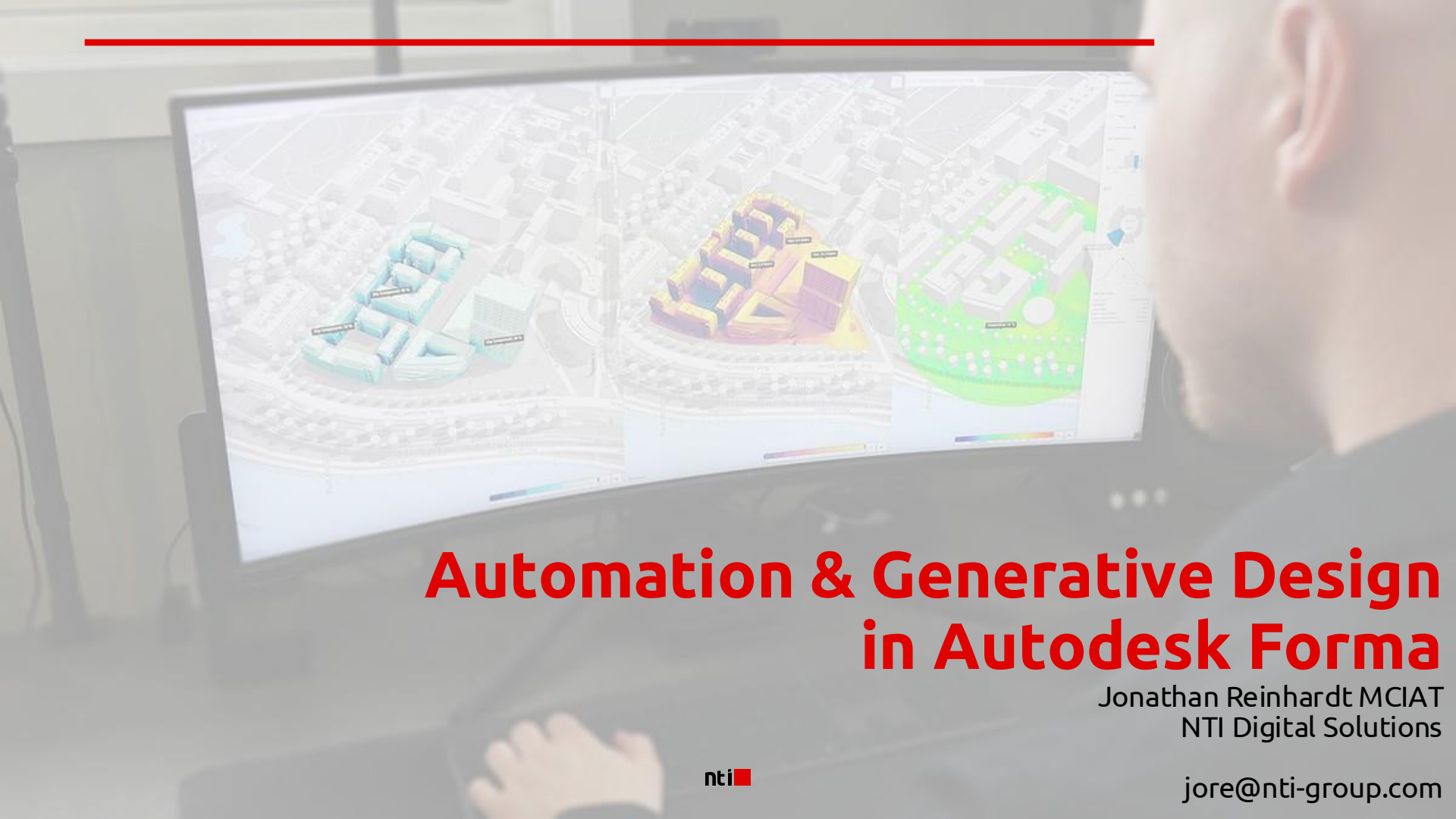


Automation & Generative Design in Autodesk Forma

Jonathan Reinhardt MCIAT
NTI Digital Solutions

jore@nti-group.com

NTI IS YOUR LEADING SOLUTION PROVIDER, WITH PRESENCE IN 13 COUNTRIES AND GROWING

13
countries

+1000
employees

Customers
+33,000

nti

Our Consultancy Expertise

BIM Consulting

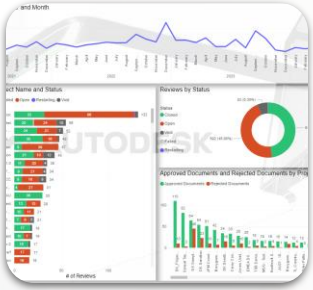
- ISO19650
- Gaps Analysis
- Process Review
- Model Reviews
- BIM Expertise
- SOP Writing
- ISO Training
- BIM Mandate Support
- Project & Organisation Advice
- BIM Management
- BIM Modelling

Bespoke API Integrations & Development Services

- Automations
- Integrations
- ACC Connect
- ACC to ERP System
- SharePoint Integrations
- ACC to Procore Integrations
- Airtable
- MS Power Apps

CDE Implementation (ACC / Autodesk Forma)

- Implementation
- Configuration
- Training
- Project Managed Adoption
- System Optimisation
- Documented Processes
- Integrations
- BI Dashboarding



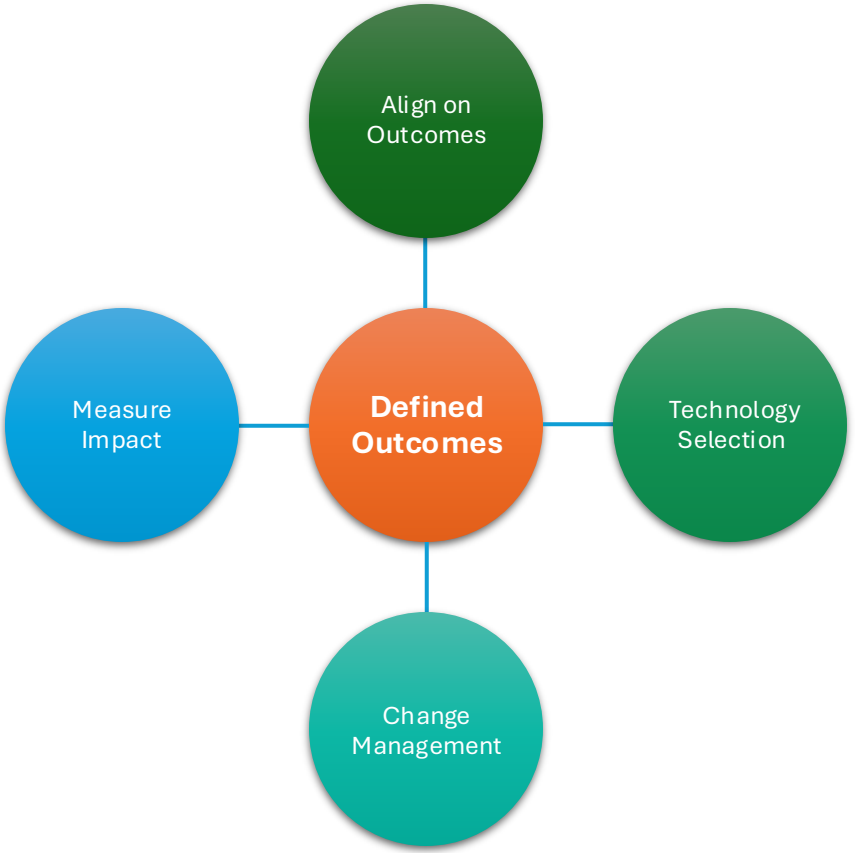
Data Analytics

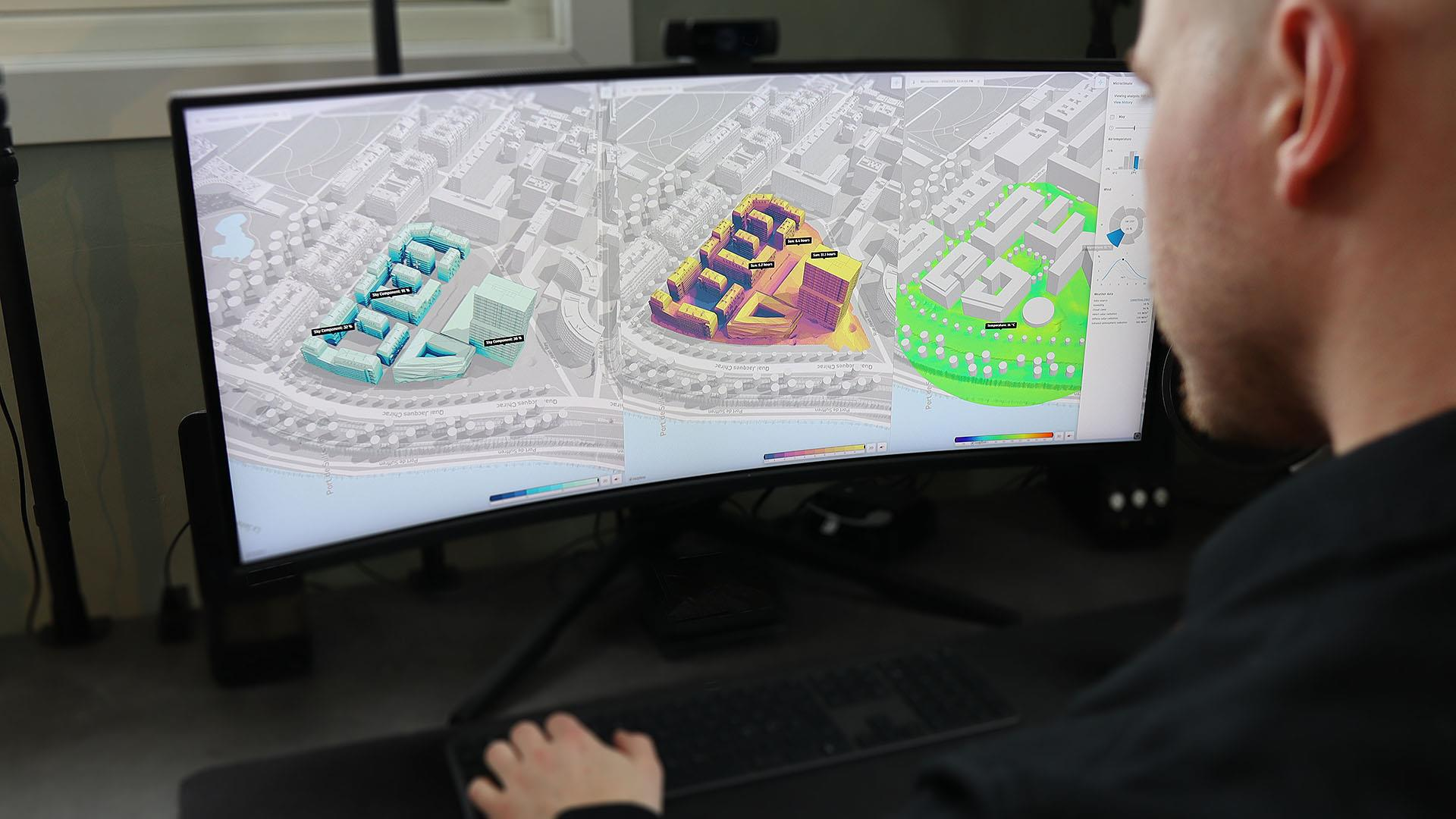
- Dashboard Production
- Data Extraction
- Data Federation
- Data Strategy
- Report Building
- Advanced Excel
- Microsoft Power BI
- Tableau
- ACC / Quicksight
- Revit Health Check
- BIM Dashboards

Autodesk Consulting

- Desktop Product Training
- Configuration
- Implementation
- Usage Analysis
- License Review
- Architecture
- MEP
- Civil Engineering
- Structural Engineering
- Process Engineering

Implementation Methodology

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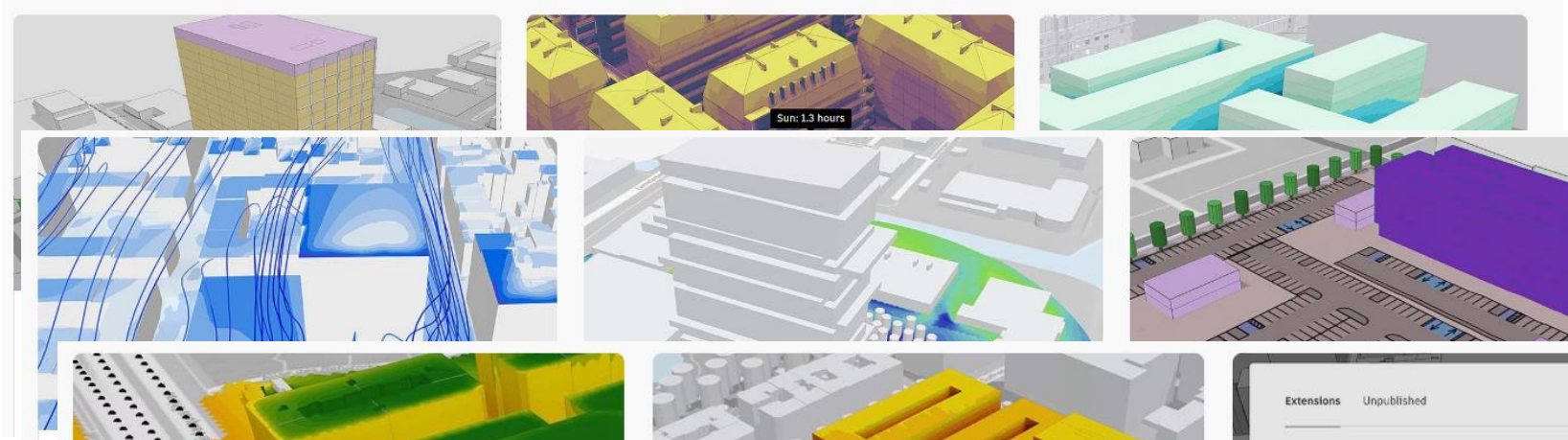
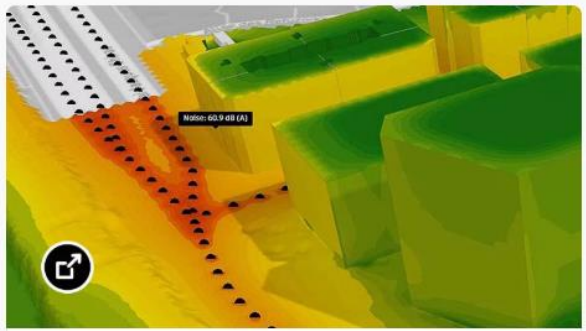
Sky Component: 32 %
Sky Component: 26 %
Sun: 6.6 hours
Sun: 5.2 hours
Sun: 33.2 hours
Temperature: 35 °C



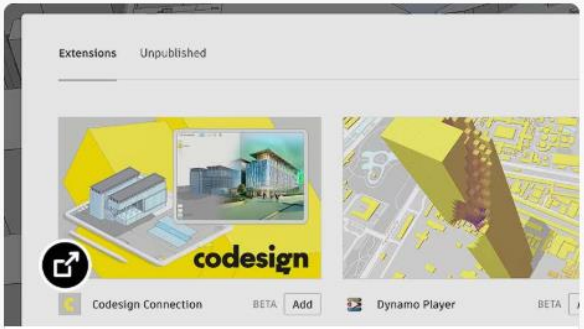


Noise analysis

Assess the site's noise conditions from rail and road by rapid or detailed noise analysis and gauge the effect of design decisions on noise reduction.

Solar energy analysis

Identify a site's yearly solar energy potential and optimal panel placements, and refine design decisions to meet sustainability goals.



Analysis extensions

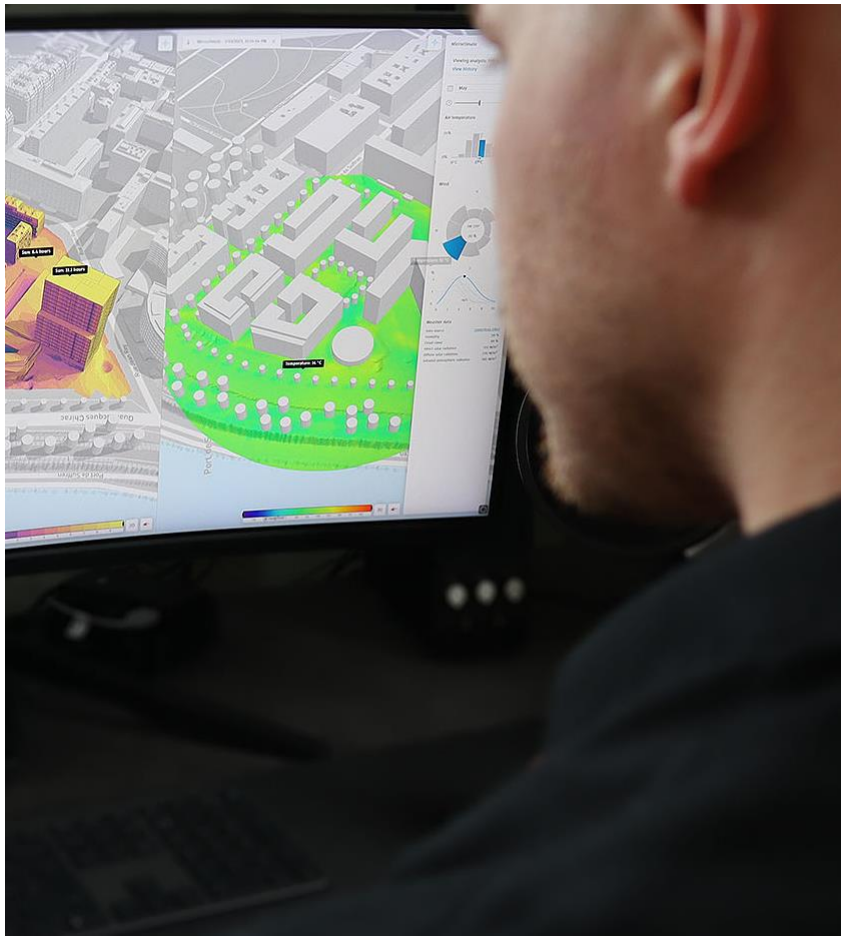
Extend Forma's capabilities by using the Forma API to craft your own personalized analysis extensions.

How does AI play a role in Autodesk Forma ?

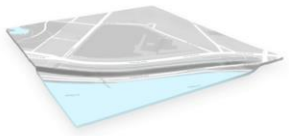
Forma’s rapid analyses, such as wind and noise, utilize machine learning (ML) to provide near-instantaneous, educated predictions, comparable in accuracy to full-scale analyses, that can be used as pre-analyses for rapid experimentation. With instant access to design impacts, designers are empowered to quickly react to these insights during the design phase, precisely when snap decisions are made. ML models bring these insights closer to the design workflow, providing real-time guidance, after which Forma’s detailed analyses help in more precise verification.

Time Savings

- **30 – 60% Time Saved**
  - In talks (Autodesk University, BIM forums, LinkedIn posts, etc.), users often say things like:
    - “what used to take days now takes hours”
    - “we tested 10 options instead of 2”
    - “site analysis is almost instant”
  - Tasks go from:
    - 2 days → few hours
    - 1 day → 2–3 hours



Forma transforms planning & early stage design

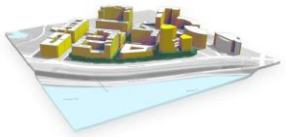


CONTEXTUAL MODELLING & DATA

Rapid setup of BIM model with real world contextual data*

CONCEPTUAL DESIGN

Create complex designs in full 3D in minutes



AUTOMATIONS

Design, explore and optimize solutions with unparalleled speed and ease of use

ANALYSES

Perform real time analysis to evaluate and improve designs

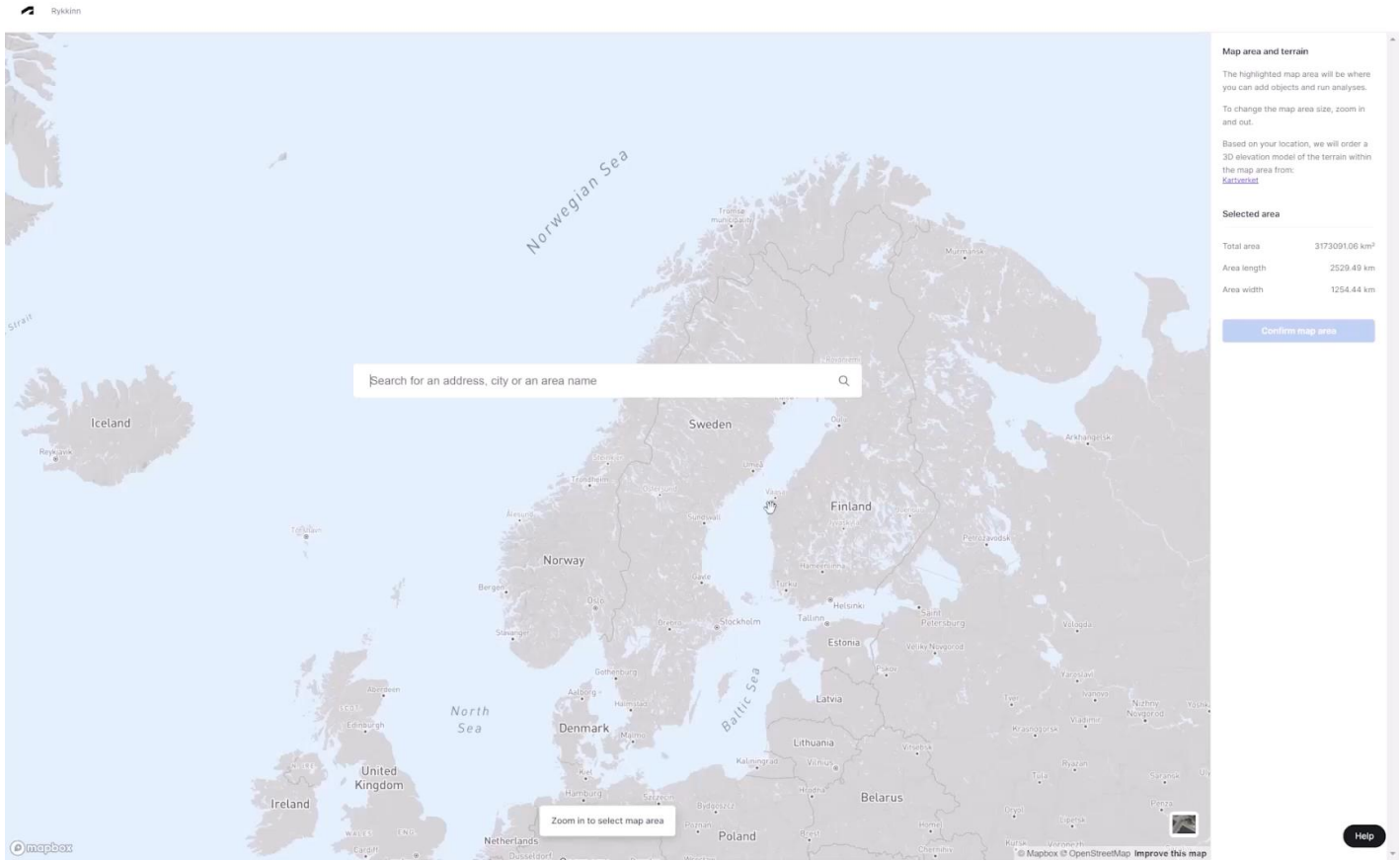
INTEROPERABILITY

Adopt hybrid workflows with Forma- Revit sync enabling fluid connectivity downstream

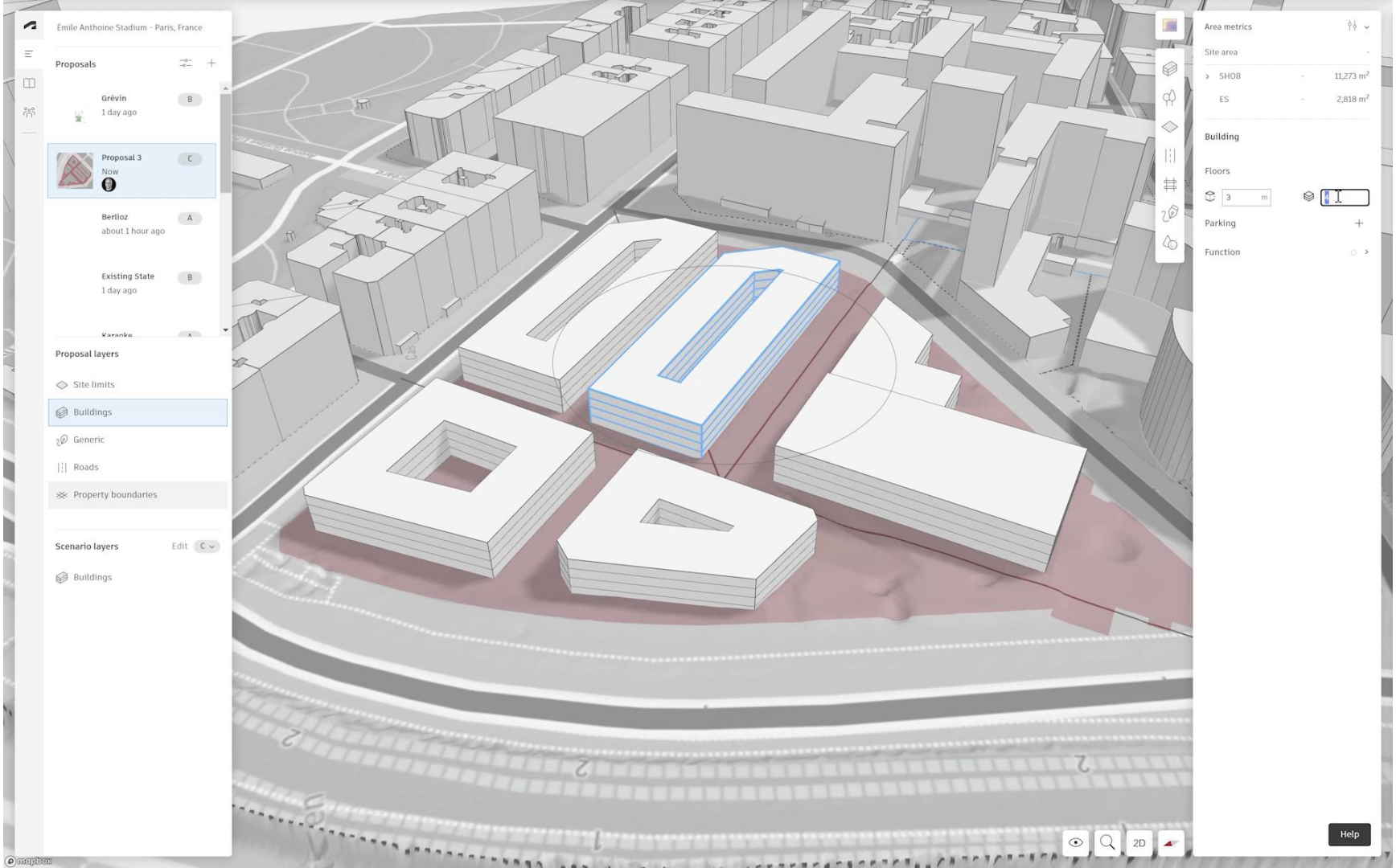
*Automatic data availability varies country by country

Contextual modelling and data

Rapid setup of BIM models with real world contextual data*


Rykkinn
Norwegian Sea
Search for an address, city or an area name
Iceland
Sweden
Finland
Norway
Estonia
Latvia
Lithuania
Belarus
Denmark
North Sea
Baltic Sea
United Kingdom
Ireland
Netherlands
Poland
Zoom in to select map area
Map area and terrain
The highlighted map area will be where you can add objects and run analyses.
To change the map area size, zoom in and out.
Based on your location, we will order a 3D elevation model of the terrain within the map area from:
Kartverket
Selected area
Total area 3173091.06 km²
Area length 2529.49 km
Area width 1254.44 km
Confirm map area
Help
© Mapbox © OpenStreetMap Improve this map

Conceptual Design


Émile Anthoine Stadium - Paris, France
Proposals
Grévin
1 day ago
B
Proposal 3
Now
C
Berlioz
about 1 hour ago
A
Existing State
1 day ago
B
Proposal layers
Site limits
Buildings
Generic
Roads
Property boundaries
Scenario layers
Edit
C
Buildings
Area metrics
Site area
SHOB
11,273 m²
ES
2,818 m²
Building
Floors
3
m
Parking
Function
2D
Help
mapbox

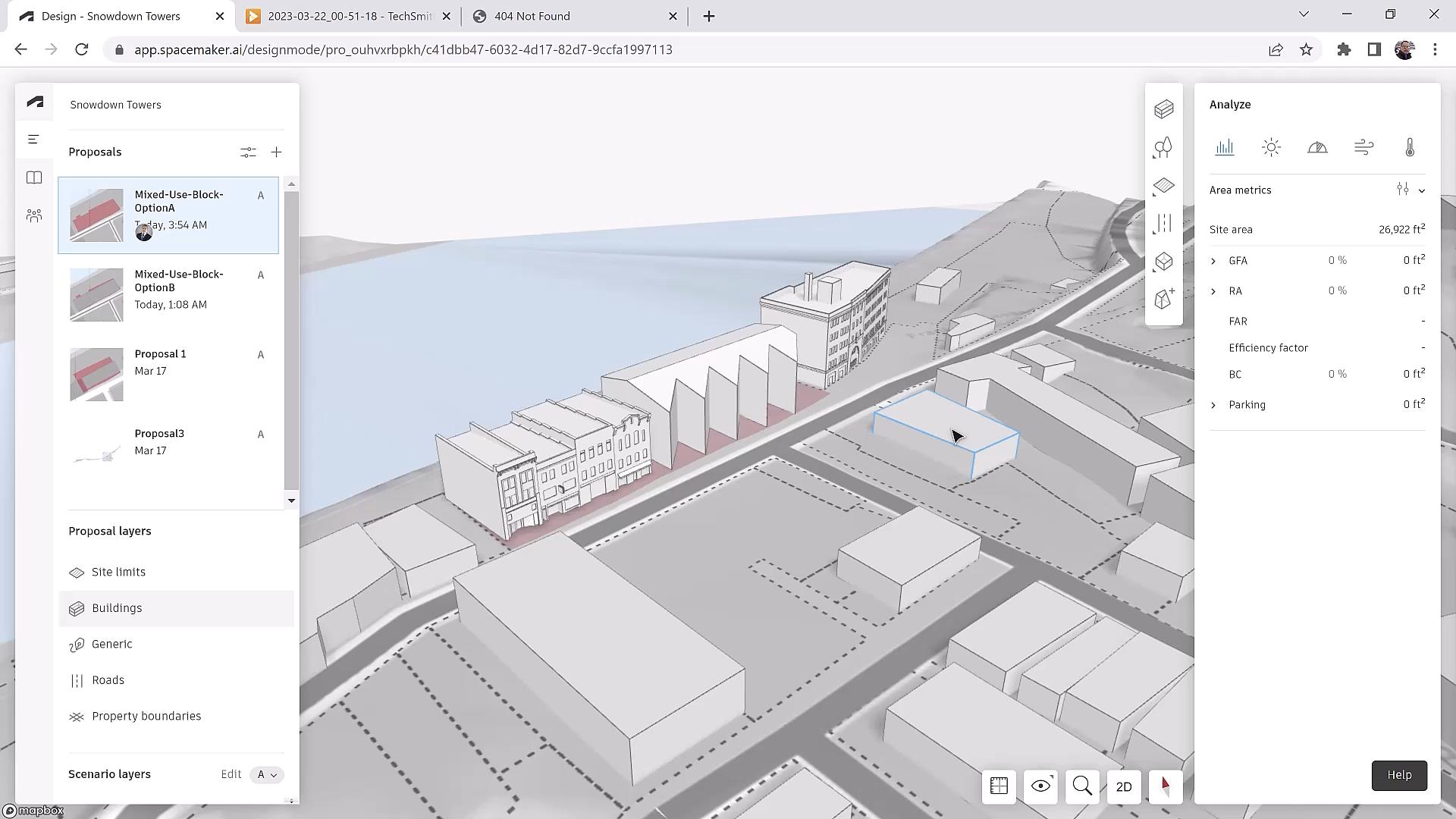
Automations

Émile Anthoine Stadium - Paris, France
Proposals
Berlioz copy 2
Today, 2:59 PM
A
Berlioz copy
Today, 2:24 PM
A
Berlioz copy 1
Today, 11:18 AM
A
Karaoke
Mar 17
A
Proposal layers
Site limits
Buildings
Vegetation
Generic
Scenario layers
Edit
A
Buildings
Vegetation
Roads
Property boundaries
Rails
Analyze
2D
Help
mapbox

Analyses

Émile Anthoine Stadium - Paris, France
Proposals
Berlioz copy 2
Today, 2:10 PM
A
Berlioz copy
Today, 2:11 PM
A
Berlioz copy 1
Today, 11:18 AM
A
Karaoke
Mar 17
A
Proposal layers
Site limits
Buildings
Vegetation
Generic
Scenario layers
Edit
A
Buildings
Vegetation
Roads
Property boundaries
Rails
Analyze
Area metrics
Site area
27,010 m²
SHOB
237 %
64,121 m²
Residential
0 m²
Commercial
0 m²
Unspecified
64,121 m²
Parking
0 m²
mapbox

Interoperability


Design - Snowdown Towers
2023-03-22_00-51-18 - TechSmit
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Snowdown Towers
Proposals
Mixed-Use-Block-OptionA
A
Today, 3:54 AM
Mixed-Use-Block-OptionB
A
Today, 1:08 AM
Proposal 1
A
Mar 17
Proposal3
A
Mar 17
Proposal layers
Site limits
Buildings
Generic
Roads
Property boundaries
Scenario layers
Edit
A
Analyze
Area metrics
Site area
26,922 ft²
GFA
0 %
0 ft²
RA
0 %
0 ft²
FAR
-
Efficiency factor
-
BC
0 %
0 ft²
Parking
0 ft²
2D
Help
mapbox

End of slides