

Frukostwebbinarium 9/9 tema Arbeta smart

Internationell utblick – Lyckade projekt inom digitalisering hos vårt grannland

Vi startar kl. 8.00!



Årets konferens om digital samhällsbyggnadsprocess!

arbetasmart.nu

Huvudkonferens 28–29/9
Frukostmöten 9/9, 14/10, 11/11, 9/12 & 13/1



Internationell utblick – Lyckade projekt inom digitalisering hos vårt grannland



**Carl Christensen, CTO,
Co-founder Spacemaker
AI**



**Daniel Kraft, head of
proptech,
Stronghold/Newsec**



**Pernilla Thessén, Head
of Business Area X,
Digital Consulting,
Tyréns**

Smart stadsutveckling med artificiell intelligens



**Carl Christensen, CTO,
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AI**

Norges smartaste hus har en digital tvilling – samarbete för en digital transformation i samhällsbyggnadssektorn



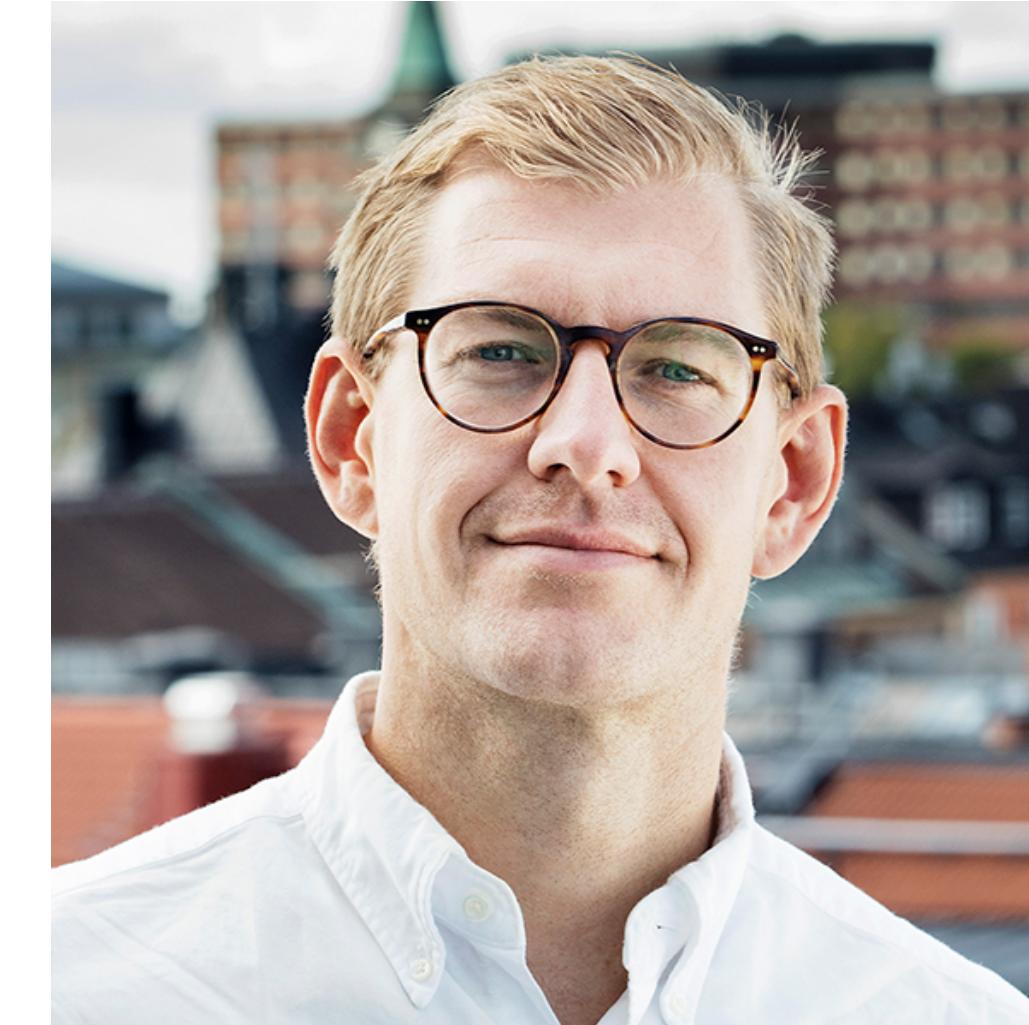
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Årets konferens om digital samhällsbyggnadsprocess!



Therese Balksjö, enhetschef, RISE



Christoffer Börjesson, CDO,
Fastighetsägarna Stockholm



Tina Karrbom Gustavsson, professor KTH

Arbeta smart inom planering och byggande 2020
arbetasmart.nu

Designing better, more sustainable cities with AI



Get in touch: hello@spacemaker.ai

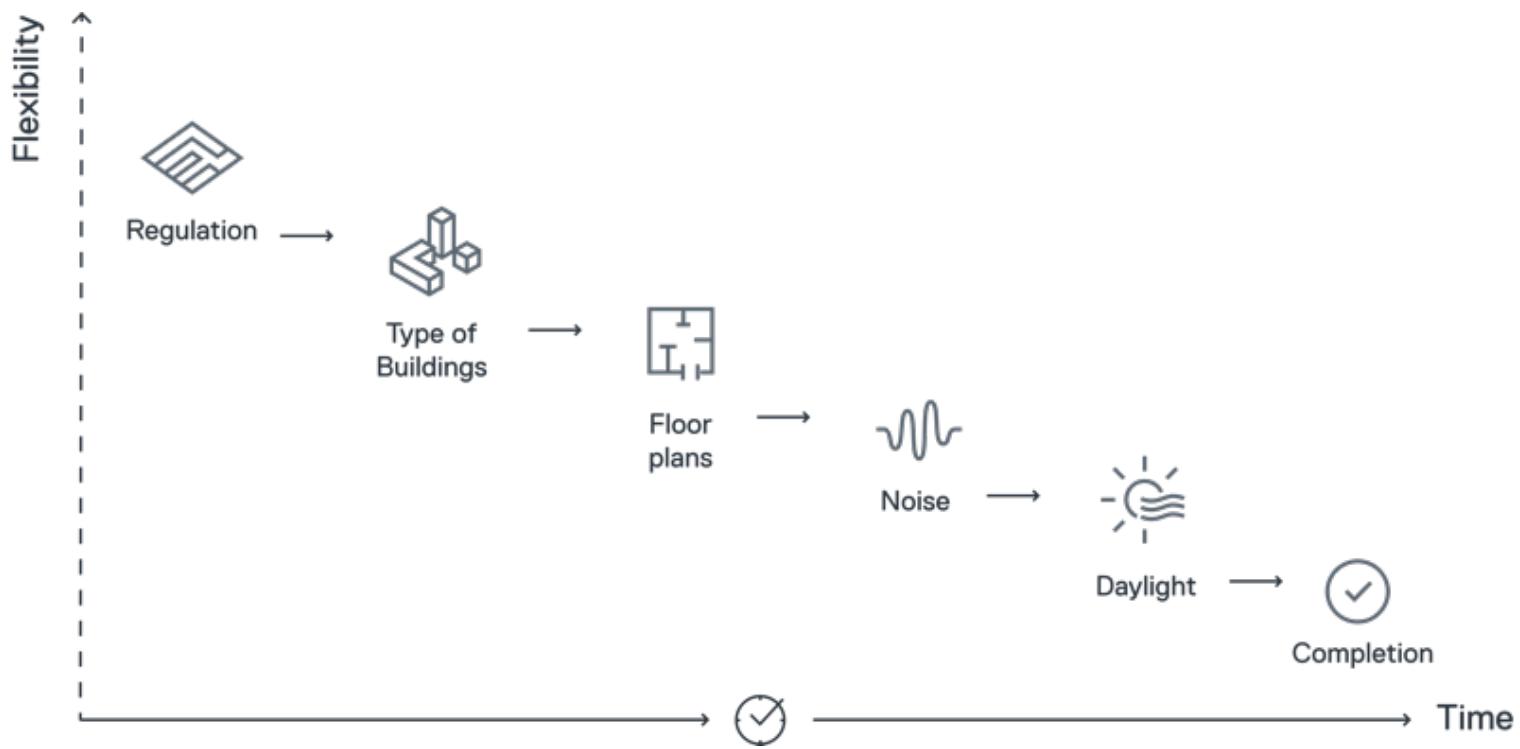
A photograph of a crowded street scene, likely in Japan, at night. The street is filled with people walking in both directions. On the left, there's a shop with a sign that includes the Eiffel Tower and the word "Paris". On the right, a large sign for "WOLFGANG PUCK EXPRESS" is visible. The scene is lit by various shop signs and streetlights, creating a vibrant, nocturnal atmosphere.

+ 2.5 BILLION

- Smarter
- Sustainable
- Faster

Too much complexity





The background image shows a panoramic view of a city, likely Barcelona, with a mix of architectural styles. In the foreground, there are several multi-story apartment buildings with terracotta roofs. Behind them, the city extends into the distance with a variety of building types, including some modern high-rise structures. The sky is overcast with soft, diffused light.

SPACEMAKERS VISION:

Design better cities
with artificial intelligence

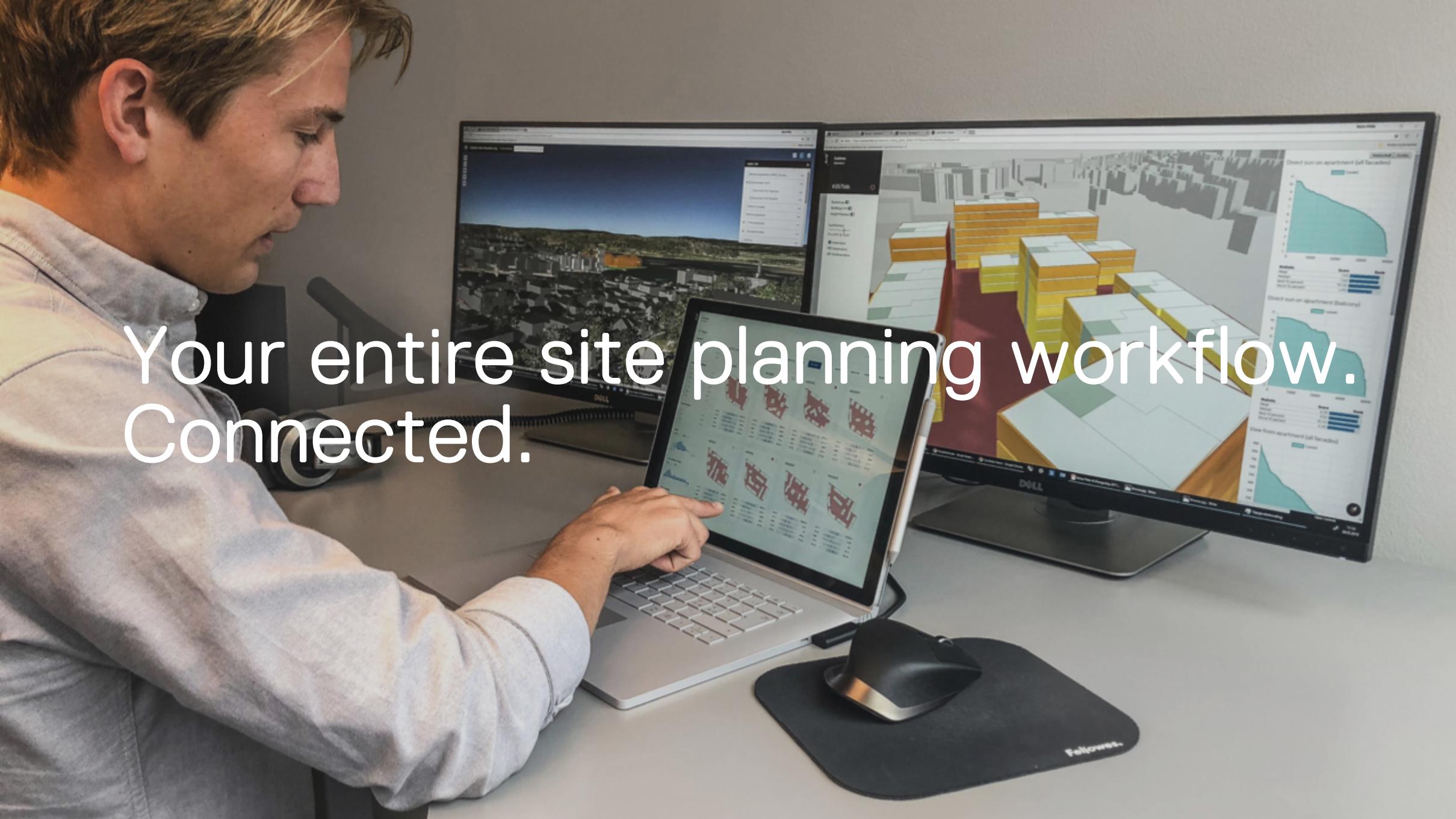


Spacemaker

Norwegian startup, founded in 2016

Currently 110+ mathematicians, software developers, data scientists, architects, urban planners, and previous property developers.

Situated in Oslo (HQ), Stockholm, Gothenburg, Paris, Helsinki, Barcelona, Boston



Your entire site planning workflow.
Connected.



Costly human mistakes

Human errors are inevitable
in today's process

$\frac{3}{4}$ of all volume models
imported into Spacemaker
have several calculation
mistakes



Leaving money on the table

Today's little testing and
iteration have
consequences

No granular level of analysis
and statistics to explore
smart trade-offs



Rejection from planning authorities

Lack of solid data foundation for
argumentation

Slow, non-transparent process
today

Each rejection is very costly in
time/capital cost

Work digitally from Day ONE

Comprehensive GIS and 3D model

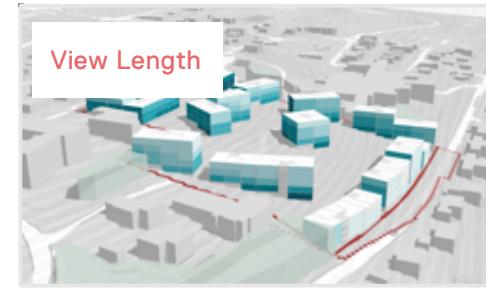
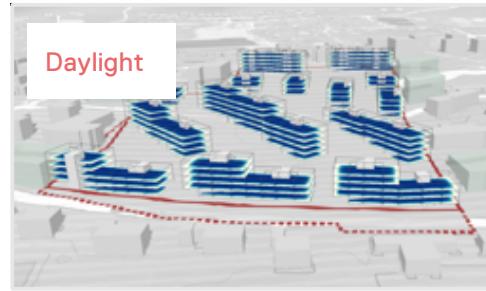
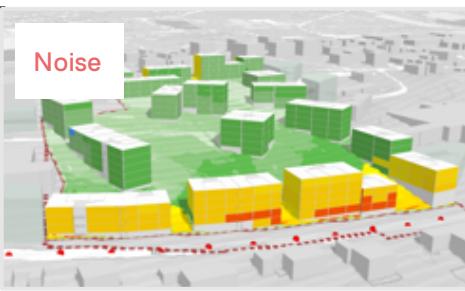
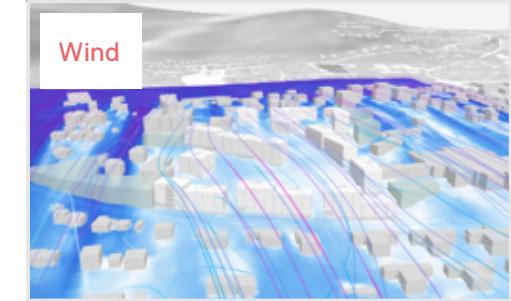
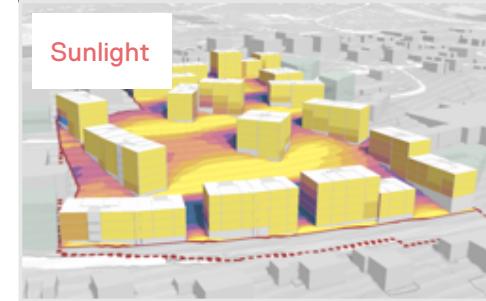
Fully understand your site, site boundaries, terrain, surrounding environment

Design multiple scenarios in no time

Regulatory compliance

Density & Living qualities

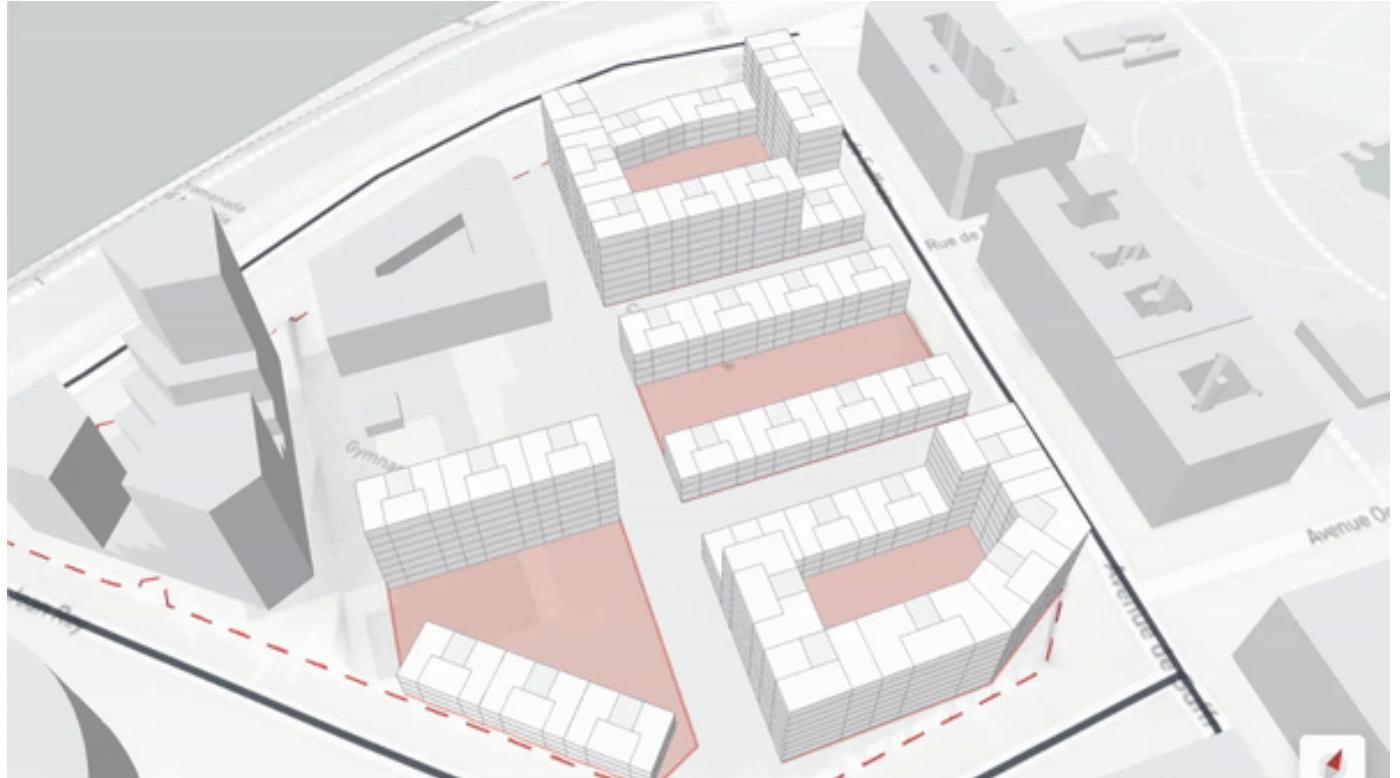




Get creative with generative design

“By using Spacemaker you can rapidly test many different alternatives. This allows us to easily optimize for the full potential of a site and at the same time ensure good living qualities, all while adhering to regulatory requirements and norms.”

Anders Skauge
OBOS



Compare and compete

Store all your site plans in a digital library.

At any point, pit your different site proposals against each other and understand the benefits and potential flaws of each.

Spacemaker provides comparisons through both statistical and visual means, making it easy to choose the best design - whether for an architectural competition or site planning.

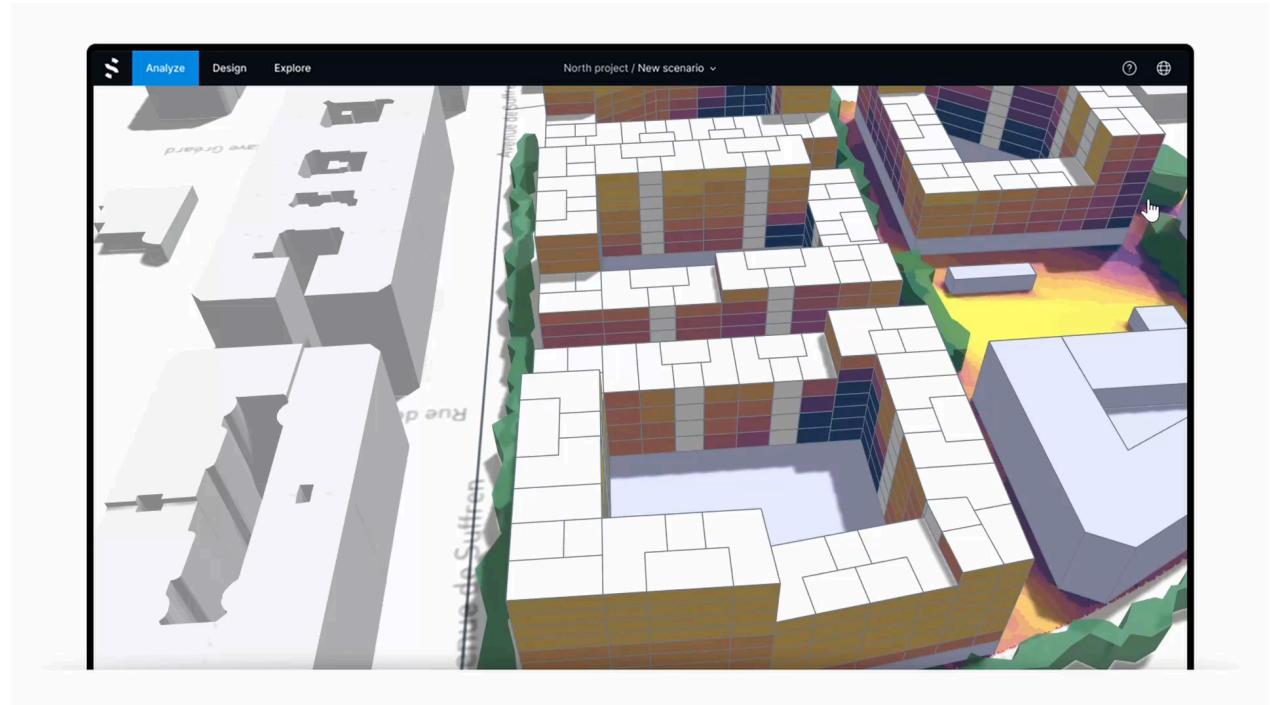


Transparent collaboration and communication

"With Spacemaker you have access to a thorough, analytical foundation early, and you can build strong arguments that contribute to a better and more efficient dialogue and better collaboration."

Mats Marthinussen

Head of section and Urban Planner
BODO MUNICIPALITY

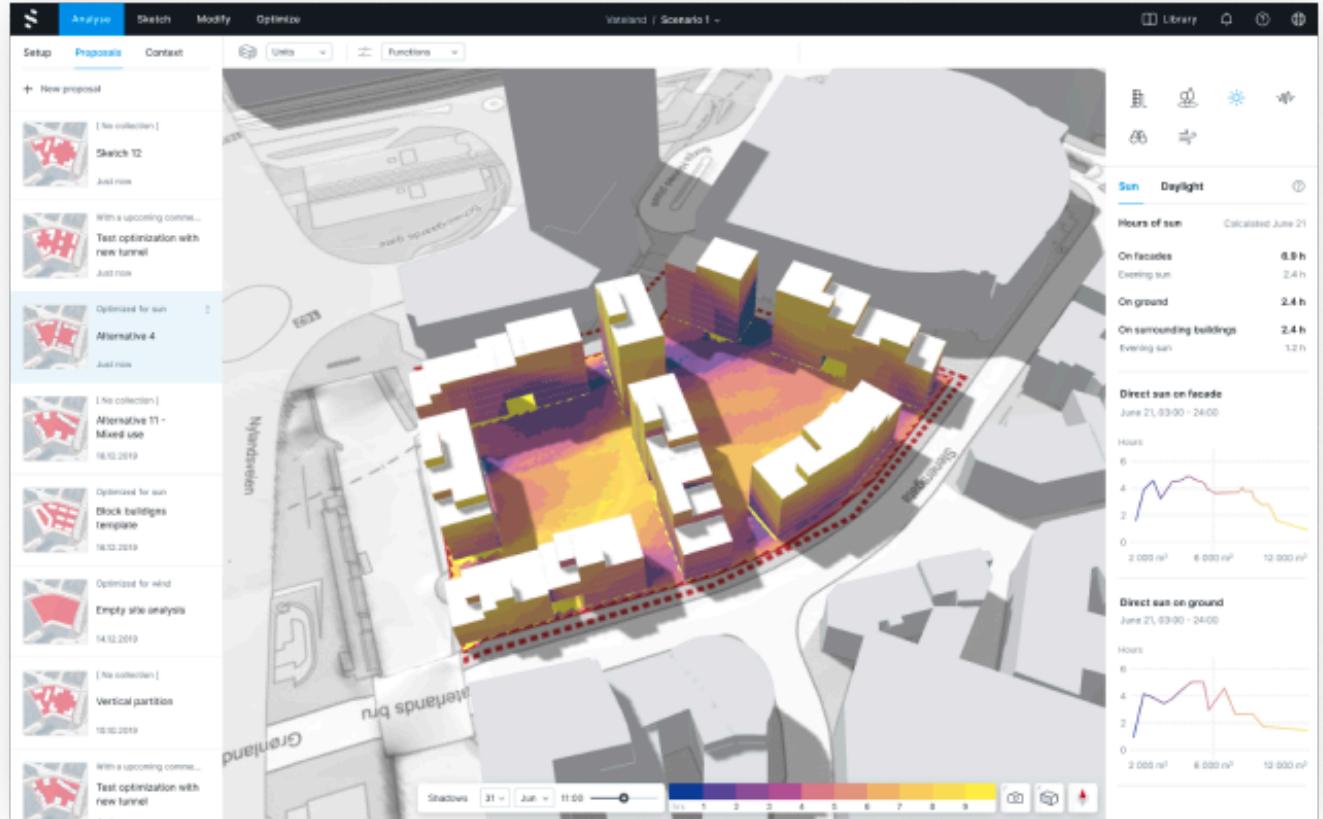


Seamless integration with BIM

Provides access to 2D and 3D plans

Exports insight and overviews in Excel,
PowerPoint or PDF

Integrates seamlessly with your favorite
BIM tool



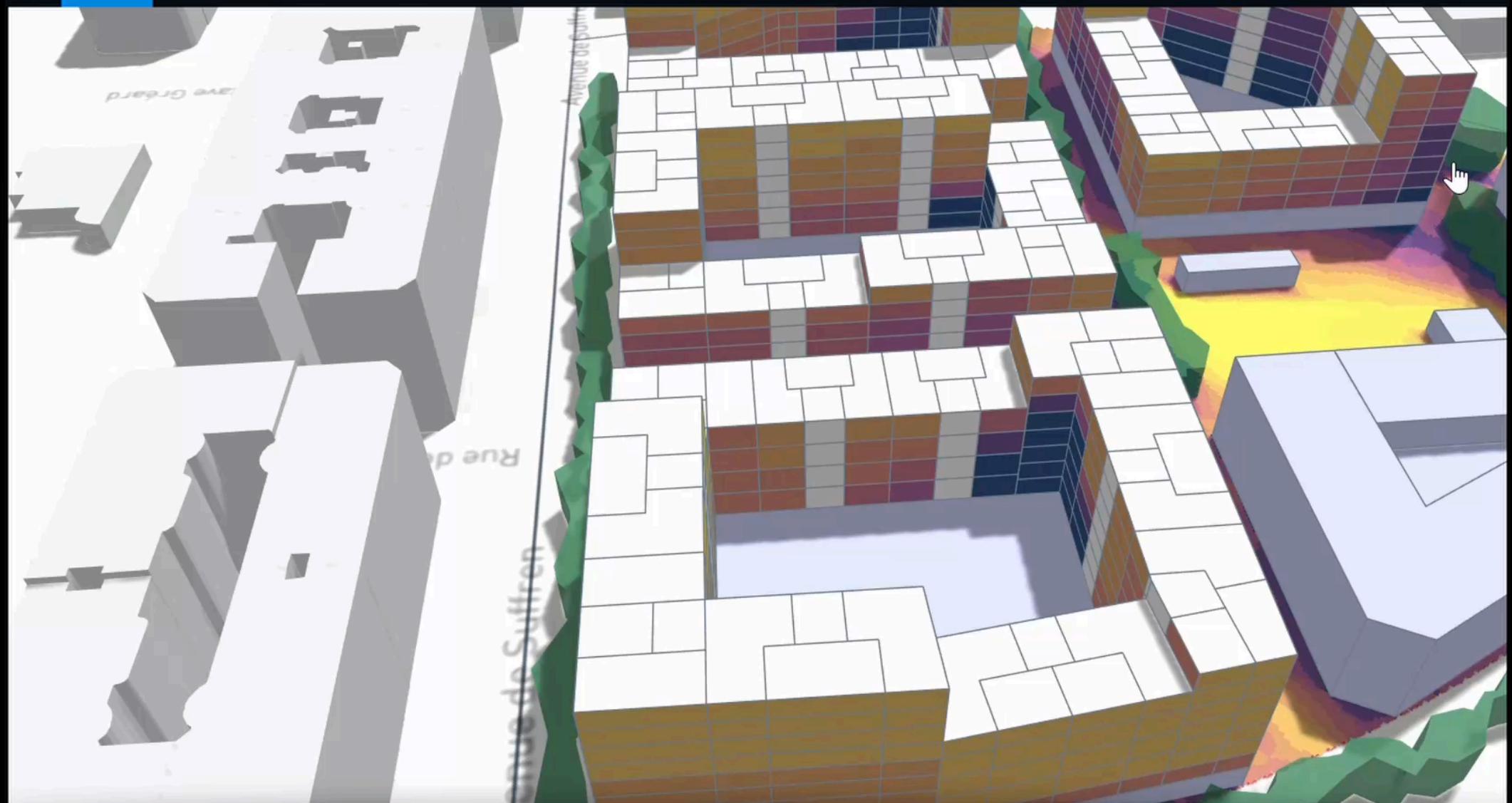


Analyze

Design

Explore

North project / New scenario ▾

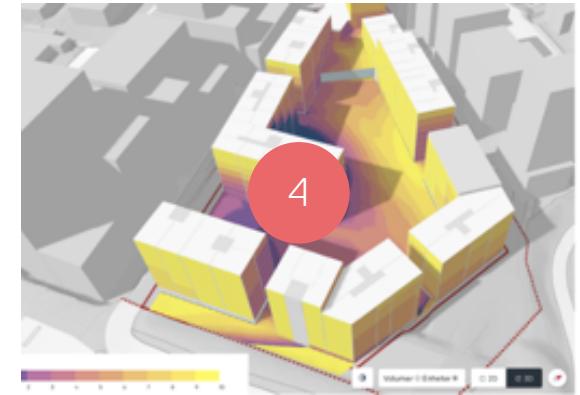
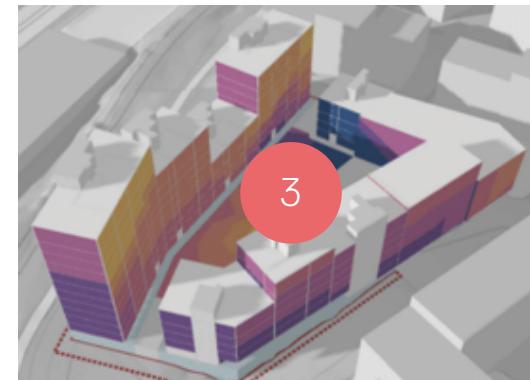


Easy to master

"I have been positively surprised with how easy it was to learn how to use Spacemaker. We have internal tools with manuals that are hundreds of pages. But I feel like I learned how to use Spacemaker in just a few hours!"

Geir Kenneth Tungesvik
Project Developer
BONAVA





Example

- Spacemaker used to prepare for and analyze bids in parallel architectural competition – followed by optimization of winning proposal
- Helped saved ~6-12 months time of the planning process

Example

- Spacemaker used to develop several alternative development concepts early in the planning process
- Has so far resulted in a ~20% higher sellable area ambition for project

Example

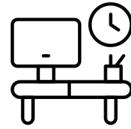
- Increased sellable area through massive testing of concepts - found concept with 42 extra apartments and improved avg. living qualities (within outdoor area requirements)

Example

- Used massive testing and height optimization to develop concept with 3-13% higher BRA
- Improved living qualities: better sunlight view, and noise conditions
- More rational building system (less corners)



Residential



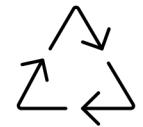
Office



Retail



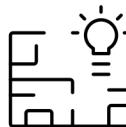
Health



Transformation



Hotel



Urban



Education



Logistics



Infrastructure



Sports



Culture

Digital First Movers

- Planning authorities are very positive, e.g. increased transparency, verifiable data and statistics
- Overall speedier approval process
- Architects & engineers embrace the value of increased collaboration & digital methods
- Developers see significant reduction in planning time and cost
- Increase of sellable area
- Improve living qualities (sun conditions, daylight, view, noise, etc.)

SKANSKA

OBOS



SELVAAG

NREP

Bouygues Immobilier

HÖEGH EIENDOM



MOLLER EIENDOM

**miliarium
BOLIG**

**STORSLO
EIENDOM**

**CLEMENS
EIENDOM**

**ASPELIN
FAMM**

SPG
SCANDINAVIAN PROPERTY GROUP





“ The only thing harder than launching a rocket is building a city. ”

Oliver de Weck, MIT Professor



SPACEMAKER

Get in touch: hello@spacemaker.ai

Økern Portal

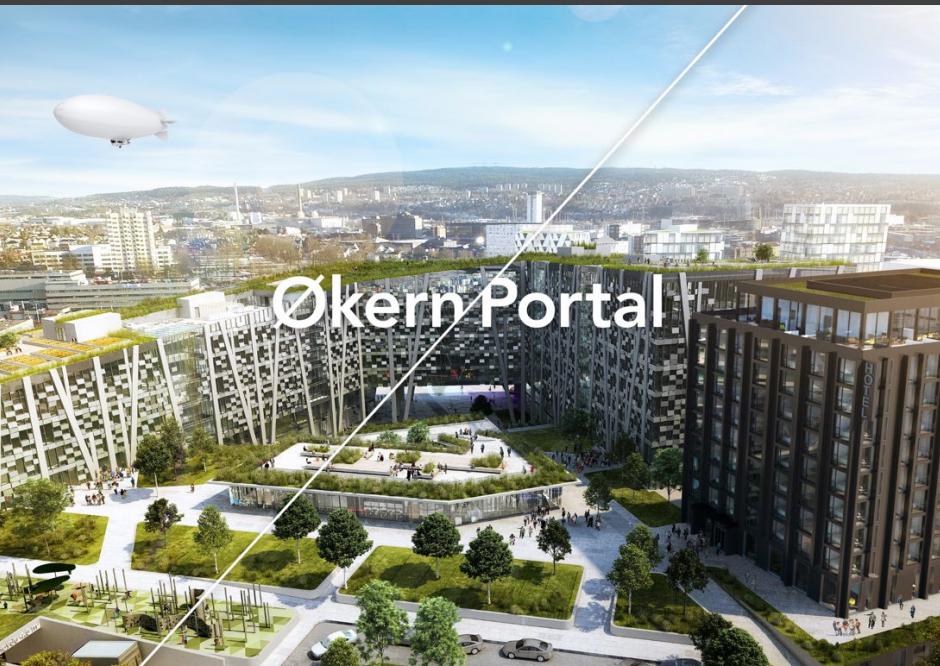
Pernilla Thessén & Daniel Kraft



NEWSEC

ØKERN PORTAL

Oslos smartaste och mest unika hus, med kontor, hotell och utrymme för konst och samhällsaktiviteter. 80 000 kvm total yta. Tyréns är anlitade som digitaliseringstrateger och projektledare för digital tvilling och BIM. Projektet utförs i partnerskap med Newsec och Telia. Färdigställande i december 2020. Oslo Pensjonsforsikring (OPF) är byggherre och sluttakund.



TIDPLAN





MÅNGA INBLANDADE AKTÖRER

Byggherre och
fastighetsägare



OSLO PENSJONSFORSIKRING

Rådgivare digitalisering



Projektledning



Entreprenör



Leverantör digital
tvilling



Rådgivare juridik och avtal



Förvaltare



Leverantör
IT-infrastruktur





OSLO PENSJONSFORSIKRING

NEWSEC



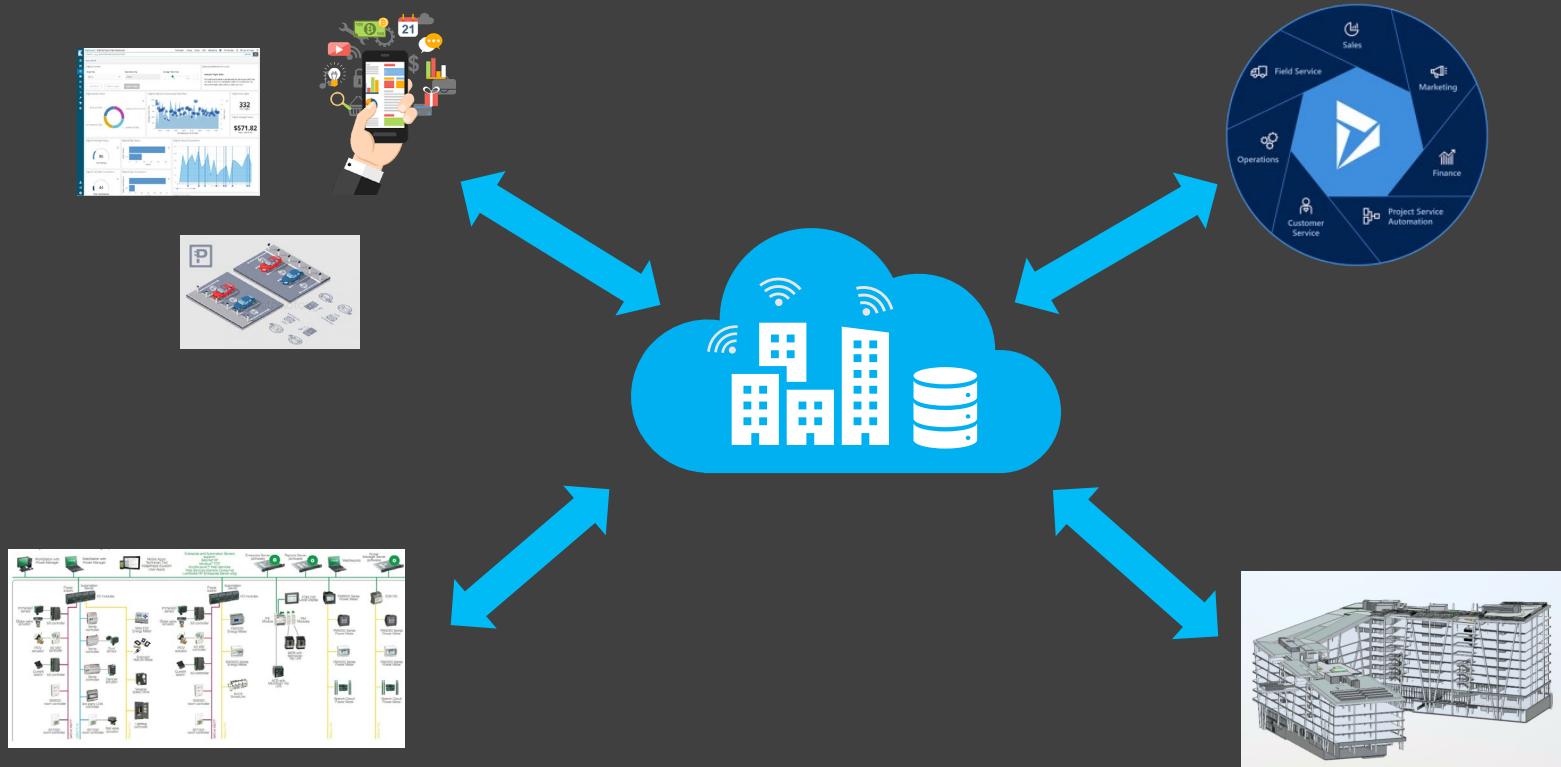
**FASTIGHETSÄGARE MED STORA
AMBITIONER**





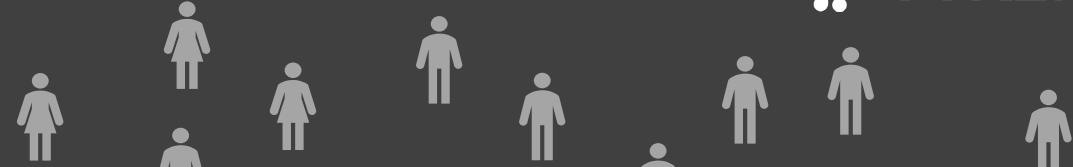
MEN GÅR DET ATT GÖRA I PRAKTIKEN?

VISIONEN - VÄRDESKAPANDE INFORMATION



STRUKTUR

ANVÄNDARE



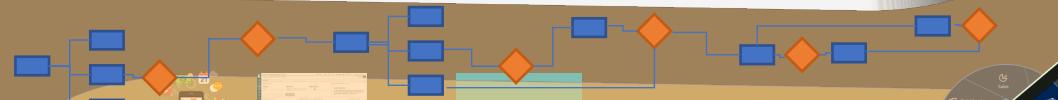
VÄRDESKAPANDE



INFORMATION



PROCESSER OCH FLÖDEN



TEKNISKA SYSTEM



POTENTIALEN FÖR SMARTA FASTIGHETER ÄR ENORM

Higher occupancy rate

Up to **3.5%** higher occupancy by using BIM



Source: Handbook for the Introduction of Building Information Modeling by the European Public Sector

Improve budget reliability

Up to **40%** decrease in non-budgeted change-orders



Source: CIFE, Center for Integrated Facility Engineering, Stanford University

Financial opportunity for digitalizing engineering, construction and operations processes to be in the range of

10 – 20%

of capital project expenditure



Source: Handbook for the Introduction of Building Information Modeling by the European Public Sector

Faster project delivery

Up to **7%** shortened project timeline



Source: CIFE, Center for Integrated Facility Engineering, Stanford University

Basis for life cycle cost optimization

Up to **9%** lower operational costs



Source: CIFE, Center for Integrated Facility Engineering, Stanford University

Higher building quality

Up to **3.5%** higher occupancy rate



Source: CIFE, Center for Integrated Facility Engineering, Stanford University

EN SMART FASTIGHET = "HUR LÅNGT ÄR ETT SNÖRE"

Koppla upp



Övervaka



Analysera



Styra



EN GEMENSAM MÅLBILD OCH PRIORITERING

A.
Infrastructure

B. Equipment &
Maintenance

C. Sustainability

D. Security &
Access

E. Tenant
services

FÖRVALTNINGEN MED TIDIGT I PROCESSEN





VISIONSBILDER ÄR VIKTIGA, MEN...



TA ETT STEG I TAGET...

CRAWL



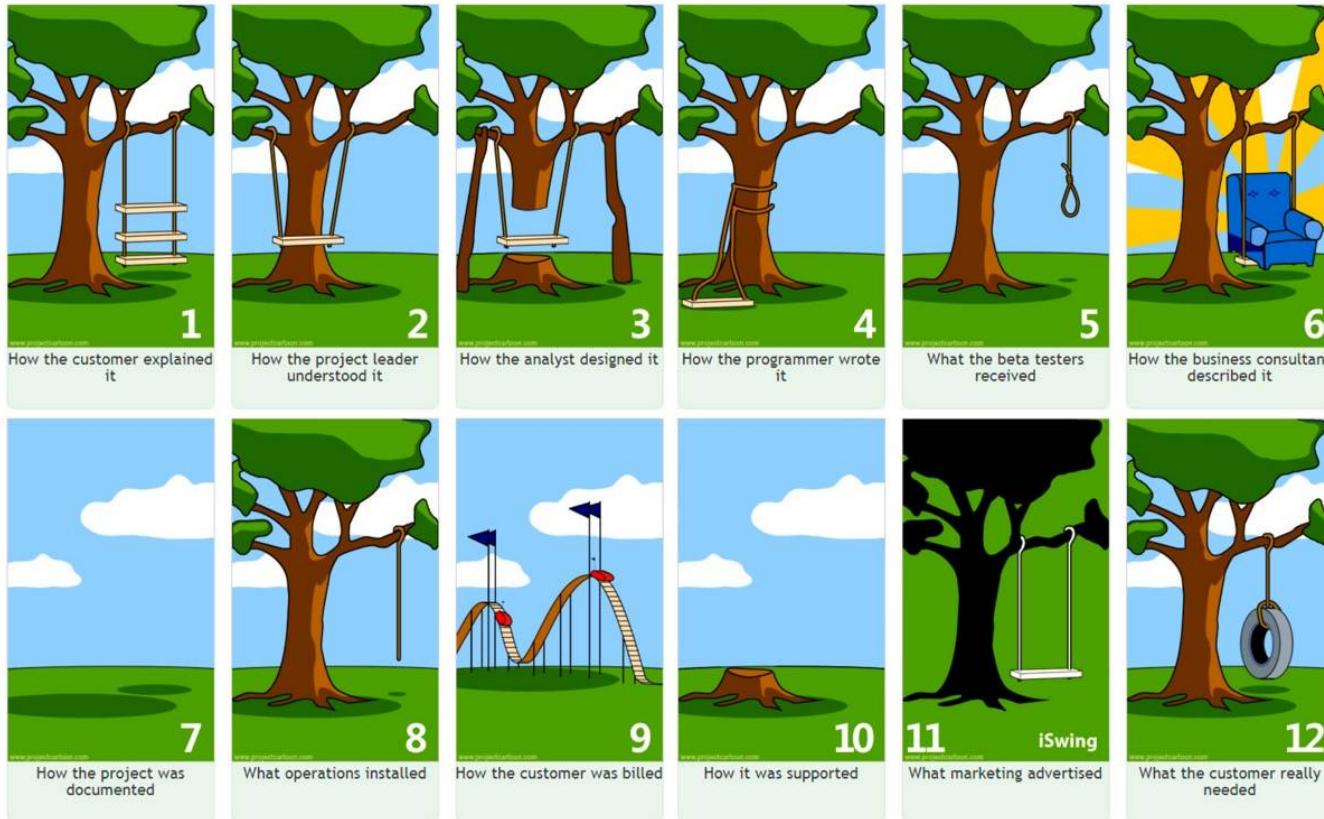
WALK



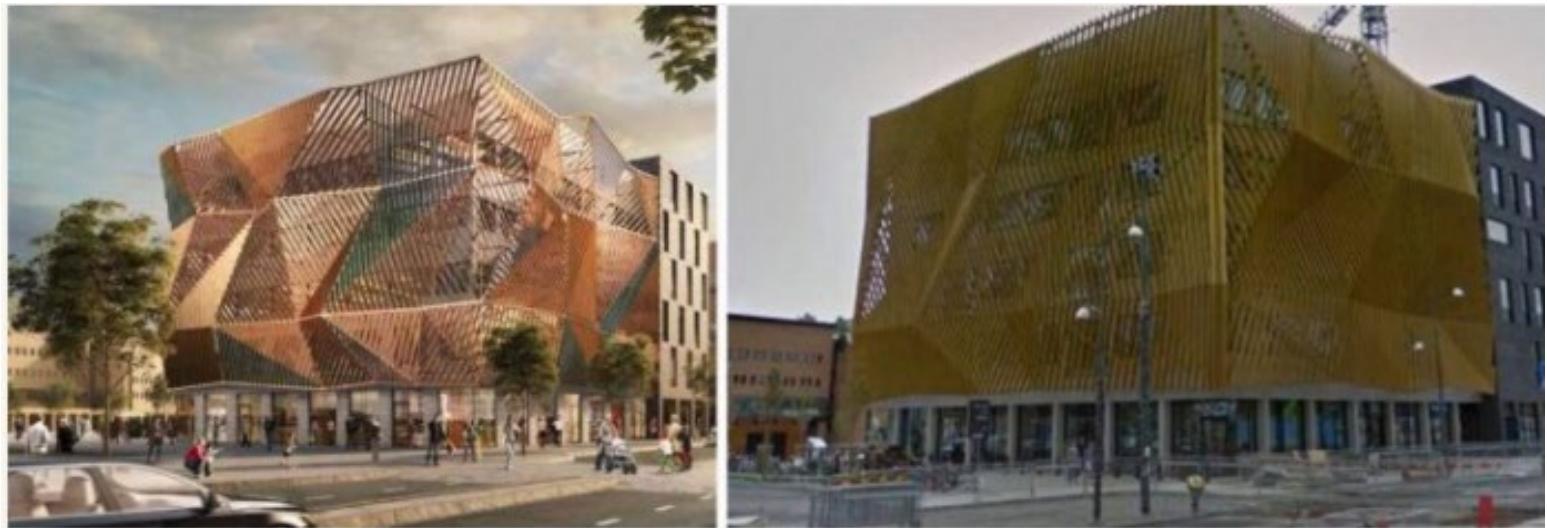
RUN



UNDERSKATTA INTE KRAVPROCESSEN



KONTRASTEN MELLAN VISIONSBILDER OCH VERKLIGHET



KONTRASTEN MELLAN VISIONSBILDER OCH VERKLIGHET



ERFARENHETER FRÅN DIGITALISERINGSPROJEKT

- Konkretisering & förtydligande för att skapa enighet
- Fokus värdeskapande för flera olika intressenter
- Informationsstruktur måste fastställas och förvaltas
- Kravställning och validering av leveranser
- Visionen och lösningen måste vara verlig för alla aktörer
- Tålamod & uthållighet
- Strategi och lösningar krävs för både nytt & befintligt
- Digital tidslinje lika centralt som planering av byggprojektet
- Kommersiell och avtalsmodeller behöver uppdateras



TACK!