are now reaching a similar breakpoint,” he says. “The technologies we rely on no longer hold the profession together. They fragment it.”

Just as earlier technological shifts redefined architecture, today’s digital infrastructure is forcing another redefinition. For Aksel, the question is not whether architects will survive, but whether they will recover their societal purpose inside a highly engineered industry.

### FROM OBJECT-MAKERS TO CONTEXT SHAPERS

One of Aksel’s strongest convictions is that architects

must stop thinking of buildings as isolated artifacts. Urban life, ecosystems, infrastructure, and climate are now too intertwined for that way of working.

“We are designing within systems that are already alive,” he says. “Trees, rocks, people, water, logistics, politics. Everything interacts.”

At White Arkitekter, where sustainability, circularity, and climate performance are embedded into nearly every project, this way of thinking has become operational. The work is no longer only about how a building looks or functions, but about how it behaves within a broader living system.

“Designing biodiversity strategies, climate-responsive

spaces, or adaptive reuse is not an add-on,” he says. “It is increasingly the core of the work.”

Architecture, in this sense, becomes less about form and more about consequence.

### ARCHITECTURE MUST STAY LARGER THAN ITS SOFTWARES

Aksel is deeply embedded in the digital ecosystem. He works daily with BIM environments, simulation tools, data platforms, and AI-assisted workflows. He is also painfully familiar with the legacy of older software infrastructures that still shape today’s building industry.

Yet he remains cautious about what he calls technological determinism.

“I do not believe technology decides our future. Culture and society shape the tools we create. It is a two-way street.”

He has experimented with VR and AR for nearly a decade, from early Enscape-based experiences to on-site augmented reality setups. While he sees clear value in field-based tools that connect models to built reality, he rejects the idea that immersive visualization should replace thinking.

“If a device generates the vision for you, it stops you from imagining. Visualization is not the same as thought.”

AI, however, has found a quiet place in his daily work. He uses it for research, restructuring legacy code, and cleaning up

computational workflows. It is not spectacular, he says. But it is quietly reshaping how architectural labor is performed.

### A FUTURE BUILT ON CONSEQUENCES

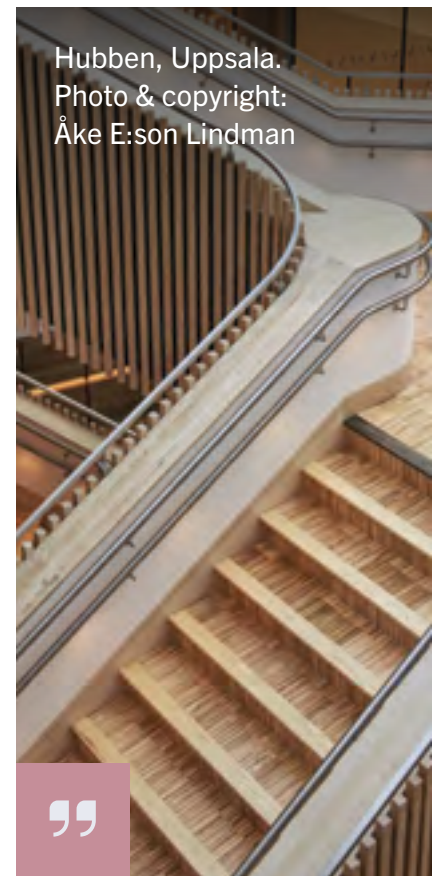
Where Aksel becomes most engaged is when he speaks about the future of the profession. He imagines an architectural practice where decisions are made with full awareness of long-term impacts, not only on climate, but on social structures, material cycles, and cultural life.

He envisions a profession where architects reclaim their role as synthesizers. People who connect environmental data, human behavior, structural logic, and economic constraints into one coherent direction.

“In ten years, we may look back and say: I cannot believe we once worked that way,” he predicts. Not because buildings will look radically different, but because the thinking behind them will.

For Aksel, architecture is not losing relevance - it is rediscovering responsibility. Moving away from isolated authorship and toward societal stewardship. Blending technical literacy with cultural understanding. Recognizing that design is not only a creative act, but an ecological one.

“Architecture cannot remain a profession of isolated intentions,” he concludes. “It must become a practice of connected realities.” ■



Hubben, Uppsala.  
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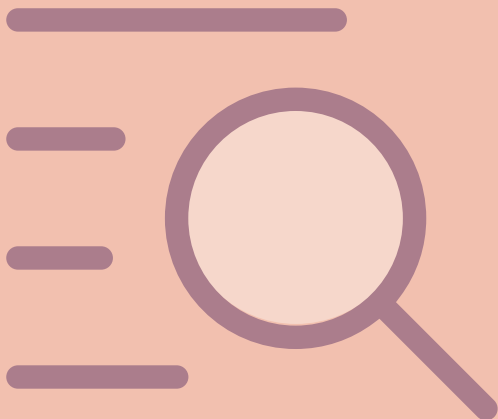
## “TECHNOLOGY MUST INFORM JUDGEMENT, NOT REPLACE IT.”



# THE STATE OF DATA, AI & DIGITAL TRANSFORMATION IN CONSTRUCTION

# ONSIGHT PROJECTION 2026

## THE STATE OF DATA, AI & DIGITAL TRANSFORMATION IN CONSTRUCTION



The ONSIGHT Projection 2026 survey captures the perspectives of 100 BIM managers, VDC leads, and construction professionals across Europe.

The findings reveal an industry in transition - neither fully analog nor truly digital - grappling with foundational challenges while looking toward an AI-enabled future.

### WHO RESPONDED

The survey collected responses between November 2025 and January 2026.

The respondent profile skews toward BIM specialists and VDC leads - professionals who sit at the intersection of technology and project delivery.

Geographic representation spans 19 countries, with Nordic nations forming the core: Denmark (28%), Germany (12%), Sweden (8%) and Norway (6%). Netherlands (10%), Switzerland (6%), Austria (5%), Italy and France (4%) provide continental European perspectives.

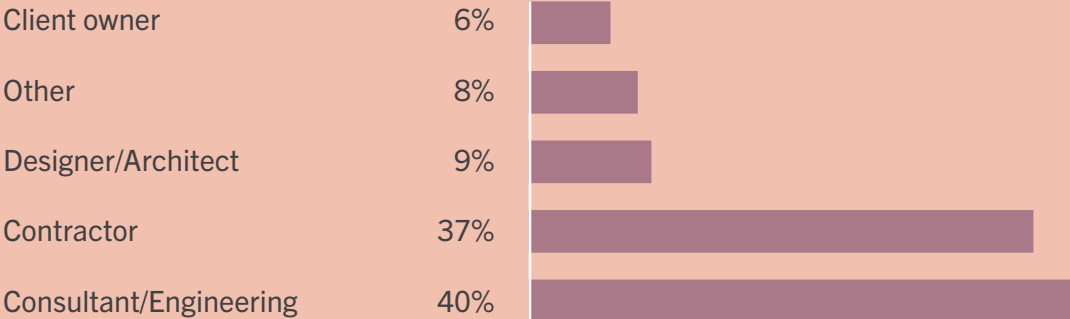
Project budgets distribute broadly: 23% work on mega-projects (€500M+) and 48% on projects between €10M and €500M.

This range ensures insights reflect both complex, large-scale implementations and typical mid-market realities.

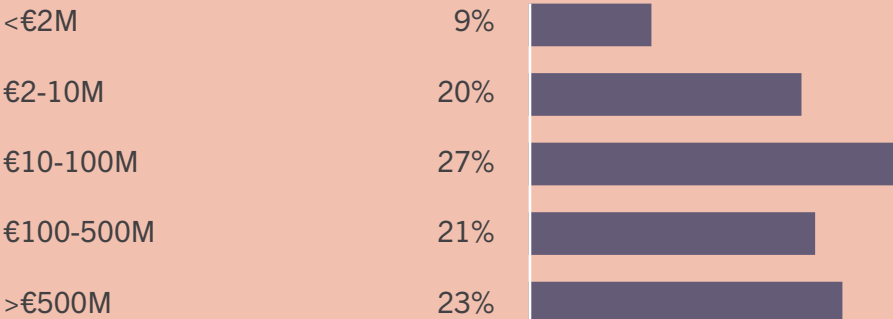
### RESPONDENTS BY ROLE



### BY ORGANIZATION TYPE



### BY PROJECT BUDGET



# KEY TAKEAWAYS



### THE INDUSTRY IS IN BETWEEN

These survey results paint a picture of an industry in transition: no longer analog, not yet truly digital. Most professionals use BIM tools daily, but data confidence hovers around 6.7/10.

AI is everywhere in the marketing but tentative in the projects. Advanced capabilities are technically feasible but organizationally challenging.



### INTEGRATION BEFORE INNOVATION

The survey reveals a clear priority: fix the foundations before building the penthouse.

Professionals want data integration, system interoperability, and reliable workflows more than they want AI, automation, or advanced analytics. Advanced capabilities built on shaky foundations deliver disappointing results.

The industry has learned this lesson repeatedly and is now prioritizing getting the basics right.



### THE PEOPLE PROBLEM PERSISTS

Many of the biggest challenges aren't technical but actually human. Resistance to digital workflows, lack of skills, cultural barriers, and misaligned incentives appear throughout the responses.

Technology vendors have largely solved the technical problems; the industry now faces the harder work of organizational change.



### PRAGMATIC OPTIMISM

Despite the challenges, a thread of pragmatic optimism runs through the responses. Professionals believe real-time sync will be standard by 2027.

They think automated progress tracking will become commonplace. They prioritize improvement over maintenance of the status quo.

The construction industry isn't waiting for a revolution. It is working through an evolution, one integration at a time, one standard at a time, one project at a time.

# 01

## THE STATE OF DATA CONFIDENCE

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**“WE HAVE COME A  
LONG WAY THE LAST  
COUPLE OF YEARS WITH  
STANDARDIZATION OF  
OUR DATA, BUT IT CAN  
ALWAYS GET BETTER”**

BIM Manager, Norway

# 01

## THE STATE OF DATA CONFIDENCE

ONSIGHT PROJECTION REPORT 2026



### 6.7/10

AVERAGE CONFIDENCE IN DATA CONSISTENCY

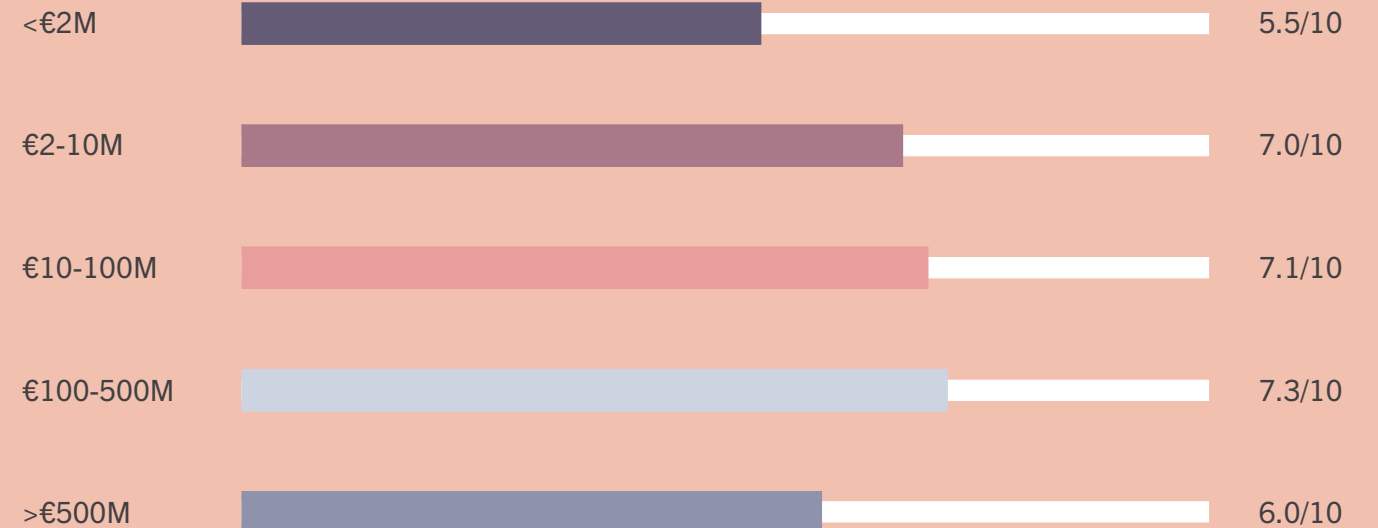
#### CROSS-ANALYSIS: WHERE CONFIDENCE BREAKS DOWN

The data reveals stark differences across project types. Metro and railway projects report the lowest confidence at 5.2/10 - likely reflecting the complexity of infrastructure coordination.

#### "WORKING WITH DATA IS NOT STANDARDISED AND THEREFORE VERY COMPLEX."

VDC Lead (confidence: 4/10), Germany

#### DATA CONFIDENCE BY BUDGET SIZE



### THE CONSTRUCTION INDUSTRY'S RELATIONSHIP WITH ITS DATA IS COMPLICATED.

When asked how confident they were that their project data - properties, quantities, parameters - remained consistent across systems, the average score landed at 6.7 out of 10. *Not catastrophic, but hardly reassuring.*

Energy projects lead at 6.9/10, possibly due to stricter regulatory requirements driving better data governance.

Perhaps most surprising: budget size doesn't correlate with confidence in a straightforward way.

Projects in the €100-500M range report higher confidence (7.3/10) than mega-projects over €500M (6.0/10).

Scale amplifies data management challenges rather than resolving them.

### POINT OF VIEW

#### 6.7/10 raises a simple question

A confidence score of 6.7 out of 10 suggests that data consistency cannot be assumed. Sometimes standards are missing. Sometimes they exist but are unevenly applied. In both cases, the result is variation. Mega-projects make this especially visible. Complexity does not create inconsistency, it reveals whether

governance holds under pressure. The more relevant question may be this:

Are data compliance procedures integrated into the schedule for BIM deliverables? If compliance is not part of the timeline, it becomes secondary. And secondary priorities rarely reach full confidence.

# DATA DOESN'T CARE ABOUT YOUR GUT FEELING

Lars Scheibel joined NCC as a site engineer in 1995. Three decades later, he serves as Country Manager of NCC Denmark and Director of NCC Building Denmark, overseeing a portfolio that contributed to NCC Building Nordics' record results in 2025. Along the way, he watched the industry move from paper drawings and faxed tender documents to BIM models and PowerBI dashboards. His conclusion after 30 years is not about which tool changed everything. It is about what tools are for.

## THE CASE FOR UNIFORMITY

NCC is one of the Nordic region's largest contractors. That scale, Lars argues, is only an advantage if you use it consistently.

"Why do it differently if you can do it the same?" he asks.

When every department follows the same processes and platforms, the gains multiply: onboarding becomes faster, knowledge transfer improves, governance tightens.

It is a philosophy at odds with how many construction companies operate. Across the industry, confidence in project data remains stubbornly low, not only because of technical gaps, but because of inconsistent ways of working. Lars sees standardisation as the antidote. "We're constantly working on making things more uniform," he says. "Systems, processes, programmes. If we agreed to do

it a certain way, then that's how we should do it."

## DECISIONS, NOT DASHBOARDS

Standardisation is not an end in itself but the foundation for something Lars cares about more: the quality of decisions. NCC's digital infrastructure spans the full breadth of operations: pipeline and tender management, safety reporting,



Photo: Nicklas Askling / PhoVi

Nicolinehus in Aarhus, Denmark  
Photo: Anette Roien  
Courtesy of NCC



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**"WE HAVE A STABLE STRATEGY THAT HAS BEEN IN PLACE FOR MANY YEARS: BE DATA-DRIVEN. EVERYTHING WE DECIDE MUST BE GROUNDED IN DATA, NOT GUT FEELINGS."**

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financial tracking, sustainability accounting. Lars uses PowerBI dashboards extensively, but he is careful to distinguish between reporting and decision-making.

"You're allowed to have personal experience. You're allowed to have a feeling," he says. "But then you look at the data. The data is where you find your knowledge. That's the fundamental premise for our decisions."

He offers a concrete example. Over the past few years, NCC Denmark's accident frequency has dropped significantly, partly through cultural change on sites, but equally through data. By analysing incident reports digitally, the team identified that a disproportionate number of accidents occurred on access routes. "You could see it in the

data," Lars explains. "So you invest your effort there. The data tells you where to act."

#### **THE PROGRESS TRACKING GAP**

But good decisions require good inputs, and there is one domain where Lars sees room for significant improvement across the industry. Ask him where the greatest unrealised potential lies, and his answer is immediate: progress tracking. Despite the extensive digitalisation of models, cost systems and safety platforms, measuring physical progress on site with high precision and real-time transparency remains an area with clear untapped potential.

"The industry should be able to tell a client: it will be ready on the 24th," he says. "Not just 'in

the spring.' And to say that with documented certainty - because the data supports it."

The ambition is not his alone. Across Europe, construction professionals increasingly expect real-time synchronisation between models and site to become standard within the next few years. Lars is pragmatic about the timeline but clear about the direction. "If you can track progress with precision and combine it with historical

undermines the progress tracking Lars is chasing: every uncontrolled change resets the clock on reliable forecasting.

"Digital tools help you implement changes faster," Lars acknowledges. "But you can't just move a lamp and forget to check what's behind the wall or above the ceiling. When you change something, you must change it consistently, 100% in the models, so you can see every consequence."

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## "DIGITALISATION HELPS DEFINE A CLEAR BASIS FOR DECISIONS, SO YOU CAN PRIORITISE YOUR EFFORTS. THE ERA OF USING GUT FEELINGS IS OVER."

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benchmarks, you don't just improve one site. You improve every future estimate. That's the scale advantage."

### THE CHANGE CULTURE PROBLEM

If data is Lars's ally, change is his adversary. Not digital change. Design change. The persistent habit of altering decisions mid-construction, even after formal lock points, remains one of the industry's most stubborn friction sources. And it directly

His solution is not technological. It is sequential: invest earlier. Front-load the process with competence and coordination so fewer problems survive into the construction phase.

"I am absolutely convinced it doesn't get more expensive," he says. "It prevents expensive problems later."

### GREEN ACCOUNTING AS A GOVERNANCE TOOL

The same logic of early investment and continuous

”



Photo: Nicklas Askling / PhoVi

tracking applies to an area where NCC sees digital maturity as a competitive advantage: sustainability. With building regulations tightening CO<sub>2</sub> thresholds at each revision, Lars describes green accounting as a parallel track alongside time and cost, that is monitored continuously and not calculated at the end.

"Imagine building a beautiful building and then not getting the keys because you exceeded your CO<sub>2</sub> ceiling," he says. "That's not hypothetical. If you don't track it throughout, including all the energy consumed on the building site, you risk exactly that."

### NOT AFRAID

Standardisation, data-driven decisions, progress tracking, front-loading, green accounting: it adds up to a single conviction: that construction can be governed. When asked whether he fears the pace of change, Lars is unequivocal. "Not at all. If you look back through history, every time people were afraid of a new technology, they absorbed it, adapted, and made it work. Radio. Television. Computers. The internet. Every single time, we navigated through it."

It is a fitting perspective from someone who has watched the industry move from handwritten schedules to AI-assisted design. Lars expects the next decade to bring automated excavation, robotic concrete construction, and compressed timelines.

But the principle stays the same: the tool serves the decision, never the other way around. ■

# 02

## WHERE DATA FRICTION OCCURS

”

**"BIM IS USED SELECTIVELY. ARCHITECTS RARELY PROMOTE BIM PROACTIVELY SINCE THE HOAI FEE STRUCTURE IN GERMANY DOES NOT ACCOUNT FOR THE ADDITIONAL BIM-RELATED EFFORT."**

VDC Lead, Germany

# 02

## WHERE DATA FRICTION OCCURS

ONSIGHT PROJECTION REPORT 2026

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### REPORT FRICTION BETWEEN DESIGN AND CONSTRUCTION TEAMS



**"DRAWINGS, MODELS AND BOQ DON'T MATCH."**

Consultant, Switzerland

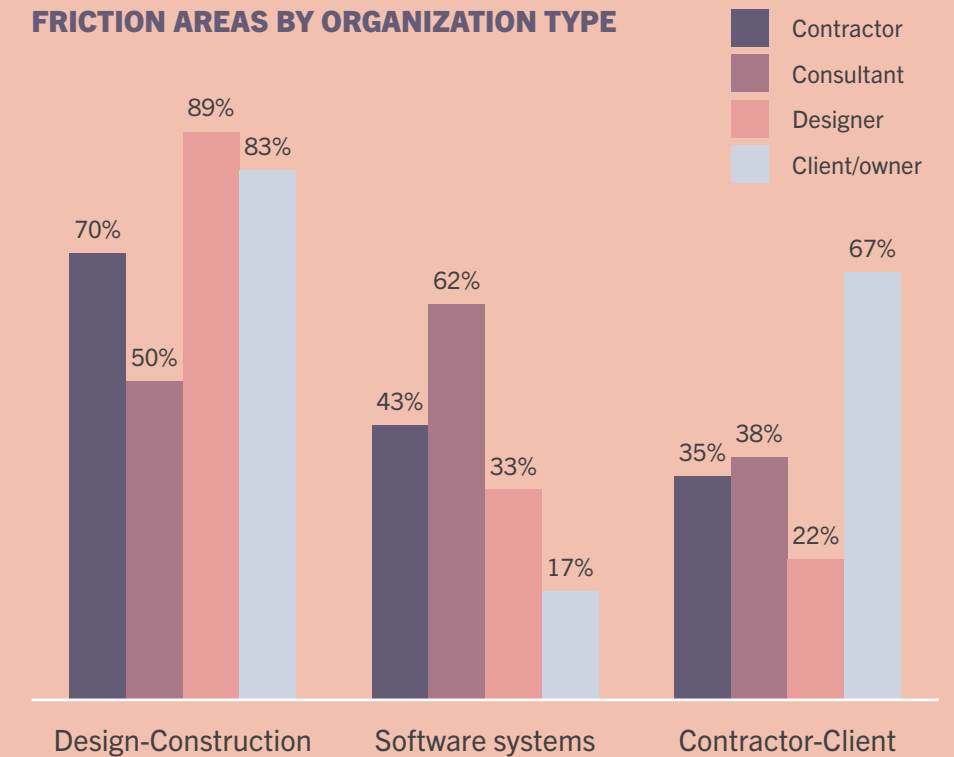
The pattern intensifies at the organizational level. A striking **89% of designer/architect respondents** report design-construction friction.

Client/owners follow at 83%, contractors at 70%, and consultants at 50%. Those with the broadest project oversight feel the handoff pain most acutely.

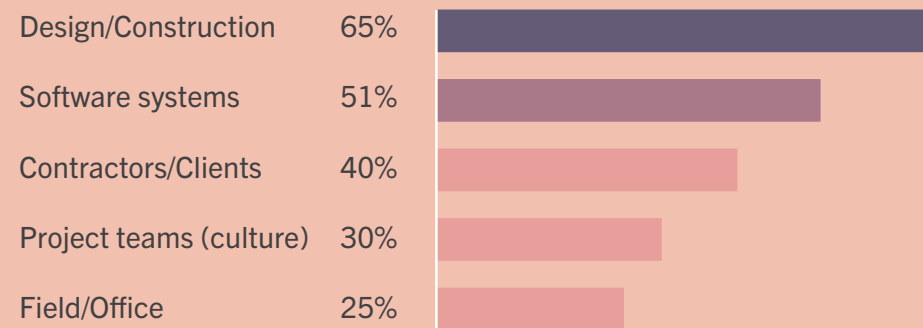
Consultants report software systems as their primary friction point (62%) - a reflection of their role bridging multiple platforms.

The friction follows function: *where you sit in the project determines what pain you feel.*

### FRICTION AREAS BY ORGANIZATION TYPE



### WHERE DATA FRICTION OCCURS MOST



If there's one place where data goes to die, it's the handoff from design to construction.

65% of respondents identified this interface as a major friction point, making it the single most problematic transition in the project lifecycle.

### POINT OF VIEW

*If friction keeps happening, why does it keep happening?*

65% report friction between design and construction. In this survey, 83% of client respondents experience it. Some of that friction comes from uneven QA. Some of it comes from requirements that can be interpreted differently.

But when the same issues appear at handover again and again, it is worth asking ourselves: are we clear enough about what is required, and why it is required?

And when data is incomplete or misaligned, does it lead to consequences for those responsible for delivering it?

# SOME BRIDGES YOU HAVE TO BUILD TWICE

Lars Fuhr Pedersen has built bridges, owned them, and now advises on some of the world's largest. That full-circle perspective shapes everything about how he reads data, risk and leadership in the infrastructure industry.

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**“THE BIGGER THE  
PROJECT, THE MORE  
RESPECT YOU HAVE  
FOR WHAT YOU DO  
NOT KNOW.”**

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Lars Fuhr Pedersen is Vice President, Heavy Civil Projects for Major Public Clients at COWI.

With 36 years of experience spanning contractor, technical director at Sund & Bælt, and senior adviser on major Danish and international infrastructure projects, he is one of the most experienced voices in Nordic civil engineering.



Photo: Nicklas Askling / PhoVi



**“WE HAVE TO BE FULLY ACCOUNTABLE FOR WHAT WE HAND OVER TO THE CLIENT. AI HELPS US GET THERE FASTER. IT DOES NOT TAKE THE RESPONSIBILITY AWAY.”**

In 1989, Lars Fuhr Pedersen drove to a construction site on the southern coast of Zealand and started his first day as an engineer on the Great Belt project. He was young, working for a joint venture with French, American and German partners, and the task in front of him was straightforward in ambition and enormous in scale: help build a fixed link across one of Europe's busiest shipping straits. Almost a decade later he was back on the water, this time mounting the superstructure of the Øresund High Bridge piece by piece.

He has stayed in that world ever since. Today, as Vice President, Heavy Civil Projects for Major Public Clients at COWI, Pedersen oversees a portfolio of 130 to

150 infrastructure projects across Denmark, Sweden and internationally. COWI is currently working on some of the world's most ambitious structures, including the Fehmarnbelt Fixed Link, set to become the world's longest immersed tunnel, and a recently won project on the Subway in New York City. The scale has grown considerably. The fundamental questions, he says, remain the same.

### **THREE ROLES, ONE INDUSTRY**

What sets Pedersen apart from many in senior advisory roles is that he has occupied every seat at the table. Twenty-five years as a contractor gave him an instinct for execution: budgets, buildability, what happens when

a weld fails or the weather turns against a schedule. Then, in 2015, he moved to become Technical Director at Sund & Bælt, the owner and operator of the Storebælt and Øresund connections, responsible for keeping infrastructure alive across decades rather than delivering it on a handover date. Three years ago, he made his latest transition, joining COWI as Vice President, Heavy Civil Projects for Major Public Clients.

That sequence was deliberate. He wanted to understand the full arc of a structure's life. As a contractor, you take part in the construction process and see the final structure. As an owner, you inherit the structure, and discover everything the construction

process did not prepare for the operations & maintenance.

The mechanical and electrical systems are buried in a bridge deck. The maintenance cost of a detail that looked acceptable on paper in 1994. The gap between design intent and operational reality, visible only after years of use. As an owner, Pedersen saw this firsthand, and it permanently changed how he reads a project at any stage. As a consultant on projects, he now brings all three lenses to every brief.

### **THE LONG TAIL OF EVERY DECISION**

The move to Sund & Bælt changed his relationship with data just as much as it changed his relationship with structures.

Working closely with large infrastructure owners such as Vejdirektoratet, Banedanmark and Metroselskabet, Pedersen was part of an owner community that was serious about using data to manage assets over time.

The question was always the same: what do we know, and is it reliable enough to act on?

His assessment, then and now, is that the industry's confidence in its own data has been lower than it could be. He connects this to something cultural. Engineers working on bridges and tunnels carry an acute awareness of consequence. A miscalculation is a physical reality, permanent and costly. That caution is a genuine strength, but it can also make

organisations slow to embrace new tools, AI included, with the confidence those tools deserve.

At COWI today, he uses drones and AI-assisted image recognition for structural inspection, reaching surfaces that were previously expensive and dangerous to access. He is enthusiastic about the capability and insists on pairing it with what he calls a healthy scepticism. AI platforms sometimes offer answers with more confidence than the evidence supports, and in an industry where structures must stand for a hundred years, that gap carries real weight.

### **KNOWLEDGE THAT OUTLASTS THE ENGINEER**

The question Pedersen returns



**“WHEN YOU DRIVE ACROSS STOREBÆLT AND THINK: HOW HARD CAN IT BE TO DO MAINTENANCE AND SWEEP THE ROAD - YOU HAVE NO IDEA WHAT IS UNDERNEATH THAT SURFACE.”**

to most readily is organisational: how do you turn a large portfolio of completed projects into a living source of intelligence for the next one? COWI has been involved in landmark structures for decades.

That accumulated knowledge exists, held in models, records and in the memory of engineers now approaching retirement. The challenge is making it systematically accessible rather than incidentally inherited.

He describes the current state of the industry in terms of silos. A typical project today runs a BIM model, a finite element model and an asset management model largely in parallel, with limited flow of information between them. Drone imagery generates a fourth layer. Each contains valuable knowledge. The opportunity, as he sees it, is to connect them, so that what a bridge teaches you about its own behaviour over forty years of operation feeds back into how you design the next one.

He is measured about timelines. Earlier in his career, in a mentoring role at MT Højgaard, he watched colleagues be too optimistic about the pace of transformation. His conviction about the direction, though, is firm.

The data processing capacity available today, combined with the scale of BIM and asset data being generated on major projects, has created conditions that were simply unavailable five years ago. The organisations that build the internal infrastructure to use that knowledge will be the

ones defining how this industry operates.

#### **THE SAME JOB, DONE DIFFERENTLY**

When asked whether his job will exist in ten years, Pedersen answers without hesitation. Engineering will be asked to do more, at a higher level. When welding robots arrived at the Great Belt tunnel element precast factory back in 1990, the prediction was displacement. What actually happened was that jobs were upskilled. People adapted, and the industry absorbed the technology on its own terms.

He expects something comparable ahead. Better data and more capable AI will free engineers to focus on the decisions that genuinely require human judgement: which risk matters, which trade-off to make, which solution holds up across a hundred-year lifespan.

The tool changes. The responsibility does not.

He has four sons, between 24 and 34, and the question of automation and the future of work comes up at home. His answer to them is the same as his answer in a professional context. The industry will need people who understand the full arc of what they are building. People who have stood on a High Bridge over the water contributing to welding the bridge spans together can therefore read a model with the weight of that experience behind them. Thirty-six years in, that is still what he brings to the table. ■

Photo: Evan Hemmingsen  
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Nytt Hospital Nordsjælland  
Photo: Courtesy of  
Wicotec Kirkebjerg A/S

JESPER SKOU ON WHY THE CONSTRUCTION INDUSTRY  
NEEDS TO RETHINK HOW PROJECTS BEGIN

## REBUILDING TRUST IN DIGITAL CONSTRUCTION

For the last 15+ years, the construction industry has been discussing digitalization and data. The conversation has moved from theoretical possibility to practical implementation. Engineers now work on the same digital platforms. Architects consider not just aesthetics but data properties. The flow from architectural concept through engineering to MEP contractors is becoming more continuous.

Yet one question persists. When Jesper Skou presents digital strategies to experienced colleagues at Wicotec Kirkebjerg, they ask: “Are you really sure that the cost matches the value you're getting out of these models?”

It is not a cynical question. It is the right one. And the answer determines whether digitalization becomes genuinely useful or remains an expensive

documentation exercise. That question follows the project all the way from early bidding to execution and collaboration on site.

### **THE DATA TRUST PROBLEM**

The first place this question surfaces is when digital models are used as the basis for decisions.

“People do not trust the data we're pulling from the models,” Jesper says plainly. “But just

over the last couple of years, the trust has increased. The quality of the models we're getting is increasing.”

The preconstruction phase has become increasingly critical at Wicotec Kirkebjerg. When a request for quotation arrives with a BIM model attached, specialist work begins immediately. Verify the model. Take spot checks. Ensure the quantities extracted are close to accurate. It is not automatic validation, but rather earned through careful inspection.

The industry has effectively split into two types of tender processes when it comes to quantities in digital models. In one, contractors are expected to extract and calculate quantities themselves and submit bids based on their own readings of the model. The result is that each bidder works from slightly different quantities, making bids difficult to compare.

In the other type, quantities are provided upfront as part of the tender material, ensuring that all bidders price the same quantities. “That creates a much fairer bidding process,” Jesper notes. “But it doesn’t solve the problem — it just postpones it.”

The challenge reappears once the contract is awarded. When the winning contractor receives full access to the models and begins to verify quantities in detail, discrepancies often emerge. Quantities turn out to be inaccurate, incomplete, or subject to change as the project develops. On top of that, additional changes frequently

occur after contract signing, forcing contractors to reassess models and quantities under real production conditions.

#### FROM DESIGN TO REALITY

As the model moves from bidding into execution, the consequences of missing or ambiguous data become tangible.

Wicotec Kirkebjerg is investing in people who can enrich models, increase quality, verify readings, and perform the essential task of

impossible, future servicing even more so. Duct channels are perfectly routed until you realize a fire exit door blocks the path. These are problems that must be identified and resolved digitally, in the office, before materials are ordered and workers arrive on site.

For plumbing, HVAC, and piping, prefabrication offers real potential. On some projects, Wicotec Kirkebjerg aims to produce large portions of the work outside the actual

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**“ALL MAJOR CONSTRUCTION PROJECTS TAKE TIME. BUT IN THE ACQUISITION PHASE, TOO MUCH TIME HAS BEEN SPENT ON THE NON-ESSENTIAL PARTS.”**

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transforming a detailed design model into a buildable one.

“We see very good models on large projects where there’s a detailed design model which you should, in theory, be able to build from,” Jesper explains. “But in reality, there are too many collisions which make it impossible to do it this way.”

Technical shafts in buildings turn out to be too small when altitude is considered — installation becomes

construction site, then deliver finished assemblies ready for installation. But the requirements for detailing and model accuracy increase dramatically when prefabrication enters the picture.

“On electrical, we are far away from being able to do that,” Jesper admits. The idea of ordering cables pre-cut to exact lengths based on the model? Not realistic yet. The level of detail required would be so demanding



Photos: Kevin Balaz



Photos: Kevin Balaz

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**“WE SPEND MOST OF OUR TIME ON LEGAL TERMS AND ON PRICING. WE SPEND TOO LITTLE TIME ON HOW WE WANT TO COOPERATE.”**

that material waste from safety margins would eliminate any efficiency gain.

**WHEN DESIGN CULTURES COLLIDE**

These challenges are amplified when projects cross national design cultures.

Wicotec Kirkebjerg operates primarily in Denmark but increasingly encounters projects designed by UK-based or Dutch-based engineers. The gap in expectations is immediate and substantial.

“We expect as a construction company in Denmark a much higher level of detailed projects than what we see in the UK,” Jesper explains. In British and Dutch construction markets, contractors carry far more responsibility for final design. That can work, but only if contracts explicitly define where engineering responsibility ends and construction responsibility begins.

“If you design a contract where the engineering company stops here and the construction

company starts here, then you start up in conflict from day one,” he says. Several large Danish hospital projects have experienced exactly this friction, where international engineers delivered what they considered complete designs, and Danish contractors expected something far more construction-ready.

The division of labor can shift. But expectations, timelines, and contractual structures must align with it. Otherwise, digitalization simply accelerates miscommunication.

**THE WHITE COLLAR PROBLEM**

The cumulative effect of unclear expectations, verification work, and coordination gaps is a growing administrative burden.

Jesper estimates that roughly 98 percent of employees at Wicotec Kirkebjerg and its competitors come from traditional trades: electricians, plumbers, carpenters. “We need those in the future,” he says. “But it may not be the right approach to use a carpenter or electrician to do BIM teaching work, or design work, or operation manuals.”

The proportion of white-collar management resources in projects has grown disproportionately compared to blue-collar workers. The result is a troubling efficiency equation: for every dollar spent, less gets built, because value creation happens on site with the people who physically construct.

“The scalability is one-to-one,” Jesper notes. “We need another

person, we add another person. We need to do this smarter.”

Documentation requirements have exploded: fire safety regulations, pharma compliance, healthcare standards, environmental reporting. All of it generates management work. Language models and AI offer a clear opportunity to automate repetitive documentation tasks, freeing white-collar resources for genuine problem-solving rather than paperwork processing.

But the broader solution requires rethinking who works in construction. The industry needs more engineers embedded in contracting companies. “People who can handle technical, data-driven work natively, rather than learning it as an afterthought,” he adds.

**FIXING THE START**

For Jesper, all of this ultimately points back to how projects begin.

The real bottleneck, he believes, has nothing to do with technology.

“In almost all projects I've been involved in, the majority of time spent in the acquisition phase is discussion with the customer on contracts,” he says. “We spend most of our time on legal terms and on pricing. We spend too little time on how we want to cooperate, how we want to manage changes.”

Denmark developed a standard contract framework years ago – the AB system – intended to provide common ground. Yet both contractors and building

owners make their own standard modifications, leading to lengthy negotiations over terms that are, in Jesper's view, not the essential parts of a successful project.

“Why don't we say, ‘Okay, we did quite a lot of work defining a standard contract. Let's keep it at that.’ And then use all that precious time in the start phase on making sure that we have the right cooperation model, we have the right resources, we have the right change processes.”

He envisions project kickoffs where the digital model sits at the negotiation table. Where construction companies can point to a design approach and say, “This is extremely cost-efficient. If you do this instead, you probably get the same effect.”

“All major construction projects take time to come to maturity,” Jesper acknowledges. “But I think in the acquisition phase, too much time has been spent on the non-essential parts.”

The tension is real. Building owners start projects carrying 100 percent of the risk. When they sign with a contractor, some risk transfers. That balance between price, time, and scope must be negotiated. But Jesper believes the industry would gain far more from focusing on how to work together than on how to protect against each other.

Contracts will always matter. But cooperation matters more. And right now, the industry spends its energy in exactly the wrong proportion. ■

# 03

## PROJECT DELAYS AND COMMUNICATION GAPS

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**"COMMUNICATION WITH NON-BIM USERS IS STILL VERY DIFFICULT.**

**MOST PROJECT INFORMATION IS SCATTERED ACROSS TENS OF THOUSANDS OF DOCUMENTS, AND BIM MODELS ARE RARELY USED AS A COMMUNICATION TOOL."**

BIM Strategy Lead, France

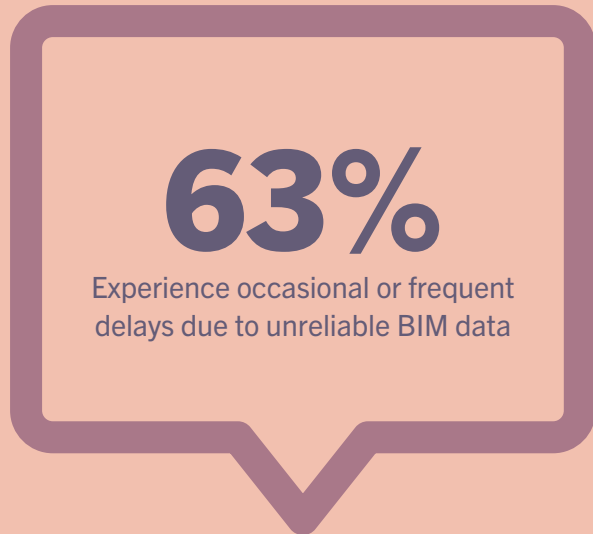
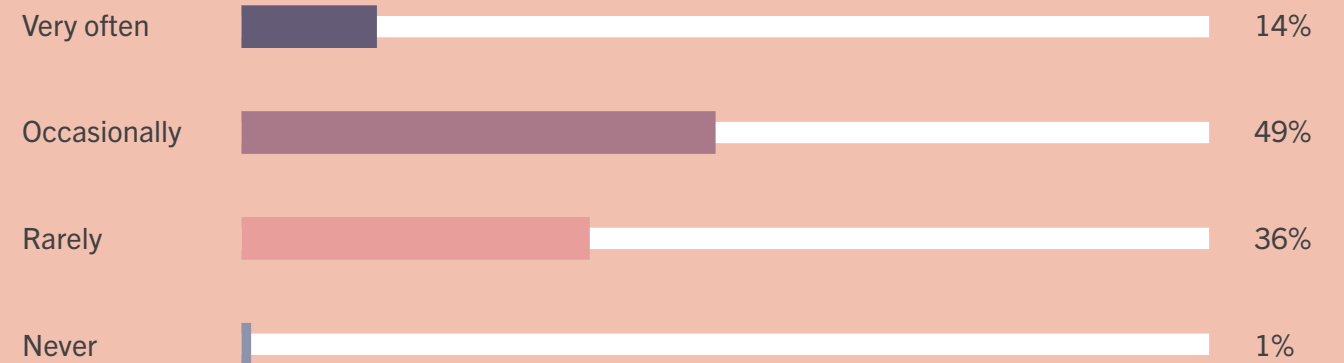
# 03

## PROJECT DELAYS AND COMMUNICATION GAPS

ONSIGHT PROJECTION REPORT 2026



### HOW OFTEN ARE DECISIONS DELAYED DUE TO UNRELIABLE BIM DATA:



#### THE BUDGET PARADOX

The largest projects (€500M+) show the highest frequency of 'very often' delays at 30% - significantly above the 7% rate for mid-sized projects.

This reinforces the earlier confidence findings: *scale doesn't solve data problems, it multiplies them.*



#### NON-BIM USER COMMUNICATION

When asked how effective their tools are for communicating with non-BIM users, respondents gave an average rating of 3.2 out of 5.

This mediocre score is perhaps the most telling finding: *BIM's value isn't measured by how well it serves specialists, but rather by how well it enables everyone else.*

While data confidence is middling and friction is pervasive, the industry has developed coping mechanisms.

Only **14%** report that project decisions are delayed 'very often' due to unreliable BIM data, though 49% say delays occur 'occasionally.'

**"THERE ARE WAYS TO MAKE THE DATA PRODUCED IN A BIM ENVIRONMENT READABLE BY NON-BIM USERS, BUT IT'S NOT SO STRAIGHTFORWARD."**

BIM Manager, UK

### POINT OF VIEW

#### Are we rushing past reliability?

63% report occasional or frequent delays due to unreliable BIM data. Projects rarely stop, but decisions often slow down.

Unreliable does not always mean incorrect. Sometimes the data is there, but it is not structured or presented in a way that supports decision-making. In the push to meet milestones, validation and clarity can become

secondary. The model progresses, yet confidence does not.

When decisions require clarification calls, manual checks, or additional explanations, time is already lost. The delay does not begin when a decision is questioned.

It begins when reliability and clarity were not secured earlier.

JOE RASMUSSEN ON BUILDING A COMMON DATA LANGUAGE FOR CENTURY-LONG INFRASTRUCTURE

# METRO'S 100-YEAR DATA CHALLENGE

Joe Rasmussen leads digital of construction projects at Metroselskabet, where the challenge isn't just building metro lines: it is ensuring that every piece of information generated across multiple contracts can be validated, exchanged, and used for the next century of operations.



"DIGITAL SOLUTIONS ONLY CREATE VALUE WHEN THEY WORK FOR PEOPLE."

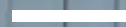


Photo: Kevin Balaz



After nearly 30 years in construction and a decade pushing Denmark's infrastructure sector toward digital maturity, Joe Rasmussen has learned something fundamental: becoming truly data-driven has little to do with technology.

"Too often we talk about digitalization as if it's about platforms and tools," he says.

"In reality, the biggest barriers are unclear processes, fragmented ownership, and hoping that software will solve organizational problems."

As Head of Information Management & Technologies at Metroselskabet, Joe oversees digital delivery for two major infrastructure projects: M5, a new metro line, and the

extension of the M4 line in Nordhavn. Each involves design-build contracts, multiple total contractors, and hundreds of smaller agreements. All of them generate data that must flow between parties, be quality-assured by specialists, and eventually support 100 years of operations.

This is not a simple coordination task. It requires rethinking how construction projects generate, validate, and preserve knowledge.

#### **THE SHIFT FROM DOCUMENTS TO DATA**

Metroselskabet's journey began seven years ago, when the organization realized that traditional document exchange could no longer support the scale and complexity of its projects.

"Earlier projects were very much about document management, and that works to a certain extent," Joe explains. "But when you start working with data used across contracts, you need to quality-assure it before it comes in. And it's not just us who validate. We have specialists who need to verify whether the data corresponds to what's been done in their domains."

This shift has required new structures, new roles, and deeper coordination. Joe's team ensures data meets structural and metadata standards, but actual content ownership sits with subject matter experts: geologists verify geotechnical data, environmental specialists check environmental information, and asset

managers validate operational requirements.

"We haven't perfected this yet," Joe admits. "It's still a maturity journey."

#### **WHO OWNS THE DATA?**

One of the clearest signs that an organization lacks data maturity is when no one can answer a simple question: who owns this data?

At Metroselskabet, this challenge is being addressed through governance structures that define responsibility, format, and timing for every dataset. The organization follows OpenBIM standards and ISO 19650, with detailed classification systems specifying which metadata must accompany each model delivery.

"We've created scripts that check whether deliveries meet our requirements," Joe explains. "When contractors deliver an IFC model into our system, we can see if it has the required data or what's missing. They get a report back showing what needs correction."

But automation alone doesn't solve the problem. Building a digital culture requires clarity about roles, strong governance, and consistent leadership.

"Digital solutions only create value when they work for people," Joe says. "That's why we focus on usability, clear responsibilities, and creating momentum that everyone can follow."

#### **THE MATURITY GAP**

While Metroselskabet and other large infrastructure clients have

Photo: Rasmus Hjortshøj  
Courtesy of Metroselskabet





Photo: Rasmus Hjortshøj  
Courtesy of Metroselskabet



made significant progress, Joe sees a clear maturity gap across the supply chain.

"I'm fairly sure our first tier can handle this today," he says. "But tier two, three, and beyond? They're not there yet. And we need to bring them along."

This unevenness creates difficult choices. Pushing requirements too aggressively can exclude capable companies who haven't yet invested in digital workflows. Lowering standards delays the transition and perpetuates inefficiency.

"We learned this on early pilot projects," Joe recalls. "We made incredibly high requirements, thinking we could reach that

level. But they couldn't match it. And honestly, neither could we. So we're learning to push enough to drive progress, but not so much that nobody can follow."

#### THE POINT OF DATA

For Joe, data has a concrete purpose: enabling better decisions with greater confidence.

"The best part is that we can make decisions on a more informed basis," he says. "We know what we're deciding about. We also know what we don't know or what's still outstanding. That clarity makes it much easier for people to act."

This transparency extends beyond internal decisions.

When contractors, consultants, and public authorities share access to validated data, it reduces misunderstandings, speeds approvals, and creates a foundation for collaboration rather than conflict.

But Joe is equally clear about what not to do: overwhelm people with information.

"We try not to overload teams," he says. "Being specific about where data creates value, and where it just creates noise, that's becoming crucial."

#### WHAT'S NEXT: STANDARDS AND ALIGNMENT

Looking at the next 12 months, Joe points to something that might sound technical but has

wide-reaching implications: improved common standards across organizations.

"The construction industry's requirement structure will be significantly improved, particularly for civil engineering," he says. "These standards will make coordination far easier across projects, consultants, contractors, and clients."

This work involves alignment on classification systems, data exchange protocols, and contract language through industry organizations like BIM Infra and national standardization bodies.

"When everyone speaks the same data language,

collaboration stops being a translation exercise," Joe explains.

#### PREPARING FOR BETTER TOOLS

Joe is cautious about current AI hype but confident that more effective technology is coming.

"Technology will continue to evolve in ways that serve our industry more directly," he says. "Just like most people now use AI when writing, we'll see tools that make construction work faster and clearer."

What matters more than any specific tool is whether organizations are ready to use them effectively. Joe frequently emphasizes that unreliable

**"BEING SPECIFIC ABOUT WHERE DATA CREATES VALUE, AND WHERE IT JUST CREATES NOISE, THAT'S BECOMING CRUCIAL."**

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**"WE SHOULDN'T DIGITALIZE FOR THE SAKE OF DIGITALIZATION. WE SHOULD DIGITALIZE TO MAKE BETTER DECISIONS AND DELIVER BETTER PROJECTS FOR THE CITY, THE CITIZENS, AND THE FUTURE."**



Photo: Büro Jantzen  
Courtesy of Metroselskabet

data simply produces unreliable results faster.

"The responsibility is on us now to prepare our data," he says. "Then we'll be ready when better tools arrive."

**THE 100-YEAR PERSPECTIVE**

Metroselskabet's ambition extends beyond project delivery. The goal is to operate as a fully data-driven organization throughout the entire lifecycle, from early planning through decades of operations and maintenance.

"We have a 100-year operational perspective," Joe says. "If we can optimize based on data, it's not just about cost. It's about sustainability, CO<sub>2</sub>, and our climate footprint. We have focus on all of that."

This long-term view shapes how the organization approaches every data decision today. The information captured during design and construction becomes the foundation for maintenance planning, performance optimization, and lifecycle management.

**LEADERSHIP BEFORE TECHNOLOGY**

Joe has become increasingly vocal about what he sees as a fundamental industry misunderstanding: treating digital transformation primarily as a technical challenge.

In recent months, he has used LinkedIn to argue that digitalization starts with leadership decisions, not software selection. Whether



Photo: Kevin Balaz

organizations can clearly define processes, assign ownership, and maintain accountability matters far more than which platforms they choose.

He also warns about the cost of delayed decisions. When leadership postpones important choices, internal expertise gets underutilized, external validation becomes overused, and accountability becomes blurred.

"We need to make decisions early enough that they shape the work, rather than hoping the work will somehow resolve the uncertainty," Joe says.

**STILL ON THE JOURNEY**

Joe is clear that Metroselskabet haven't yet completely solved the challenge of becoming data-

driven. The organization continues learning, refining its approach, and building maturity across increasingly complex projects.

But the direction is clear. After 30 years in construction and a decade pushing for digital maturity, Joe sees the path forward: aligning people, processes, and data across one of Europe's most complex construction environments.

"We shouldn't digitalize for the sake of digitalization," he says. "We should digitalize to make better decisions and deliver better projects for the city, the citizens, and the future."

For an organization building infrastructure designed to last a century, that approach isn't idealism. It's necessity. ■

# WE ARE BUILDING THE DIGITAL MEMORY OF THE HARBOR

Photo: Eric Bakker,  
Courtesy of Port of  
Rotterdam Authority

Yannick Duijster's connection to Rotterdam is more than professional. He lives there, bikes to work and enjoys contributing to the city that surrounds him. Having begun in civil engineering, Yannick gradually shifted into BIM because he saw potential in digital modeling. Over time, that shift

took him from working as a draftsman and modeler to coordinating BIM on the owner's side at Europe's largest port. His role today is not tied to one landmark construction, but to the long-term integrity of many assets across the harbor.



Photo: Marieke Wijntjes



**“WE ARE NOT IN A RACE TO BUILD FASTER. WE WANT TO BUILD SMARTER AND MORE SUSTAINABLY.”**

**FROM DELIVERY TO CONTINUITY**

One of Yannick’s key tasks is helping the organization understand why BIM matters beyond design visualization. The hardest part, he acknowledges, is that the benefits arrive later. “Many of the advantages do not show themselves until the asset needs maintenance,” he explains. “That is when data quality becomes essential.”

Inside the organization, some colleagues immediately grasp this, while others are still adjusting to structured naming conventions and metadata requirements. Externally, it becomes even more complex. Contractors and engineers work with different tools, habits and maturities. The port uses an

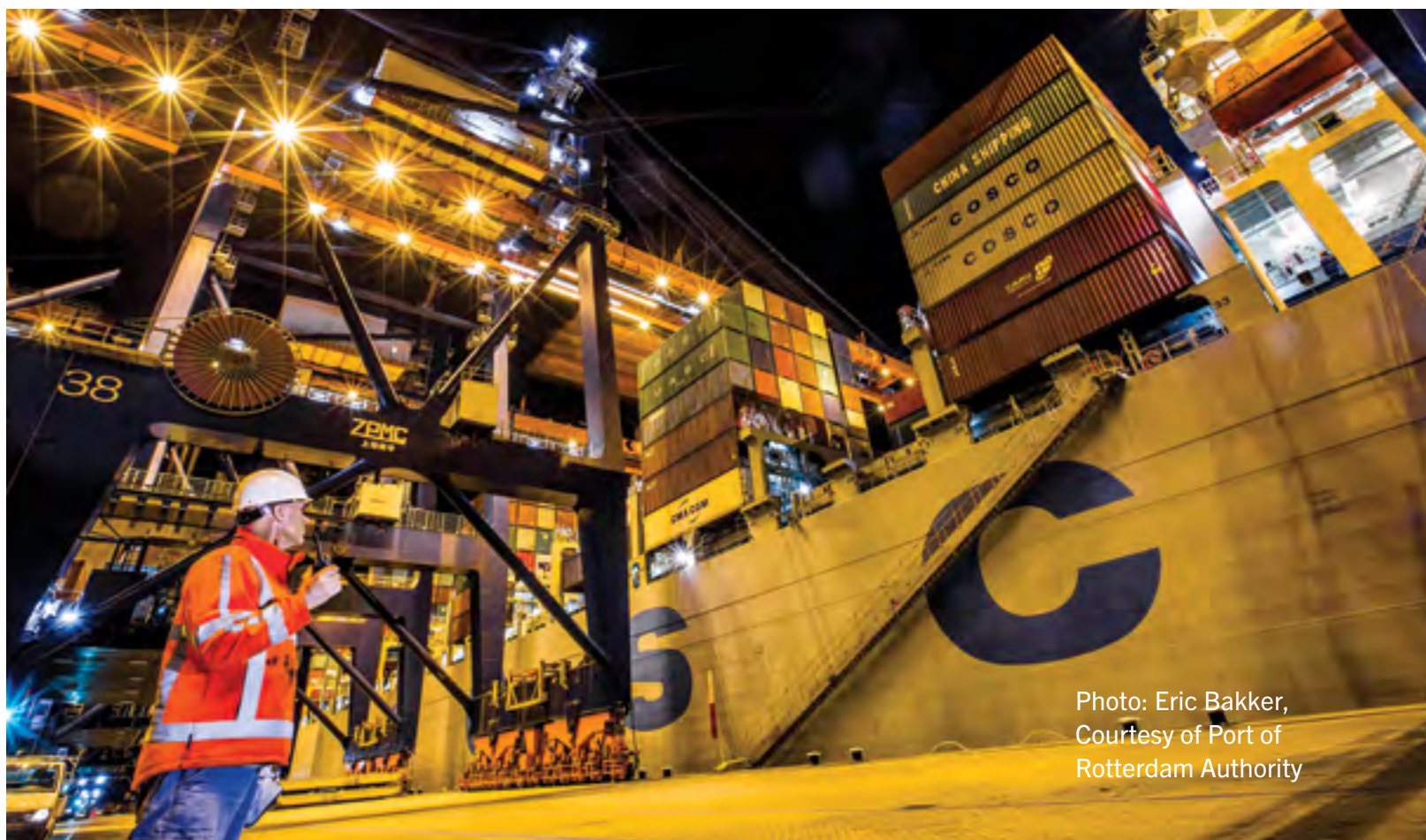


Photo: Eric Bakker, Courtesy of Port of Rotterdam Authority

internal Object Type Library to specify required data for every asset type, but delivery varies. “We know what data we want,” he notes, “the challenge is getting everyone to deliver it in the same structured way.”

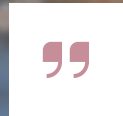
Every year, more than 60 new projects are initiated at the port, ranging from small modifications to major quay reconstructions. Each of them produces asset information. Over time, that data becomes the operational memory of the infrastructure. Yannick views BIM not as a static model, but as a progressive history of decisions.

**BUILDING A FOUNDATION FOR THE FUTURE**

When the conversation turns to legacy infrastructure, Yannick is careful to be precise. Much

of the harbor was built decades ago, long before BIM existed, and many assets are still documented only through 2D drawings and archived records. “Some of our assets are more than fifty years old and only exist as paper drawings in a basement,” he notes. While digitizing these assets is not yet part of his team’s day-to-day work, it is clearly on the horizon.

The current focus is on implementing BIM properly for running and future projects. Yannick is convinced that concentrating only on new assets will not be sufficient in the long term. Once BIM processes, data requirements, and validation workflows are fully embedded for new projects, the organization will need to address how existing assets can be brought into the



**“WE KNOW WHAT DATA WE WANT. THE CHALLENGE IS GETTING EVERYONE TO DELIVER IT IN THE SAME STRUCTURED WAY.”**

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Photos: Marieke Wijntjes

same digital logic. The ambition is clear, even if the solution is still being explored.

That same long-term thinking applies to how BIM is used internally. Today, BIM expertise largely sits with specialists, and access to insights from models is still mediated. Yannick expects this to change. He anticipates that as more BIM-based projects are delivered and reused, questions from engineers, asset managers, and other colleagues will naturally increase.

The goal, he explains, is that “non-BIM specialists should be able to access their information independently.” BIM should become a shared resource, not a gated one.

#### **A SHIFT IN THE INDUSTRY MINDSET**

Yannick firmly rejects the idea that BIM is reaching its end. If anything, he believes it is evolving into something larger. “It used to be a design tool,” he reflects. “Now it is becoming an organizational foundation.”

For him, data-driven infrastructure is not optional. Clients are increasingly demanding structured asset data, and organizations that fail to deliver it will eventually lose relevance. Yannick sees this transition happening not just at the port, but across the sector. Specialists who once worked in 2D drawings are now thinking in networked 3D information systems.

He also points out that sustainability has become

a central KPI inside Port of Rotterdam. While not directly working on environmental modeling himself, he recognizes the connection. “We are not in a race to build faster,” he says. “We want to build smarter and more sustainably.” BIM is not used to accelerate blindly, but to make less wasteful decisions and prolong the life of existing infrastructure.

#### **THE HARBOR AS A LIVING DATASET**

When asked what change would have the biggest impact, Yannick does not mention AI or robotics. His answer is concise: *uniform data discipline*.

If every contractor encoded data consistently from the start, the port’s validation workflows would be dramatically simplified. “If we could just snap our fingers and have everyone up to speed, that would be a very big win,” he says.

Yannick’s perspective is quietly visionary. He does not frame BIM as a glamorous interface or a 3D gimmick, but as a mechanism for retaining intelligence over time. The infrastructure of the port is constantly reconstructed, repurposed, reinforced. With each cycle, the model accumulates detail and history.

In the end, his role is not just coordinating models, but stewarding operational memory. He is helping to ensure that 20 or 30 years from now, someone can inspect a quay wall, click on its record, and instantly understand its lineage.

As Yannick puts it, “BIM is not fading away. It is expanding.” ■



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**“BIM IS NOT FADING AWAY. IT IS EXPANDING.”**

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# 04

## THE TOOL LANDSCAPE

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**“BIM IS NOT  
UNDERSTOOD WELL.  
THEY THINK IT IS REVIT”**

BIM Manager, Spain

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# 04

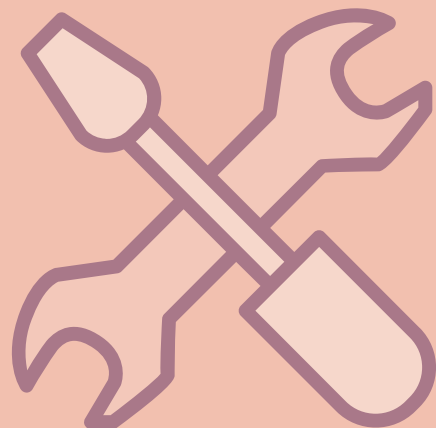
## THE TOOL LANDSCAPE

ONSIGHT PROJECTION REPORT 2026



Revit's dominance is overwhelming and unsurprising. 76% of respondents use it, making it the undisputed center of gravity for BIM workflows.

This near-monopoly creates both standardization benefits and vendor lock-in risks: when Revit struggles with large assemblies or complex parameters, the entire project feels it.



### EXCEL: THE UNSINKABLE WORKAROUND

Despite billions invested in construction technology, Excel remains indispensable. Over half (51%) list spreadsheets as a critical data source - tied with document management systems.

Every Excel workaround represents a gap in the digital workflow: a place where data escapes the managed environment.

### "THE SOFTWARE LOCK-IN FROM REVIT."

Response to 'What would you change?', Belgium

### CDE FRAGMENTATION

In the CDE space, Autodesk Construction Cloud leads at 63%, followed by Dalux at 40%.

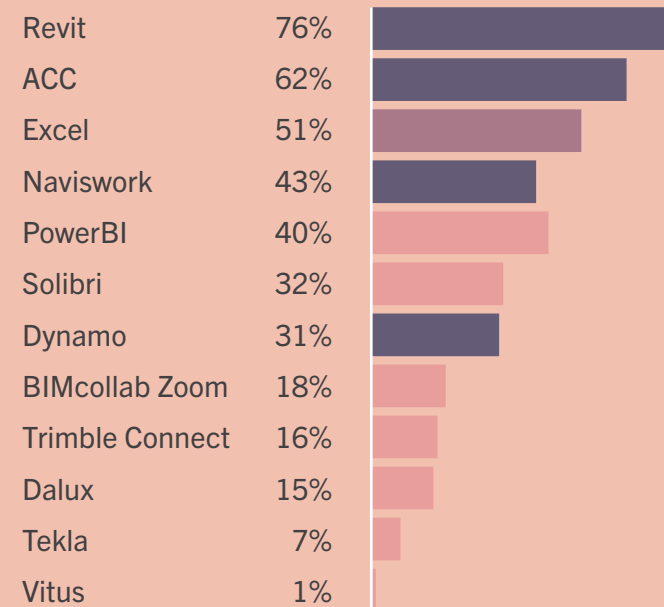
Unlike authoring tools where Revit dominates, the CDE landscape is split - different clients, countries, and project types favor different solutions.

This fragmentation means BIM professionals can't specialize; they need fluency in multiple platforms.

Several respondents mentioned that they've had to build custom communication tools (PowerBI dashboards, simplified viewers, or good old-fashioned 2D PDFs) because the BIM tools themselves are too complex for non-specialists.

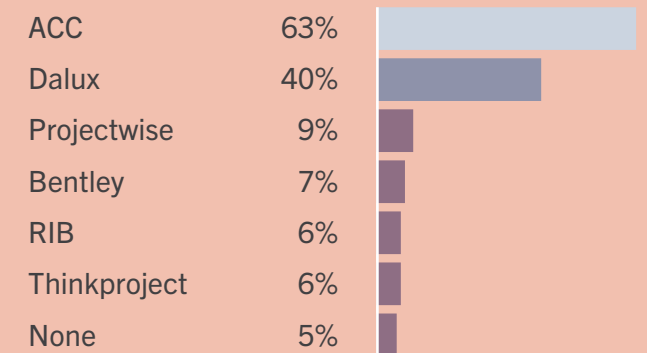
### TOOLS FOR DATA MANAGEMENT & VISUALIZATION

Autodesk Ecosystem Excel Other tools



### COMMON DATA ENVIROMENT (CDE) USAGE

Autodesk Dalux Other tools



## POINT OF VIEW

### When visualization works, do we stop asking how?

Turning model data into dashboards often requires a chain of tools, exports from Revit, connectors, visualization platforms, and frequently Excel to reshape or enrich information along the way. These workflows are usually built and maintained by a specialist who understands how the pieces fit together.

Once the data is visualized, the objective seems met. But how often do organizations step back and ask whether the flow itself is optimal, or whether it has simply become dependent on one person's expertise? When the setup works, it is rarely questioned. Yet dependence can grow quietly behind the scenes.

# 5 HARD TRUTHS

## THE INDUSTRY NEEDS TO HEAR

We sat for an hour with Kristoffer Negendahl, associate professor at DTU for an honest conversation about what he thinks needs fixing in the digital construction industry. And he is unapologetically frank about what those things are.

*Here are five hard truths he believes the industry must finally confront.*

### 1. THE INDUSTRY KEEPS REINVENTING THE WHEEL BECAUSE IT REFUSES TO CARE ABOUT THE DATA IT ALREADY HAS.

Negendahl is baffled by the obsession with building yet another “smart model” platform while ignoring the standards that already work. As he puts it: “People don’t care about putting data in the right boxes with the right meaning.”

IFC has existed for decades, but tools, designers and contractors still insist on inventing their own naming, their own structure, their own ontology. The result? Models that look clever on screen but are useless to anyone else.

He believes the biggest problem in BIM is not complexity, it’s indifference.

### 2. REUSE COULD SOLVE THE CLIMATE CRISIS IN CONSTRUCTION, BUT ONLY IF WE LEARN HOW TO DOCUMENT THE PAST.

When Negendahl talks about sustainability, he doesn’t start with timber fantasies or futuristic materials. He starts with beams from the 1970s.

He argues that if we could safely reuse structural elements at scale, “we would basically solve the climate problem of the building industry.” The barrier isn’t engineering strength but missing documentation. How do you trust a 20-meter concrete deck with no original records? How do you certify it without destroying it? How do you track its chemical, structural and environmental properties?”

His research focuses on generating the documentation that never existed, and making reuse a default rather than a novelty.

### 3. BIO-BASED MATERIALS AREN’T AUTOMATICALLY SUSTAINABLE AND THE INDUSTRY IS LYING TO ITSELF ABOUT THAT.

Negendahl pushes back on the simplistic idea that “wood equals good.” Cutting down a tree stops it from capturing CO2. Importing timber from Brazil is hardly circular.

His view: bio-based materials only make sense if they come from renewable, annual crops with controlled regrowth, like hemp or other fast-growing biomass.

This requires new knowledge about moisture, rot, fire, hygrothermal behaviour and long-term performance - all areas he actively researches.

Sustainability, in his words, “is not ideology. It is documentation.”

### 4. THE REASON BIM FEELS ‘SPECIALIST-ONLY’ IS BECAUSE OUR TOOLS DEMAND SUPERHUMAN PRECISION FROM ORDINARY PEOPLE.

He points out a simple truth: If using BIM requires you to construct a perfectly structured model with correct ontology, hierarchy, relationships, naming and data semantics, then of course only specialists can do it.

But that is a failure of tool design, not of people.

Negendahl doesn’t understand why a window manufacturer can’t simply insert their own product data into a model through a smart interface without needing Revit, a license, or months of training.

He imagines a world where scripting, automating, and injecting information is normal, and where it is the tools that adapt to users, not the other way around.

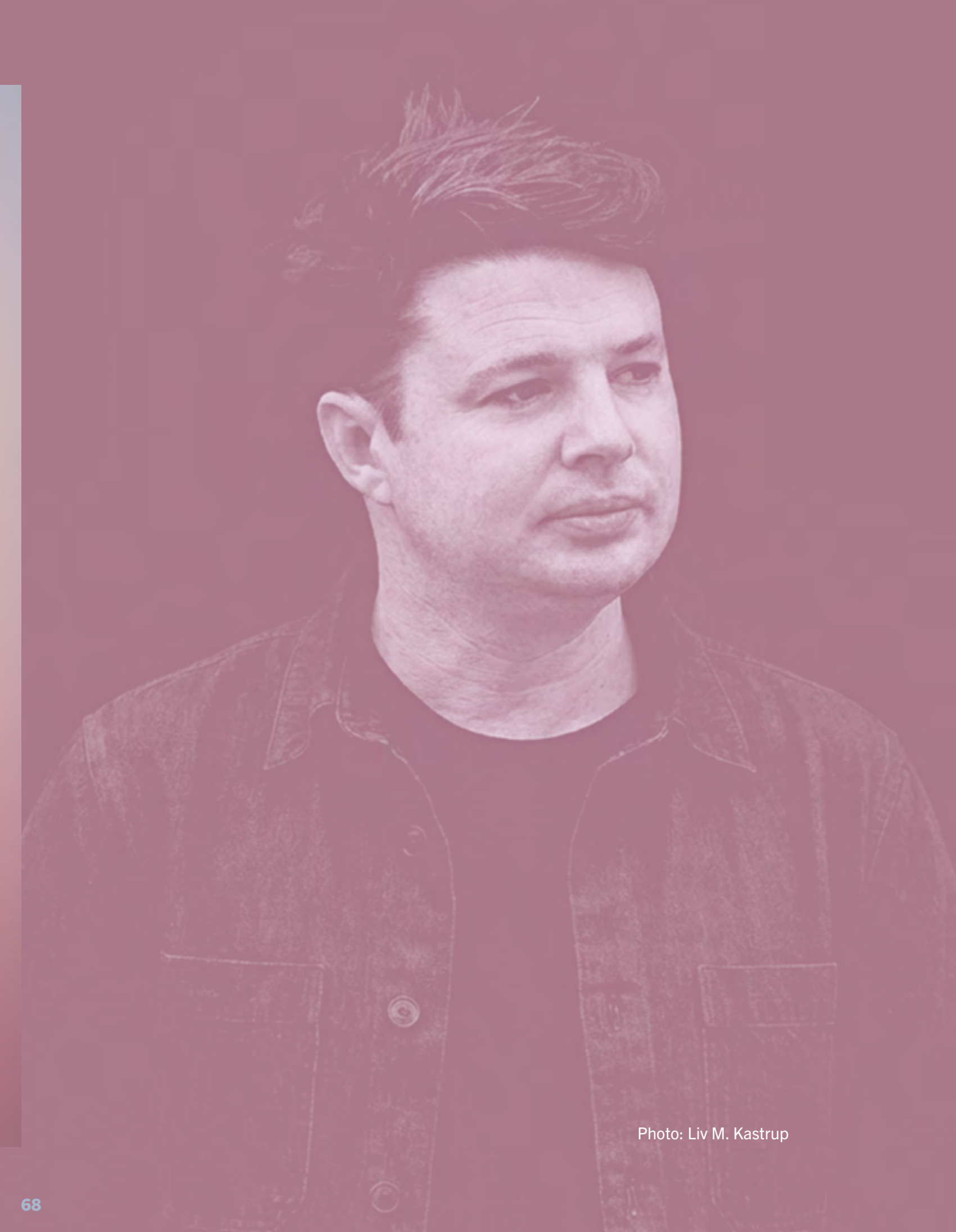


Photo: Liv M. Kastrup

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**“WE DON’T NEED  
NEW TOOLS. WE NEED  
TO USE THE OLD  
ONES PROPERLY.”**

**5. STUDENTS ALREADY LIVE IN DIGITAL WORLDS. BUT WITHOUT CRITICAL THINKING, ALL THE TECH IN THE WORLD MEANS NOTHING.**

Kristoffer teaches hundreds of engineering students every year.

And he says something striking: “Students talk to ChatGPT as much as they talk to each other.”

He isn’t worried about intelligence. They are digitally native, they build in 3D from childhood, they navigate virtual spaces instinctively.

What he worries about is critical thinking, i.e. the ability to understand a problem before asking a machine to solve it, to question an answer rather than accept it.

“Digital tools don’t make people dumb”, he says, but “people who stop thinking will always be a risk, regardless of the technology”.

**THE TAKEAWAY: STOP CHASING NOVELTY, START FIXING FUNDAMENTALS.**

Across topics - reuse, bio-based materials, BIM, ontology, student behaviour - Negendahl returns to one consistent theme: the construction industry jumps to new trends before mastering the basics.

“We don’t need new models, new frameworks, new standards every year. We need to use data correctly, document things consistently, and build tools that normal humans can actually use.” He concludes. “Only then will digitalisation deliver the progress it has been promising for twenty years.” ■



# THE PREDICTIONS ISSUE

What will happen with certainty this year?  
What might happen within the next two to three years?  
What could possibly unfold in the next decade?

These are the three questions we asked twelve industry leading voices from across the digital construction ecosystem.

Their answers range from expert insight and informed predictions to bold wildcards.

*Step inside and explore what the future might hold.*



**JACOB DRACHMANN**  
Chief Commercial Officer,  
CN3

Photo: Jørgen Asmussen

## PREDICTIONS

# WHERE DATA IS UNRELIABLE, AI BECOMES NOISE

Jacob Drachmann is Chief Commercial Officer at CN3. He helps large, complex projects move from static files to connected, role-based data environments that support real-time decision-making.

### I KNOW THAT...

Over the next year, data consistency will move right to the top of the agenda on live projects. We've all felt how an "export + email" culture turns information old the moment it leaves a system. Decisions end up resting on yesterday's numbers. I know many teams are already shifting away from static file drops toward something closer to a shared **data room** - a place where quantities and properties are current, traceable and trustworthy. If we're serious, by this time next year we'll be measuring **freshness and provenance** of data the same way we track documents.

### I BELIEVE THAT...

AI is going to change how we decide, forecast and manage risk - *if* the foundation is solid. In the next three to five years, I see AI taking on the heavy reading and routine checks: submittals, specs, model compliance, quantity and schedule signals.

But the winning setup won't be one platform to rule them all; it'll be a **project data hub** that feeds role-based "control rooms" for executives, project managers and engineers. Everyone looks at what matters to their job, yet it all comes from the same source. Without reliable data underneath, AI is just noise. With it, we'll have faster, calmer decisions.

### I HOPE / I FEAR THAT...

I hope we finally kill the habit of dumping and re-typing the same data across tools and companies. I've seen the same quantity keyed in more times than anyone would admit between tender and site - that's pure risk and waste. If we connect our stack properly - CDE plus a data hub that exposes the model's properties and quantities - conversations become **evidence-based**, and conflict levels drop. My fear is that if we keep working in silos, AI will only accelerate the mess we already have. ■

# THE DIGITALIZATION JOURNEY IS FAR FROM OVER

Daniel Ravnholt is CEO of event agency Ultra, specialized in building large, site-specific structures where creativity collides with technical precision - often in places where nothing is standard and everything is on the clock. He works at the edge between design, terrain, regulation and storytelling, where digital planning tools increasingly define what is possible.

## I KNOW THAT...

Over the next year, regulatory pressure will rise significantly - especially around permits for temporary constructions. The rules haven't changed, but the focus has. Authorities are asking for deeper documentation, clearer models, and stronger proof that what we build is safe, compliant and planned with real data.

I know that showing projects early, in scale, and in full digital context will become essential to getting approvals on time. And I know that only a small share of the market will have the tools and know-how to deliver that level of clarity. Those who can document properly will take a larger part of the work. Those who cannot will struggle to stay in the game.

## I BELIEVE THAT...

Digitalization will shape our industry for many years - far beyond where we are today. I believe clients, cities and partners will expect models, data and decisions to flow through connected digital environments, not slides, PDFs or phone calls. And I believe the gap will widen between companies

who embrace these tools and those who don't. The winners will be the ones who consolidate design, terrain, logistics and execution into a single digital workflow. The journey is long, and the destination isn't fully visible yet - but the demand for digital precision, transparency and speed will only accelerate.

## I HOPE / I FEAR THAT...

I hope we stay open - as an industry and as a company - to whatever the next wave of digital tools brings, whether it's AI or something we haven't named yet. We didn't go looking for Vitus; we stumbled into it, and it transformed how we work. If AI can do that again, we should be ready. My fear is not the technology itself, but the risk of standing still. If teams keep working in silos, if documentation remains fragmented, if decision-making stays analog while expectations grow digital - then AI and new tools will only amplify the chaos. But if we move early, stay curious and keep building digitally before we build physically, the next chapter will make our work faster, safer and far more creative than before. ■

**DANIEL RAVNHOLT**  
CEO, Ultra



Photo:  
Nicklas Askling / PhoVi



**YANNICK DUIJSTER**

BIM Coordinator,  
Port of Rotterdam

Photo: Marieke Wijntjes

PREDICTIONS

# NO FUTURE BIM WITHOUT TRUSTWORTHY DATA

Working with BIM at the Port of Rotterdam, Yannick Duijster sees firsthand how data maturity, validation, and asset-centric BIM will shape how infrastructure is planned, constructed, operated and maintained in the coming decade.

**I KNOW THAT...**

Over the next year, our BIM work will shift from preparation to execution. We started implementing BIM two years ago, after running a 3-year BIM program. That means that the early initiatives are now entering the model-delivery and asset-handover phase. Instead of receiving just a few models per year, we'll receive many more, and with that comes the real challenge: validating data quality, checking compliance, and ensuring the models meet our OTL-based requirements. The hope for the near future is that more teams will begin asking for access to models, not because we push BIM, but because they finally see its value in practice. This coming year is the turning point where BIM transitions from being a theoretical ambition to a practical operational necessity.

**I BELIEVE THAT...**

In the next three years, the software ecosystem around BIM will evolve to better support structured data. Today, tools like Revit and Civil3D are still focused primarily on geometry, and they make it unnecessarily difficult to store data the way we need it, according to decompositions, asset hierarchies and precise metadata structure. I believe modeling software will become much more data-oriented,

enabling richer connectivity with platforms like Autodesk Construction Cloud and SAP, and making it easier to capture asset information in a consistent way. This shift will allow owners - not only designers and contractors - to use BIM as a long-term memory of their built environment. As the industry's need for data accelerates, the tools will follow. What feels difficult today will soon become standard practice.

**I HOPE / I FEAR THAT...**

Looking ten years ahead, AI will transform how we work with asset data. I don't fear that it will take over our jobs, I believe it will be an amplifier, accelerating analysis and automating repetitive tasks.

What I fear is not AI itself, but organizations that are unprepared for it. If the underlying data is inconsistent or incomplete, AI will simply produce incorrect conclusions faster. But if our data is structured correctly, if the OTL is respected, if validation is in place, if information is captured consistently, then AI can unlock predictive maintenance, risk forecasting, and deeper asset intelligence.

The responsibility is on us now to prepare our data so that we are ready when AI is ready. In the end, I see AI as a partner that strengthens decision-making, not a threat that replaces it. ■

# DIGITAL PRODUCT PASSPORTS WILL BE EVERYDAY TOOLS

Kristoffer Negendahl is an associate professor at DTU, working where digital design, sustainability and regulation meet. He focuses on making building data structured and machine-readable in an effort to automate checks and reduce climate impact.

## I KNOW THAT...

Within the next year we'll see model checking turn into something very concrete. I'm involved in projects where you can upload a BIM model and automatically test it against Danish fire regulation, and in open platforms that distribute data templates and product information in a machine-readable way. That shift from opinions to executable rules is already underway.

## I BELIEVE THAT...

Within three years, digital product templates and digital product passports for building products will move from pilots to everyday tools. When you buy materials, you'll also get structured digital data you can plug into your models and building logbooks.

The companies that crack how to measure the right things at the right time - and actually act on those signals - will simply make better decisions and gain a clear financial advantage.

## I HOPE / I FEAR THAT...

In ten years digital twins and rich building logbooks will be the normal handover: every major new or renovated building comes with a reliable digital record of what it contains, how it performs and what has been changed. I also fear that powerful tools without critical thinking will tempt us to be sloppy with data and goals. If we don't define clear requirements and link climate ambitions to hard finances and real human needs, we'll waste the potential of this whole wave of digitalization. ■

A portrait of Kristoffer Negendahl, a man with dark hair and a beard, wearing a dark blue t-shirt. He is standing in front of a wooden structure, possibly a building under construction. The background shows wooden beams and a cloudy sky.

**KRISTOFFER NEGENDAHL**  
Associate Professor, DTU

Photo: Courtesy of  
Kristoffer Negendahl



**AKSEL ALVAREZ**  
Architect,  
White Arkitekter

Photo: Courtesy of Aksel Alvarez

## PREDICTIONS

# WE ARE MOVING FROM DESIGNING OBJECTS TO MANAGING REALITIES

Aksel Alvarez is an architect with more than 20 years of experience across Venezuela, Germany, and Sweden. At White Arkitekter, he works with Total BIM, climate data, and circularity, always with a sharp philosophical view on technology and society.

### **I KNOW THAT...**

I know that the closed software ecosystems we work in today are starting to crack. Everybody is still fighting to “own the paper” - to be the single place where projects live - but that logic no longer holds. Data cannot stay locked inside one platform if we want real collaboration.

I also know that AI will not replace architects, but it will clean up after us. The first real impact will be better structured models, better data quality, and fewer human mistakes. That alone will change a lot. The real revolution will not look spectacular, it will look tidy.

### **I BELIEVE THAT...**

I believe the next three years will force us to rethink data ownership. We cannot simulate climate, cities, and environmental impact if every dataset is private. Some data must become common again. We will need new business models, but we will also need new courage to let go of control.

I also believe AI agents will finally allow us to use the enormous amount of BIM data we already have. We don't need more data. We need to access

what already exists in a meaningful way. When that happens, the way we make decisions will shift fundamentally.

### **I HOPE / I FEAR THAT...**

I hope that in ten years, architecture will no longer be about producing isolated objects. I hope it will evolve into a discipline that orchestrates entire ecosystems: social, environmental, cultural, and technological at once. As our challenges become more complex, our role must expand with them.

That is why I believe we are moving from designing objects to managing realities. The focus will shift from shaping forms to understanding consequences, i.e. how materials behave, how environments react, how societies are affected.

I hope we will design with that full awareness from the beginning. If we build in a forest, we should already know precisely what that means for biodiversity, energy, climate, and people before we draw the first line. And when we look back a decade from now, I think we will say: that was the old way of doing architecture. ■

# CONSTRUCTION MUST THINK MORE LIKE A FACTORY

Emil Alberts is Head of Digitalisation at Enemærke & Petersen (E&P). Working closely with the company's operational leadership, he embeds digital ways of working as a foundation for production excellence. With a sharp focus on value creation, Emil takes a strategic approach to defining the data and insights that deliver the greatest impact, ensuring digital initiatives directly strengthen core delivery performance, improve transparency, and elevate decision-making.

## I KNOW THAT...

To stay commercially relevant as a contractor, we will need to show production numbers. Not just dashboards for the sake of it, but a credible system for how data is generated, captured, and shared across companies on a project. Clients are already beginning to ask: how will you organise the digital landscape on this project, what system will you run, and how will you communicate progress and performance? There's less room to "freestyle" now. The winners will be those who can explain, in a structured way, how the project will produce information, how patterns will be tracked over time, and how teams will act on it.

## I BELIEVE THAT...

We are heading toward a major shift in how drawings are produced and used. Today, we spend enormous efforts generating traditional 2D drawings that often serve the client's overview needs, but aren't truly designed for construction. In a few years, it will be normal to generate drawings directly from the data in 3D models: "Give me a section for this area, with

the right annotations for the next three weeks of work." AI will help create work packages, quality checklists, and production-ready documentation faster, and in a format that fits the people who actually read it on site. I am not overly worried about "perfect" drawings, because interpretation errors already exist today. In the future it will be easier to design information for builders.

## I HOPE / I FEAR THAT...

I hope that... we will see an increased focus on "boundaries" that make technology usable: well-defined zones and work areas, stable reference points for cameras and automation - more like a factory logic brought onto site. I fear that... legal frameworks will hold us back. If models are shared more in real-time, who carries the risk if someone builds from an unfinished state? Until we solve version control and contractual certainty around models and derived drawings, the technology will move faster than the rules that allow it to be used. ■



**EMIL ALBERTS**  
Head of Digitalisation,  
Enemærke & Petersen (E&P)

Photo: Kevin Balaz



**JOE RASMUSSEN**

Team manager for Information Management & Technologies, Metroselskabet

Photo: Kevin Balaz

PREDICTIONS

# DATA MATURITY IS A 20-YEAR JOURNEY

Joe Rasmussen is Team manager for Information Management and Technologies at Metroselskabet, where he has spent the last decade pushing the civil engineering sector toward digital maturity. With nearly 30 years in construction and a front-row seat to some of Denmark's most complex infrastructure projects, he knows that data-driven construction is not a quick fix, but a generation-long transformation.

**I KNOW THAT...**

Within the next year, we will see more common standards emerge across organizations. The construction industry's requirement structure will be significantly improved, particularly for civil engineering projects. This might sound like a small technical detail, but it's fundamental. These standards will make it far easier for us to coordinate across projects, consultants, contractors, and building owners. When everyone speaks the same data language, collaboration stops being a translation exercise and starts being productive. This is not a hope - it is already happening.

**I BELIEVE THAT...**

In the next 2-3 years, something will emerge that is better than what we call AI today. Right now, AI is incredibly hyped, but I am certain that technology will continue to evolve in ways that serve our industry more directly. Just like almost everyone

now uses ChatGPT when writing, we will see tools that make our work in construction faster, clearer, and more useful. The exact form is still unclear, but the direction is certain: technology will keep developing, and it will make things easier for us, as long as we are able to adopt it.

**I HOPE / I FEAR THAT...**

Looking 10 years ahead, I hope we will finally achieve the data-driven maturity I have been working toward for the past 20 years. Not just among the large contractors and consultants, but across all tiers, including the specialists and smaller players. I fear, however, that this will take the full 10 years to materialize. Being concrete about what happens that far out is difficult, but I am convinced of one thing: maturity cannot be rushed. If we keep pushing steadily, without losing focus, we will get there. And when we do, the industry will operate in a fundamentally different way. ■

# SPEED SHOULD NOT COME AT THE COST OF QUALITY

Anders Medin Feldbæk, Director at Züblin Denmark, works at the intersection of design, execution, and leadership. With experience from complex projects across extreme climates and markets, he sees automation and generative design accelerating construction faster than ever. His focus is not just speed, but how the industry preserves quality, architecture, and human judgment as data-driven workflows reshape the value chain.

## I KNOW THAT...

Over the next year, generative and automated design will move from experimentation into everyday project development. What used to take months in early design phases can now be achieved in weeks. We are already seeing engineering calculations, volume studies, and early architectural iterations accelerate dramatically. This is not theoretical. It is already changing how quickly projects can be qualified, evaluated, and moved forward.

## I BELIEVE THAT...

Within the next three to five years, the industry will be forced to rethink its processes from early development through execution. Automation will reshape design management, tendering, and

engineering workflows, but human verification will remain essential. The real challenge will be preserving architectural quality and buildability while adapting to faster, data-driven ways of working. If we fail to rethink our processes, speed will come at the cost of quality.

## I HOPE / I FEAR THAT...

Looking ten years ahead, I hope automation and data will reduce waste, CO<sub>2</sub> emissions, and time lost on repetitive tasks, freeing people to focus on better solutions and better buildings. I fear a future where efficiency turns construction into a factory, stripping away the human judgment, creativity, and responsibility that give architecture meaning. Technology should amplify human decision-making rather than try to replace it. ■

**ANDERS MEDIN FELDBÆK**

Director,  
Züblin Denmark

Photo: Kevin Balaz



**JETTE BAKGAARD  
STOLBERG**  
Expertise Director BIM/ICT,  
NIRAS

Photo: Kevin Balaz

## PREDICTIONS

# LET'S REMOVE THE BORING STUFF

Jette Bakgaard Stolberg leads BIM & ICT strategy at NIRAS, one of Denmark's largest engineering consultancies. With nearly two decades in the advisory sector and a background in software implementation, she shapes how the firm develops digital competences and structures data across its building portfolio. She also chairs Molio's IKT user group and was part of the working group behind the recent overhaul of Denmark's drawing standards. Her focus is less on technology itself and more on what it takes to make people actually use it.

### **I KNOW THAT...**

Over the next year, we will start putting our accumulated project data to work. The experience numbers we've been collecting across schedules, costs, and performance, will become a real basis for decisions. At the same time, AI is entering our modelling tools as a practical assistant: helping with repetitive tasks, generating small automations, doing the things we used to need a formal development project for.

I expect fewer big internal tool-building efforts and more everyday programming, colleagues creating and sharing their own small solutions, adapting them to fit their specific needs.

### **I BELIEVE THAT...**

In the next two to three years, computational design will mature to the point where we can genuinely programme our buildings. Generate a design proposal, adjust the parameters, generate another etc, until the

model converges. The tools are moving fast; what's lagging is adoption. And underneath all of it, data structure will finally get the attention it deserves. Every firm knows it matters, but too few have done the work. If your data isn't clean and well-structured, none of the new technology will deliver on its promise.

### **I HOPE / I FEAR THAT...**

I hope that in ten years, we've removed the boring stuff. The dimensioning, the drawing setup, the date corrections, the endless uploads - all the repetitive work that keeps talented engineers chained to tasks far below their skill level. I want to help the people at the bottom of the production chain: the modellers who sit waiting because someone upstream didn't deliver on time, who stay until 8 pm to make it work. If we can automate the tedious and free them to do what they're actually good at, we don't just gain efficiency. We gain happier, sharper people. And that's the only resource that truly matters. ■

# DIGITAL TWINS MUST DELIVER EFFICIENCY

Jesper Skou leads project delivery at Wicotec Kirkebjerg, one of Denmark's largest MEP contractors, overseeing projects from 5 to 300 million euros across healthcare, pharma, defense, and premium offices. He focuses on the gap between digital ambition and the realities of delivering complex projects.

## I KNOW THAT...

Over the next year, we will consolidate what we have learned. The last few years have been about building new digital workflows while delivering large projects. Now it's time to turn those experiences into standards. We'll compare scorecards from projects in finalization, extract the lessons, and put that knowledge into corporate memory. If we don't capture what we've learned now, we'll repeat the same mistakes.

## I BELIEVE THAT...

In the next three years, we face a critical challenge: the cost of building and maintaining digital twins continues to increase. Our more experienced colleagues ask us, "Are you really sure the cost matches the value?" We haven't solved that equation yet. I believe the tools will evolve to become faster and more economical.

AI will begin automating parts of the design - duct channels, fire detection systems, basic layouts - making models cheaper to produce. But we also need to shorten the time from initial idea to construction start. Some projects we're executing today have gone

through years of design. Requirements change. COVID changed office design. Projects conceived before that required massive rework, adding months and millions in cost. If we're serious about digital twins, we need to compress timelines and freeze changes once construction begins.

## I HOPE / I FEAR THAT...

I hope that in ten years, open collaboration across the entire value chain becomes standard. Construction companies will be involved early - not as an exception, but as the norm. Building owners, engineers, and contractors will sit together with the digital model, discussing what can be optimized before a single element is built. We'll spend less time negotiating legal terms and more time agreeing on how we'll cooperate and manage changes.

My fear is that if we don't make models easier and cheaper to work with, we won't bridge the gap. The construction industry hasn't increased efficiency since the 1960s. The cost per built square meter has only gone up. Digital twins have the potential to change that, but only if we solve the cost problem first. ■

**JESPER SKOU**  
Senior Vice President  
for Projects,  
Wicotec Kirkebjerg



Photo: Kevin Balaz



**LARS FUHR PEDERSEN**  
Vice President,  
Heavy Civil Projects  
for Major Public Clients,  
COWI

Photo: Nicklas Askling / PhoVi

## PREDICTIONS

# ORGANISATIONS THAT ACT NOW WILL SET THE TERMS

Lars Fuhr Pedersen is Vice President, Heavy Civil Projects for Major Public Clients at COWI. With 36 years in the industry as contractor, technical director at Sund & Bælt, and now adviser on major Danish and international infrastructure projects, he brings a rare 360-degree perspective to the data debate.

### **I KNOW THAT...**

Data will become the backbone of every project decision. We already use it far more systematically than five years ago. We have structured risk overviews, real-time portfolios, Power BI across the organisation. But we are still early. The organisations that build this capability now will set the terms for how infrastructure is delivered. The question is no longer whether data matters, but how fast you can make it actionable.

### **I BELIEVE THAT...**

Within two to three years, we will stop treating our models as silos. Today a project typically runs a BIM model, a finite element model and an asset management model in parallel, with little cross-pollination. AI will drive genuine integration across all of them. The result will be something close to a

true digital twin - a living record connecting design intent, structural calculations, drone imagery and operational data. Projects we complete today will actively teach us how to build the next ones.

### **I HOPE / I FEAR THAT...**

My hope is that procurement models catch up with technical ambition. Better data enables us to make sharper life-cycle decisions, reduce risk, and have more honest cost forecasting. This kind of value is real and demonstrable. But the industry still largely evaluates consultants on price and linear deliverables.

My fear is that the bottleneck will not be technology or willingness. It will be contracts and evaluation frameworks that were designed for a different era. We will have the capability long before we have the commercial structures to use it. ■

# EXPERIENCE GUIDES THE MACHINE

Lars Scheibel is Managing Director of NCC Building Denmark and Country Manager for NCC Denmark. A civil engineer from DTU (1995), he has spent over 30 years leading projects and divisions across every segment of Danish construction.

## I KNOW THAT...

Some contractors will hand over buildings in the next twelve months that they cannot legally put into use, simply because they never tracked their CO<sub>2</sub> footprint as a live data stream through the project. Building regulations tighten with every revision, and the first projects built under stricter thresholds are approaching handover. Managing LCA values on gut feel, rather than running a green ledger alongside your cost and time accounts, will catch up with you. At NCC, when a client asks for a change, we tell them what it costs against their sustainability budget. The window to build this capability retrospectively is already closed.

## I BELIEVE THAT...

The 3 to 6 months of preliminary engineering that every complex project demands will compress to a fraction of that within two to three years. AI will generate proposals optimized for minimum material use, calculate the consequences of design changes in real time, and run 10 scenarios in the time it used to take to run 2. The constraint shifts from computation to judgment - knowing which question to ask, and which path to rule out before the

machine starts. That is where institutional memory earns its keep. A company like NCC carries 30 years of data on what clients regret and what projects actually take. Experience guides the machine; it does not race against it.

## I HOPE / I FEAR THAT...

Within 10 years, I hope that telling a client "we're about 70% done" has been retired as an acceptable answer anywhere in this industry. Progress tracking is the single biggest gap between what construction promises and what it delivers. Digital tools such as cameras, sensors, or model comparison can get us within 2 decimal points of where a project actually stands. Link that to your cost and resource history and you can give a client a real date, with a real basis - not "sometime in spring."

My fear is simpler: that we keep treating data as a reporting tool rather than a decision tool. Every generation has absorbed the next wave of automation and made it work, but only the ones who acted early got to set the terms. Thirty years in, I have seen enough to be genuinely impatient about what is coming. ■

**LARS SCHEIBEL**  
Managing Director,  
NCC Building Denmark &  
Country Manager,  
NCC Denmark

Photo:  
Nicklas Askling / PhoVi

# 05

## THE AI REALITY CHECK

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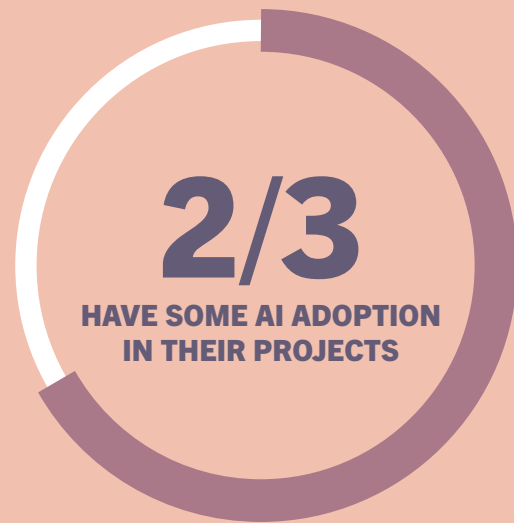
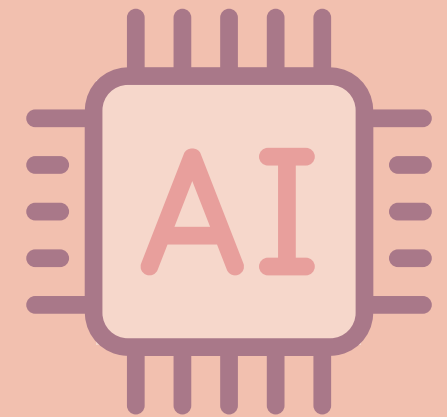
**"AI STILL STRUGGLES  
TO FULLY GRASP HOW  
THE CONSTRUCTION  
BUSINESS WORKS."**

VDC Lead, Denmark

# 05

## THE AI REALITY CHECK

ONSIGHT PROJECTION REPORT 2026



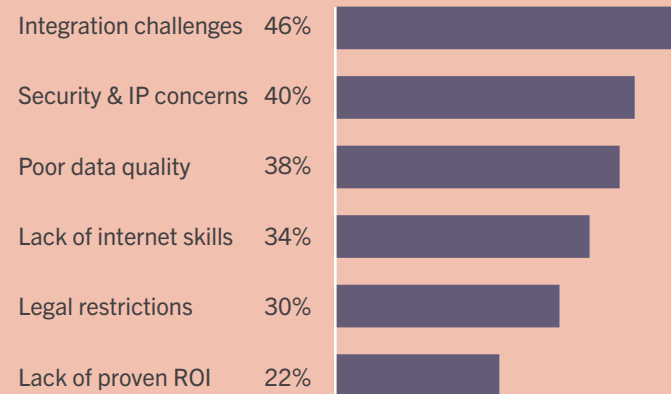
The AI revolution hasn't fully reached construction sites, but momentum is building. While **33% report no AI adoption yet**, 43% are using document copilots and 26% employ code/specification search tools.

The adoption pattern suggests cautious experimentation rather than wholesale transformation.

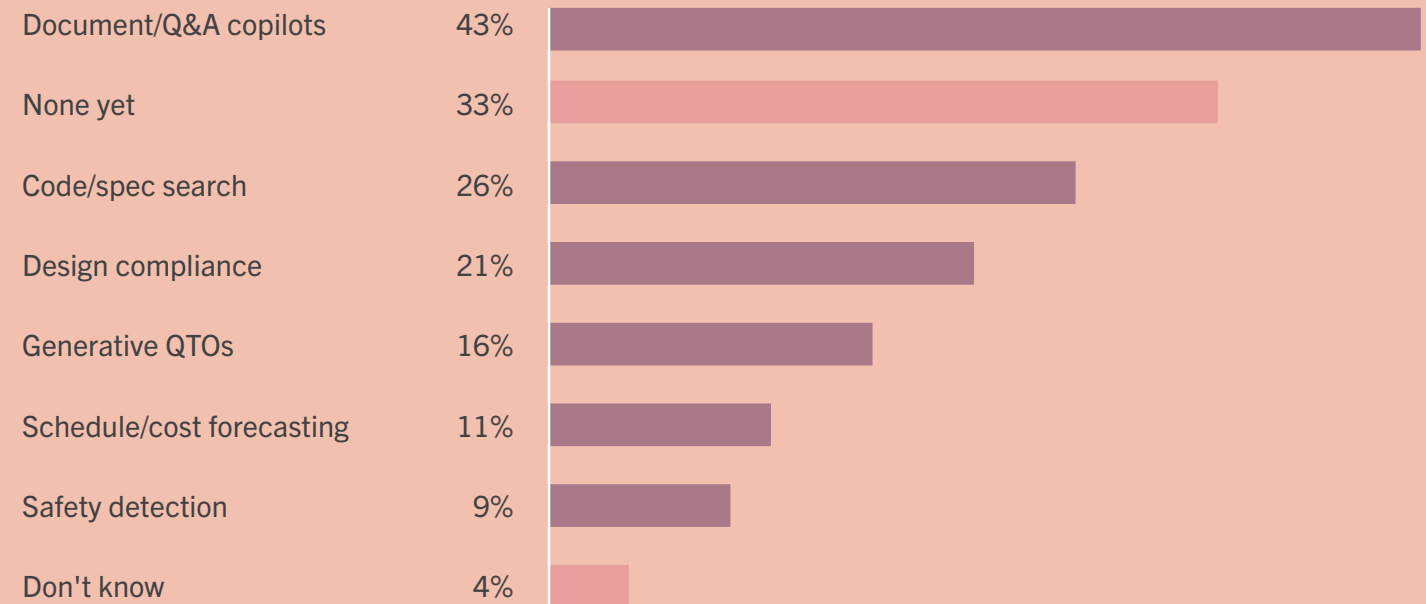
### BARRIERS TO ADOPTION

Integration challenges top the barrier list at 46%, followed by security/IP concerns (40%), poor data quality (38%) and lack of skills (34%).

These barriers form a vicious cycle: poor data quality makes AI less effective, which reduces ROI, which limits investment in skills, which prevents proper integration.



### AI APPLICATIONS CURRENTLY IN USE



**"IT WOULD AUTOMATICALLY CLEAN, STRUCTURE, AND VALIDATE IFC DATA SO I CAN RELY ON CONSISTENT PROPERTIES AND QUANTITIES WITHOUT MANUAL CHECKING."**

BIM Manager, France

### WHAT PROFESSIONALS ACTUALLY WANT FROM AI

The most requested AI application isn't generative design or autonomous construction, but rather data validation and quality checking.

Professionals want AI to handle the grunt work: checking, validating, enriching, and cleaning data. This pragmatic focus reflects hard-won experience: without clean data, nothing else works.

### POINT OF VIEW

**AI adoption reflects caution, not resistance**  
Adoption is emerging, but selectively. Document copilots are common. High-impact production use cases are rare. Professionals are not asking AI to redesign construction. They are asking it to validate data, search specifications, and reduce manual effort.

At the same time, integration challenges and security concerns remain significant barriers. The pattern suggests pragmatism. AI is being tested where risk is low and value is tangible, not where systems, governance, and data maturity are still evolving.

## WE'VE DIGITISED DRAWINGS, NOT DECISIONS

Jacob Drachmann has seen digital transformation in construction unfold up close - from the early BIM experiments to today's AI hype cycle. As Chief Commercial Officer at CN3, he spends his days helping large infrastructure projects make sense of their own data. His conclusion is blunt: most of the industry has only digitised the surface.

### THE ILLUSION OF CONTROL

"We've come far with BIM," Jacob says, "but in practice, it's still mainly used to produce drawings. The real potential - using data as the foundation for decisions - is still ahead of us."

For Jacob, the biggest challenge in large projects today is fragmentation. "Data is all over the place," he says. "You export a model, share it through email

or your CDE, and the moment someone opens it, it's already outdated."

Teams still rely heavily on manual exports and retyping. "It's basically the digital version of passing around a USB stick," he explains. "The moment you take data offline, it stops being reliable."

That lack of consistency creates risk. "People often don't know



Photo: Jørgen Asmussen

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**“IF THE DATA  
ISN'T RELIABLE,  
AI JUST  
PRODUCES  
FASTER  
NONSENSE.”**

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The SILO by COBE  
Photo: Courtesy of  
Rasmus Hjortshøj Studio

if what they're looking at is the latest version, or if someone else has updated the data yesterday. Decisions get made on shaky ground, and that's where misunderstandings - and conflicts - begin."

#### **FROM MODELS TO DATA ROOMS**

CN3 is advocating a shift from model-based thinking to data-based thinking. "We call it the data room," Jacob explains. "It's the place where you know you're looking at live information - quantities, properties, costs, emissions - all synchronised."

He doesn't believe in a single platform to solve everything. "It's about connecting the right ones. The model, the schedule, the cost system, the sustainability data - they all need

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## **“THE TOOLS AREN'T THE PROBLEM - THE LACK OF CONNECTIVITY IS.”**

to talk to each other. The idea is that everyone works from the same source of truth but sees it through their own lens."

For executives, that might mean dashboards and key metrics; for engineers, detailed quantities and models. "It's the same data," Jacob says, "just presented differently depending on your role."

#### **AI WILL ONLY HELP IF THE DATA IS RELIABLE**

Like many in the industry, Jacob sees the potential of artificial intelligence - but he's careful not to oversell it.

"AI will definitely help us automate document reading, submittal reviews, quality checks, all those time-consuming tasks," he says. "But if the data isn't reliable, AI just

produces faster nonsense."

He sees the real promise of AI not in replacing people, but in connecting patterns across projects. "Every project is unique, but the mistakes are the same. AI can help us learn from that - find where delays happen, where handovers fail, and where we lose time or knowledge."

#### **THE CHALLENGE OF WORKING ACROSS CULTURES AND CONTRACTS**

Jacob has worked on projects across several countries and sees how culture and regulation shape digital adoption.

"There are big differences," he explains. "Each country has its own legislation and standards, and that drives how teams work. But even within one country,

Sundsvall Bridge  
Photo: Courtesy of Trafikverket



every project becomes its own micro-culture. New consultants, new contractors, new client - you're basically rolling the dice each time."

Still, he believes progress is visible. "BIM has created a more common language across the Nordics. It's easier to find common ground now. But at the end of the day, culture still decides whether people share data or protect it in silos."

#### **THE IDEA OF A CONTROL ROOM**

When asked what his ideal setup would look like, Jacob doesn't hesitate: "A digital control room."

He imagines a shared environment where everyone - from executive management to site engineers - can see what matters most to their work. "Top management should be able to see costs, risks, and progress. The project manager should see live quantities.

The engineer should see the model. But they should all be looking at the same, reliable data."

For him, this kind of transparency would change more than processes. "It would change behaviour. We'd have more evidence-based discussions, fewer arguments, and fewer surprises. Most conflicts come from missing or unclear information."

#### **KILLING BAD HABITS**

When we ask Jacob what tool he'd like to get rid of, he laughs. "Not a tool - a practice. I'd kill the habit of dumping and retyping data. That's the real problem."

He mentions a large contractor who found out that the same quantity was typed manually thirteen times between tender and site kickoff. "That's crazy," he says. "The tools aren't the problem - the lack of connectivity is.

As long as systems don't talk to each other, we'll keep wasting time."

#### **BEYOND BIM**

Jacob also believes the industry should rethink its language.

"Maybe we should stop talking about BIM as the goal," he suggests. "What we really need is an information model - a digital twin that combines everything: drawings, models, quantities, and live data. BIM is part of it, but not the whole picture."

He pauses. "BIM has become a word that means too many different things. If we focus on information instead, we'll get closer to the real objective - building from one coherent source of truth."

#### **MEASURING FLOW**

Before we finish, Jacob brings up a new metric he'd like to see: the Flow Factor.

"On-site, we already measure safety and CO<sub>2</sub>, but we should also measure whether the project is actually progressing," he says. "When coordination breaks down and teams start reworking tasks, everyone feels it.

A high flow factor means the project is well coordinated. A negative one means something's stuck."



Photo: Jørgen Asmussen

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He smiles. "It sounds simple, but it tells you everything about how a project really runs."

After more than a decade of working at the intersection of construction and technology, Jacob's message is refreshingly down to earth:

"You can't make good decisions on bad data," he says.

"If we can fix that, everything else - AI, automation, digital twins - will fall into place." ■

**“AS LONG AS SYSTEMS DON'T TALK TO EACH OTHER, WE'LL KEEP WASTING TIME.”**

# 06

## TOP PRIORITIES FOR 2026

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**"IF I HAD A MAGIC WAND,  
I WOULD ELIMINATE  
INCONSISTENT MODEL DATA  
ACROSS DISCIPLINES AND  
SYSTEMS, SO THE PROJECT  
CAN RUN ON ONE RELIABLE  
AND FULLY ALIGNED SOURCE  
OF TRUTH."**

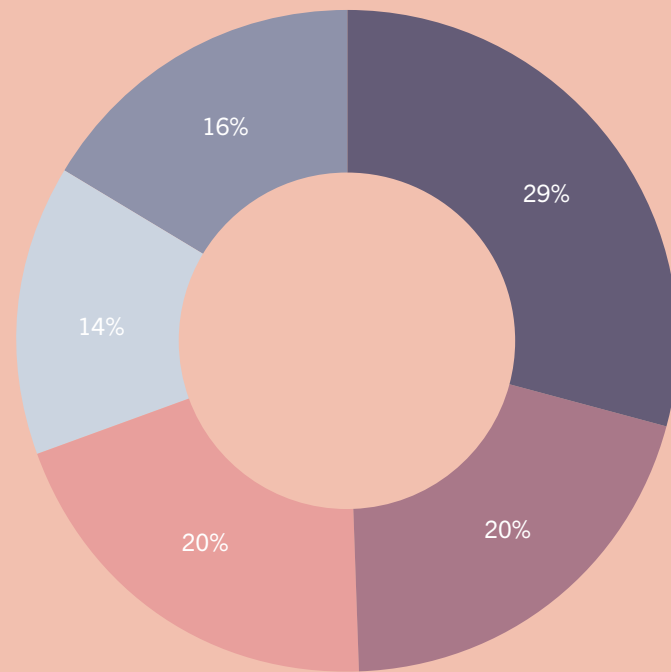
BIM Manager, Netherlands

# 06

## TOP PRIORITIES FOR 2026

ONSIGHT PROJECTION REPORT 2026

**WHEN ASKED ABOUT THEIR TOP DIGITAL PRIORITY FOR THE NEXT 12 MONTHS, RESPONDENTS REVEALED A FOCUS ON FUNDAMENTALS OVER INNOVATION.**



### INTEGRATION BEFORE INNOVATION

Data integration leads at 29%, followed by automation/analytics (20%), data standards (20%), team upskilling (16%), and real-time visibility (14%).

The emphasis on integration confirms a critical insight: before building the penthouse, the industry needs to fix the foundation.

### TOP DIGITAL PRIORITIES (NEXT 12 MONTHS)



### PRIORITIES BY BUDGET SIZE

The largest projects (€500M+) prioritize data standards and governance (30%), recognizing that at scale, consistent standards become essential.

Mid-sized projects (€10-100M) focus on automation and data integration (both 26%), while smaller projects (€2-10M) emphasize team upskilling (29%), reflecting different resource constraints.

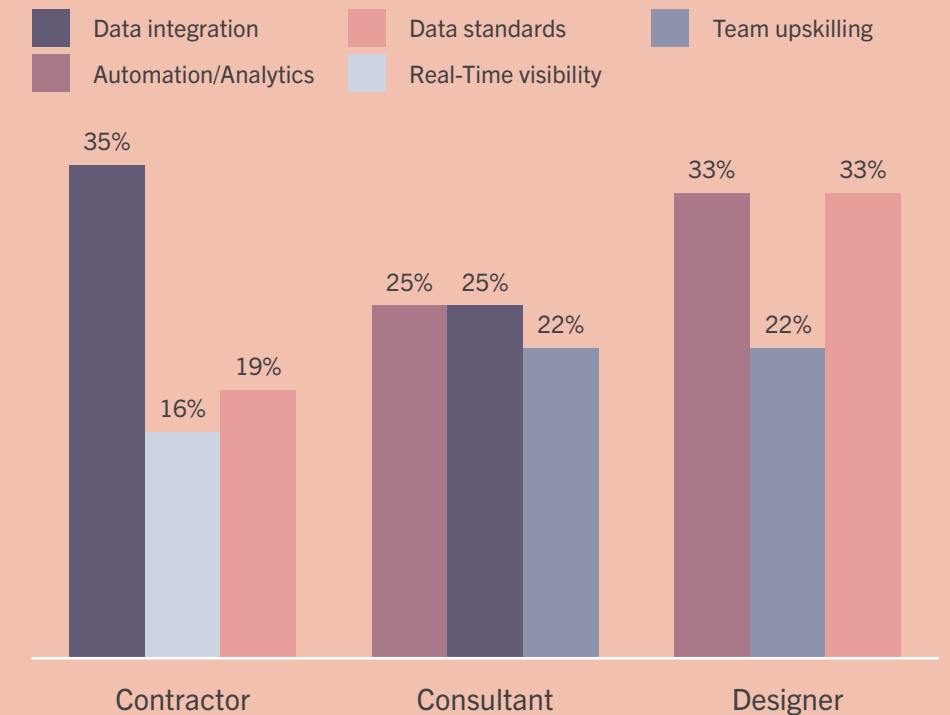


## PRIORITIES BY ORGANIZATION

Contractors prioritize data integration (35%), reflecting their position at the receiving end of fragmented information flows.

Consultants prioritize data integration and automation equally (both 25%), while designers prioritize data standards and automation (both 33%), having presumably already addressed basic integration challenges.

### TOP PRIORITY BY ORGANIZATION TYPE



## POINT OF VIEW

**Why do fundamentals keep topping the list?** Integration, standards, and governance once again rank above advanced automation and innovation.

That may reflect maturity. But it may also raise a broader question. Is there a structural challenge in how the industry collaborates,

one that repeatedly forces attention back to alignment and coordination? When projects are fragmented across contracts, disciplines, and systems, integration becomes a recurring priority rather than a solved problem.

If the foundation must constantly be repaired, innovation will always be sequenced behind it.

Photo: Kevin Balaz

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**“DIGITALISATION HAS TO BE PART OF THE CORE PROCESS. IF IT LIVES AS A SUPPORT FUNCTION, YOU HAVE ALREADY LOST.”**

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HOW EMIL ALBERTS IS RESHAPING DATA, TOOLS, AND LEADERSHIP AT ENEMÆRKE & PETERSEN

## MAKING DIGITAL A CORE PRODUCTION DISCIPLINE

Emil Alberts is Head of Digitalisation at Enemærke & Petersen, but the title matters less than where the role sits. He works closely with the company’s operational director, embedded directly in the production line rather than in a central staff function. “When we talk about digitalisation,” Emil says, “it’s out there with the people who actually build.”

### FROM SPECIALIST TO ORGANISATIONAL CAPABILITY

Emil joined Enemærke & Petersen five years ago after working at sister company MT Højgaard. Earlier in his role, he worked hands-on with individual projects as a BIM or ICT specialist, helping teams adopt digital tools. Over the last two years, that approach has been deliberately replaced with something more strategic.

“My job today is actually not to be involved in projects,” he says. “If production needs me to function digitally, then we haven’t succeeded.” Instead, his focus is on training the organisation so digital competence becomes a basic requirement of working in production.

This shift is closely tied to the company’s project portfolio.

Enemærke & Petersen delivers many small and mid-sized projects, often through long-term partnerships with municipalities and social housing providers. Digitalisation, therefore, must work across dozens of projects, not just shine on one flagship job. “Digitalisation often becomes a prestige exercise on big projects,” Emil notes. “Our challenge is making it work everywhere, even on the small ones.”

#### WHEN 3D BECOMES A PREREQUISITE

One of the clearest signs of progress is how 3D models are used on site. What was once optional is now essential. Emil recalls asking site managers what would happen if they lost access to the model. “Most said they wouldn’t be able to do their job anymore,” he says. “That’s a massive change. A few years ago, many didn’t think 3D was useful at all.”

Today, the model functions as a shared dialogue tool. Teams navigate it, clip views, and use it to clarify scope and sequencing. “It’s not advanced workflows,” Emil stresses. “It’s simple things. But instead of being an extra layer, the model is now a prerequisite.”

That shift also changes expectations toward advisors. When models become essential for execution, usability matters. “Now we’re not just selling 3D,” Emil says. “We actually need material we can build from.” In some cases, the biggest challenge is still basic: file exchange and accessibility. “When we say we need to



Photo: Pernille Greve  
Courtesy of Enemærke & Petersen

navigate the model, not everyone in the industry is ready for that requirement.”

#### PRODUCTION FIRST, NOT MODEL FIRST

Despite the strong focus on models, Emil is clear that Enemærke & Petersen does not define its core competence as design control. Tracking quantities or model deltas may make sense on some projects, but it is not where the company’s value lies. “We’re not here to control design,” he says. “We’re here to manage construction.”

The model’s primary role is communication. When issues arise, the key question is how clearly they can be shared and acted upon. “If there’s a design issue,” Emil explains, “the important thing is how you communicate it so the project can move forward.”

#### MEASURING WHAT ACTUALLY MATTERS

Rather than framing digitalisation around BIM maturity, Emil frames it around a production system built on planning, quality, and economics. Digital tools support that system by making interactions more transparent.

What interests him most is measurement. “The big question for me is how we create data from our core competence,” he says. Quantities and design issues matter, but they are not the essence of construction management. Production data is.

Technical queries are a good example: how many are raised,

how fast they are answered, and whether construction proceeds without responses. “That’s production safety data,” Emil says. “That’s where real risk lives.”

Even simple indicators can be powerful. “How often do people actually open the model?” he asks. These signals

bottlenecks, delays, and recurring issues across projects.

#### THE REAL BOTTLENECK: EXCHANGE AND RESPONSIBILITY

If Emil could change one thing in the industry, it would be how models are exchanged and versioned between parties. “It

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## “WE’RE NOT HERE TO CONTROL DESIGN. WE’RE HERE TO MANAGE CONSTRUCTION.”

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are discussed in regular improvement meetings, where project leaders are trained to spot trends rather than chase perfect benchmarks. “We don’t know exactly what ‘good’ looks like yet,” Emil admits. “But we train leaders to recognise patterns and react.”

#### AI, BUT ON CONSTRUCTION’S TERMS

Emil sees AI as inevitable, but only valuable if trained on the right data. “If you want to use AI in construction, you have to train it on something meaningful,” he says. Advisors will train AI on design. Contractors must train it on production behaviour:

should be simple,” he says. “Press a button, and it’s there.”

Technology is not the real barrier. Legal uncertainty is. Advisors are understandably cautious about sharing live models, fearing liability if someone builds from incomplete information. “The rules simply don’t support that level of transparency yet,” Emil explains.

Until responsibility, versioning, and contractual frameworks catch up, Emil believes digital construction will remain constrained - not by tools, but by the systems surrounding them. ■

# THE JOB WITH THE BIG EARS

As Expertise Director for BIM and ICT at NIRAS, Jette helps set the digital direction for one of Denmark's largest engineering consultancies. But her definition of the role is disarmingly human: deciding what to develop, what to buy, and how to help people do their work better.

When Jette Bakgaard Stolberg describes her job, she does not start with platforms or processes. She starts with ears.

"The job requires enormous ears," she says. "I have to listen to what my colleagues experience on projects. They're

the ones dealing with the real problems."

#### PASSING THE "ERIK" TEST

Jette keeps returning to one story. Erik was a senior ventilation engineer, well into his late sixties, who had spent a career reading flat drawings and

paper diagrams. When the team introduced 3D modelling, he was sceptical. Then something shifted. Erik saw the value in the new way of working and began flying through the models, racing along virtual ductwork to spot clashes before anyone else. The team called it "the Erik test."

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**“WE CAN HAVE ALL THE IT SYSTEMS IN THE WORLD, BUT IF WE DON'T BRING OUR PEOPLE ALONG, WE WON'T GET ANYWHERE.”**

—

“That was before we had proper clash detection tools,” Jette says. “But it wasn’t the technology that mattered. It was watching someone who had every reason to resist find genuine value in a new way of working. *That’s what I get up for in the morning.*”

The story also carries a warning. When Jette was still in the software industry and Revit first arrived, she was certain the entire profession would be modelling within five years.

“That didn’t happen,” she says. “Individual adoption can surprise you. Erik proved that. But industry-wide change is always slower than you expect. You have to say it and show it many, many times, because they’ve been building houses for a hundred years.”

#### **THE BEER CRATE METHOD**

NIRAS employs thousands of engineers with deep specialist knowledge. Jette describes them, with affection, as people who value autonomy. “It’s in the DNA,” she says. “They have their way of doing things, and that independence is part of what makes them excellent. But it can make standardisation a long conversation.”

The challenge is familiar across the industry. Adoption rarely fails because the technology is inadequate. It fails because people need to see it work for someone like them. Jette’s strategy is built around that principle: rather than standing on the soapbox herself, she gets the structural engineer or project

manager who has seen results to share the story with peers.

NIRAS has formalised this into a learning model. Short, modular sessions delivered just in time when a colleague needs the skill, and not months before. Internal knowledge sharing sessions where practitioners share real project experiences and challenges, peer mentoring within the same discipline because a ventilation engineer learns best from another ventilation engineer. “We don’t send people on three-day courses,” Jette says. “Knowledge leaves that fast.”

#### **BUILD, BUY, OR SHARE**

NIRAS has the scale to develop their own digital tools: custom automations, robotic process scripts, internal applications. But Jette is candid about the cost. “We spend a lot of money maintaining our in-house tools,” she says.

And there’s the vulnerability: what happens when the person who built it leaves?

“Every time we start something, we ask: should we build this, find a solution in the market, or find someone who can develop this with us? It is a dilemma that smaller and mid-sized firms face even more acutely. They have the same repetitive work, the same need for automation, but not the internal development muscle. “They’re on exactly the same journey,” Jette says. “They just depend more on vendors stepping in to help.”

This conviction extends to her

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**“I HAVE TO LISTEN TO WHAT MY COLLEAGUES EXPERIENCE ON PROJECTS. THEY’RE THE ONES DEALING WITH THE REAL PROBLEMS.”**

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work outside NIRAS. As chair of Molio’s IKT user group, Jette was part of the working group behind the recent overhaul of Denmark’s drawing standards: new publications for landscape and fire safety, updated standards aligned to current ISO requirements, and a new digital app mapping drawing deliverables across project phases. “The app makes it easier to talk across disciplines and understand what each party delivers at each stage,” she explains. “That kind of shared foundation lifts the whole industry, not just the big players.”

#### **THE DATA RECKONING**

Jette started in the software industry implementing early CAD



Photo: Kevin Balaz

and BIM tools. When she moved to the advisory side nearly twenty years ago, digital models were a novelty. Today, they are the baseline for any serious tender. “If you don’t have the right references, you can’t even bid,” she says.

“The large clients such as hospitals, defence, or airports won’t let you in the door without proof that you’ve delivered digitally. And those references can’t be eight years old.”

Yet trust in project data remains imperfect. Jette recognises the gap. “Engineers want to stand behind exactly what the data says. So they check it themselves. But over time, when they verify and the numbers hold, the confidence grows.”

The deeper issue, she believes, is data structure. The industry has been talking about it for a decade, but the urgency is new. “We can suddenly see the application,” she says. “With AI arriving inside our tools, you realise: if the data underneath isn’t clean, none of it works. That’s why every leader I talk to now has data structure at the top of their agenda.”

The distance still to travel, she believes, is not primarily technical. It is cultural: convincing autonomous specialists that structure and freedom can coexist. “Our colleagues are our gold,” Jette says.

“We can have all the IT systems in the world, but if we don’t bring our people along, we won’t get anywhere.” ■

07

## THE 2027 VISION

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**"I AM NOT CONVINCED THAT  
THE CONSTRUCTION INDUSTRY  
WILL BE READY FOR AI.**

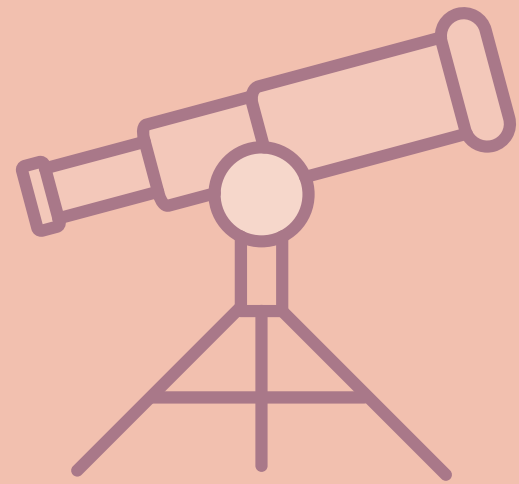
**AT THIS STAGE, IT IS NOT  
HEADING IN THAT DIRECTION,  
AND I FIND IT DIFFICULT TO  
IMAGINE FRANCE CATCHING UP  
BY 2027. IT'S A REAL SHAME."**

BIM Strategy Lead, France

# 07

## THE 2027 VISION

ONSIGHT PROJECTION REPORT 2026



**WHEN ASKED WHAT TECHNOLOGIES WILL BECOME STANDARD WITHIN TWO YEARS, RESPONDENTS SHOWED MEASURED OPTIMISM ABOUT SPECIFIC CAPABILITIES WHILE REMAINING SKEPTICAL OF BROADER TRANSFORMATION.**

### TOP PREDICTIONS

Near real-time data sync between office and field tops the list at 40%, followed by model-based cost controls (38%), automated progress tracking from reality capture (38%), and federated CDE (35%).

These predictions reflect practical evolution rather than revolutionary change.

**"TIME WILL SHOW. AUTODESK IS DEFINITELY WORKING ON SOMETHING BIG, AND IT'S DEFINITELY AI-DRIVEN."**

Developer, Denmark

### ROLE-BASED PERSPECTIVES

Each role gravitates toward capabilities closest to their daily pain points. Construction engineers unanimously prioritize automated progress tracking (100%), while VDC leads favor real-time data sync (55%), reflecting their role bridging office and field. BIM managers place model-based cost controls (5D) at the top (44%), with real-time sync and progress tracking tied just behind.

Notably, not a single VDC lead expects digital twins with live telemetry to become standard by 2027 - a striking contrast to the 16% overall figure. Those closest to implementation may be the most realistic about timelines.

## WHAT WILL BE STANDARD BY 2027?

**38%**

Automated progress tracking

**40%**

Near Real-Time Data sync

**38%**

Model-based cost controls (5D)

## POINT OF VIEW

*If real-time sync is expected, who is moving toward it?*

Many expect near real-time data synchronization to become standard within two years.

The technology already exists in various forms. The question is whether organizations are actively seeking tools and setups that

enable it, or whether they expect their current platforms to evolve and eventually deliver it.

Belief in a capability does not automatically translate into action.

If real-time collaboration is truly a priority, it may require deliberate choices, not just patience.

# CLOSING THE GAP BETWEEN SPEED AND CRAFT

When Anders Medin Feldbæk talks about construction, he rarely speaks in absolutes. His language is shaped by experience across climates, cultures, and project types where certainty is a luxury and adaptability a necessity. From - 40° in Greenland to +40° in Australia, his career has been defined by logistics, scarcity, and the practical realities of getting buildings delivered under pressure.

Photo: Kevin Balaz



## FROM EXTREMES TO EXECUTION

Anders' professional journey did not follow a linear path. Trained as a constructing architect and holding a master's degree in project management, he spent more than a decade working internationally before settling into leadership roles. The environments he worked in were often defined by constraint rather than abundance. Materials were scarce. Supply chains fragile. Time windows narrow.

"In those conditions, logistics become the real challenge," he explains. "Not the drawing, not the model, but getting the right material to the right place at the right time."

That grounding still shapes how he views digitalization today. While Denmark offers stability, structure, and access to advanced tools, he remains cautious about mistaking technological sophistication for real progress. Digital tools, in his view, only matter if they improve the core business of construction: building safely, efficiently, and with lasting quality.

## SPEED HAS ARRIVED

Over the past two years, Anders has seen early-stage project development accelerate dramatically. What once took months can now be achieved in weeks. Automated design workflows, data-driven quantity take-offs, and generative modelling have reshaped how projects are evaluated from the earliest phases.

"Speed is no longer theoretical,"

he says. "It is already embedded in how we work."

At Züblin, early project development has become a strategic focus. Using structured data and modelling, teams can quickly assess development potential, test scenarios, and support clients in qualifying projects long before execution begins. This early clarity feeds directly into tendering, design, and construction.

But speed alone is not the goal.

"The risk is not that things move faster," Anders says. "The risk is that we forget what must not be rushed."

## KEEPING THE HUMAN IN THE LOOP

Despite the rapid adoption of automation, Anders is clear that construction is not on the verge of becoming a factory. Buildings remain complex, site-specific, and deeply human endeavours. Even the most advanced tools cannot replace judgement formed through experience.

"There will always be a human factor," he says. "And that is not a weakness. It is part of the quality."

He draws a distinction between repetitive processes that should be automated and critical decisions that require contextual understanding. Engineering calculations may be assisted by algorithms, but accountability remains human. Architectural intent may be supported by generative tools, but meaning cannot be automated.



*As Director at Züblin in Denmark, Anders Medin Feldbæk draws on global experience to navigate an industry in rapid transformation.*

*Automation, data, and generative design are accelerating workflows at a pace few could have imagined even five years ago. The question is not whether this shift will continue, but how the industry maintains quality, judgement, and responsibility while moving faster than ever.*

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**“PEOPLE MAKE MISTAKES. BUT PEOPLE ALSO MAKE PLACES WORTH LIVING IN.”**

In leadership, this balance becomes even more important. Faster tools require clearer direction. Without it, organizations risk drowning in possibilities rather than making better decisions.

#### DATA THAT REACHES THE SITE

One of Anders' strongest convictions is that digitalization must extend beyond offices and models and reach the construction site itself. Too often, data remains locked in systems that never translate into better execution.

To counter this, Züblin has focused on practical, site-oriented implementations. Communication has been moved away from fragmented email threads into shared digital platforms where decisions, clarifications, and documentation remain visible to all stakeholders. The effect, Anders notes, has been immediate.

"It changes behaviour," he says. "People make better decisions when they can see the full context."

One concrete example is fire protection. A traditionally error-prone area, fire stopping has been integrated directly into digital models using plugins that identify locations, specify products, and guide installation. The result is not just better documentation, but fewer defects at handover.

"That is where digitalization becomes meaningful," Anders



Ørestad Church  
© Vivid Vision 2022  
Courtesy of Henning Larsen

“SPEED IS NO LONGER THEORETICAL. IT IS ALREADY EMBEDDED IN HOW WE WORK.”

says. "When it removes risk from everyday execution."

#### DATA, BUT NOT FOR DATA'S SAKE

Despite the growing volume of information available in modern construction, Anders believes the industry still uses only a fraction of it.

Sensors, models, schedules, and operational systems generate enormous datasets, much of which remains untouched.

"The potential is huge," he says. "But access and structure are everything."

He points out that many buildings already collect detailed operational data, yet only basic metrics such as energy consumption are actively used. The deeper insights about usage patterns, performance over time, or material behaviour rarely make it back into design and planning.

At the same time, he is cautious

about the environmental footprint of digital infrastructure itself. Data storage, processing, and AI come with their own costs.

For Anders, the challenge is to use data intelligently, not indiscriminately.

#### STRATEGY IN A MOVING LANDSCAPE

From a leadership perspective, Anders describes the current moment as a navigation challenge. The industry is pulled in multiple

directions at once: technological opportunity, regulatory constraints, sustainability demands, and labour shortages. "There is no single right path," he says. "The danger is trying to do everything at once."

At Züblin, the strategic focus has been on early contractor involvement, supporting clients at the earliest development stages, and ensuring continuity throughout the value chain. A strong start, Anders believes,

remains the best foundation for successful execution.

Equally important is building for operation. Delivering assets that support long-term performance, maintenance, and sustainability goals has become central to how projects are evaluated.

"A project does not end at handover," he says. "That is where its real life begins."

#### THE FUTURE HE HOPES FOR

Looking ahead, Anders does not predict a radical break from today's construction industry. Instead, he sees gradual but meaningful shifts. Automation will continue to remove repetitive tasks. Data will improve decision-making. Processes will become faster and more integrated.

What he hopes for most is that this progress translates into reduced waste and lower environmental impact, particularly in material-heavy processes such as concrete construction.

"If we can solve that," he says, "we will have done something that truly matters."

At the same time, he hopes the industry resists the temptation to reduce building to pure efficiency. Architecture, context, and human experience must remain central.

"The future of the industry lies not in choosing between speed and quality, but in learning how to hold both at once", he concludes. ■



08

**MAGIC WAND  
WISHES**

# 08

## MAGIC WAND WISHES

ONSIGHT PROJECTION REPORT 2026



**WHEN WE ASKED WHAT RESPONDENTS WOULD CHANGE IF THEY HAD A MAGIC WAND, THEMES EMERGED WITH STRIKING CONSISTENCY.**

**"TIME WILL SHOW. AUTODESK IS DEFINITELY WORKING ON SOMETHING BIG, AND IT'S DEFINITELY AI-DRIVEN."**

Developer, Denmark

### THEME 1

#### DATA QUALITY AND STANDARDS (40 MENTIONS)

The most common wish centered on consistent, reliable data. Respondents want naming conventions that don't vary between disciplines, parameters that actually carry through from design to construction, and standards that everyone follows.

*"Inconsistency. People name the same thing in 500 different ways, which makes it very time consuming to sort and filter data."*

BIM Manager, Sweden

#### THE IMPACT THEY'RE SEEKING

When asked what achieving these changes would mean, responses converged on a single theme: time. Time currently spent on digital housekeeping could be spent on actual value creation.

As one respondent put it: 'Less emphasis on firefighting and more on proactive execution.'

*"It would allow me to make decisions faster and with far more confidence, because I could trust the model data without spending time on manual checks."*

BIM Manager, France

### THEME 2

#### INTEROPERABILITY (21 MENTIONS)

After decades of 'open BIM' initiatives, the industry is tired of waiting. They want systems that actually communicate, data that actually transfers, and workflows that actually flow.

*"Eliminate all breaks between systems, disciplines, and data formats - a fully seamless, interoperable BIM ecosystem."*

BIM Manager, Germany

### THEME 3

#### PEOPLE AND CULTURE (17 MENTIONS)

Many wishes focused on changing mindsets rather than technology.

The tools exist; the willingness to use them properly is what's missing.

*"I'd get rid of all contractors that still work on papers."*

BIM Manager, Ireland

### POINT OF VIEW

*The magic wand reveals what still isn't working*  
When respondents imagine a magic solution, they do not describe radical innovation.

They describe consistent data across disciplines. Clear standards. Systems that actually connect. Less time spent correcting and reconciling.

These wishes mirror the recurring themes throughout the survey: moderate data confidence, friction at handover, integration as a top priority.

The pattern is difficult to ignore. The industry is not asking for the next breakthrough. It is asking for the basics to work reliably.

# THE ART OF LEARNING BY F\*CKING UP

We visited Ultra's offices and warehouse to learn about their journey and hear how they went from improvised event builds to a disciplined, digital-first construction practice.



**“EVERY PROJECT  
IS CUSTOM IN  
SOME WAY.  
NO PROJECT  
IS THE SAME AS  
THE LAST.”**

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Project: Above the Trees  
with Erik Fedko  
Photo: Courtesy of Ultra



Photo: Nicklas Askling / PhoVi

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Finding Ultra, whether on the internet or on a map, wasn't very intuitive. Their website URL (uea.dk) tends to confuse more than to guide. It turns out that the acronyms stand for Ultra Events Agency. But Ultra has never relied on heavy marketing or branding efforts to build their

it left the work fragile, dependent on what each person carried in their head rather than on a shared structure.

“We were trying to bring a new scene to sporting events,” says Daniel Ravnholt, CEO and co-founder. “Projects arrived

but as technical advisers and creative contributors. Ultra found itself responsible for shaping ideas, modelling them, coordinating with stakeholders and delivering them on site, often in environments where conditions could shift from one hour to the next.

“Every project is custom in some way. No project is the same as the last,” Daniel says.

This variety eventually exposed the limits of improvisation. As deadlines tightened and the technical requirements increased, Ultra had to rethink how it worked. The shift did not come from a large strategic decision but simply from realising that their existing approach could no longer support the projects they were taking on.

One of the clearest examples came during a Red Bull athlete media project in Germany. The creative idea required a BMX rider to appear, from a carefully chosen camera angle, to leap above the treetops. The site was a dense forest on a steep slope, and the timeline was three weeks. Everything about the environment demanded precision: the placement of each tree, the angle of the hillside, the behaviour of a freestanding scaffold that had to stretch fifty metres down through uneven ground.

“We needed the exact placement of each tree,” recalls Frederik Eliassen, Head of Operations, who led the project. “Going downhill with freestanding scaffolds... it is

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## “GOING DOWNHILL WITH FREESTANDING SCAFFOLDS... IT IS GOING TO TURN OUT BAD IF YOU DON'T HAVE THE EXACT CALCULATIONS.”

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reputation. Yet, they are booked for the next 24 months.

In the early days, Ultra was a small collective of young entrepreneurs trying to bring a new type of sporting event to Denmark. They looked abroad for inspiration, experimented constantly, and relied more on energy than on established methods. The early years were shaped by instinct and improvisation: quick sketches, direct conversations, and ideas built as much on intuition as on planning. It started to work, but

unpredictably, and each one forced us into unfamiliar territory. A BMX event might demand terrain that didn't exist. A client might ask for a structure on a beach, in a forest or on a heritage site, all within a narrow window of time. Nothing repeated. Nothing was standard. Nothing could be built from a template.”

As Ultra's reputation grew, so did the scale of the challenges. Clients such as Red Bull began involving them much earlier in the process, not only as builders

going to turn out bad if you don't have the exact calculations.”

The build required two project managers working at different elevations, coordinating ten technicians who had never seen a structure like this before. The construction had to rise in balanced sections. Whenever two metres were added at the top, the team had to move back down the slope and add weight at the base to keep the frame from tipping. Every choice had structural consequences. Everything had to be accurate.

*Ultra completed the project ...in just eight days.*

For both Daniel and Frederik, that forest build signalled a turning point. They realised that success no longer depended on quick reactions on site but on deeper, earlier alignment. Designers, technicians, subcontractors and clients all needed to share the same understanding of what was being built. Trial-and-error on the ground was no longer compatible with the work they were being asked to deliver.

This shift led Ultra into its digital evolution. They did not start with a formal plan. As Daniel puts it, “We kind of stumbled over it.” A partner introduced them to digital modelling on a complex project, allowing the team to see the structure in context before arriving on site. For the first time, they could test ideas, see clashes and understand the build with clarity instead of relying on layered interpretations.

What began as a viewing tool gradually reshaped Ultra's entire workflow. Designers learned 3D modelling. Planning and logistics moved into digital environments. Crew coordination changed from verbal instructions to visual references. Execution became a continuation of decisions

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**“EARLIER, PRIDE WAS ABOUT THE PROJECT ITSELF. NOW IT IS ABOUT HOW THE TEAM WORKS.”**

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already made with precision, not a process of solving problems as they appeared. As Daniel says, “It was not something we went looking for. It developed because it worked.”

The change also altered the company internally. The in-house graphic designer became a 3D specialist and is now spending less than 20% of actual graphic design, and 80% on 3D. Project managers who once spent long days solving issues on site began influencing the process earlier, preventing those issues entirely. Younger technicians moved into more strategic roles as the company started relying on collective digital understanding



Project: Above the Trees with Erik Fedko  
Photo: Courtesy of Ultra

rather than individual memory.

For Daniel, this shift in how the team operates is a point of genuine pride. “Earlier, pride was about the project itself,” he says. “Now it is about how the team works, and what they can do even without me being part of every detail.”

Frederik shares this view. To him, the forest project is not remembered for the pressure or the difficulty but for the way the team handled it. “Otherwise,” he says, “it would have been trial and error, and trial and error, over and over again.” Ultra still works in places where nothing is standard and every site brings its own challenges. The difference today is that their learning happens earlier. Their experimentation is intentional. Their decisions are grounded in shared understanding rather than improvisation.

Their journey is still unfolding. They continue to refine how they plan, communicate and execute. The creative ambition is intact, as is the willingness to take on what others might reject. What has changed is the framework supporting that ambition: a clearer, more coherent way of working that allows them to deliver projects only a few companies have the capacity to handle.

Through all of it, the motto that once described their survival now describes their growth. Ultra learned by f\*cking up. And from that learning, they built something stronger than they ever imagined. ■

# ONSIGHT

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