HUR KAN VI NÅ DE GLOBALA MÅLEN SNABBARE MED HJÄLP AV GLOBALA DIGITALA TVILLINGAR OCH AI?

HÖRT PÅ KARTDAGARNA DAG 1

“Jag var orolig över att allting skulle handla om digitala tvillingar och AI…”

Agenda

Vad jag har sagt att jag ska prata om

- Globala digitala tvillingar med XR orkestrering för virtuella demonstratorer och realtidsdata
- Självoptimiserande fastigheter byggd på CIM/BIM/IoT/AI för automatiskt minskad koldioxidavtryck
- Metodik för interoperabilitet mellan system, människor, organisationer och legala perspektiv
- Du kommer att lära dig hur du kan tänka för att komma igång, komma vidare och lyckas med digital transformation, kopplat till spatiell data och användningsområden för digitala tvillingar.

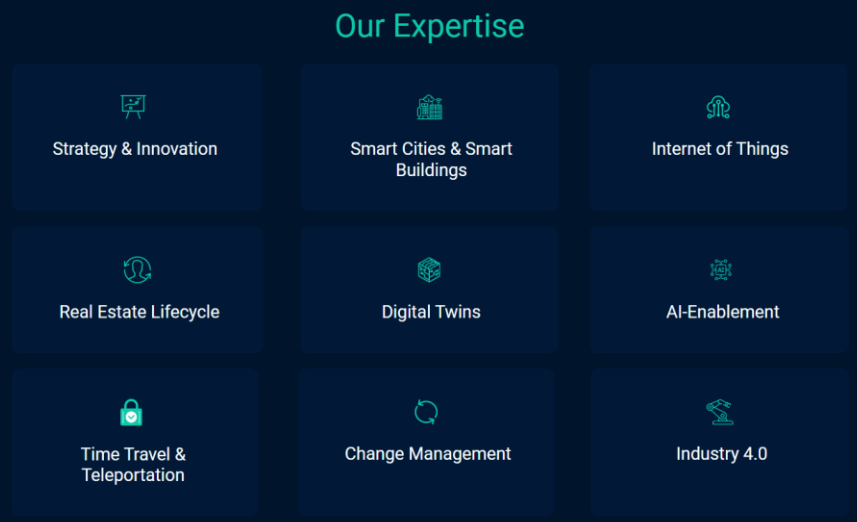
WINNIIO

INTRODUCTION

What makes us Unique

Knowing what the future will do in a week, a month, a year from now

We are recognized subject matter experts in Strategy and Innovation and have a deep understanding of how existing organizations can keep working in the same way they always have been, but expect different results. We can do this by understanding where the future is going in a week, a month, a year from now.



INTRODUCTION

Our Vision

A world where modern tools are used to solve traditional problems in the right order.

WINNIIO is a consulting/platform development company with a mission to help companies leverage the right technology in the right order to help:

- Save money
- Make more money
- Finding new revenue streams

IN SUSTAINABLE WAYS

info@winniio.io

INTRODUCTION

Nicolas Waern

Entrepreneur, Industry Analyst, Smart Building Advisor, Digital Twin Specialist

Nicolas Waern
CEO & Founder WINNIIO
Strategy & Innovation Advisor &
Digital Twin Implementation Specialist

- Smart Buildings Subject Matter Expert
National Digital Twins, Interoperable Lifecycle Digital Twins in Automotive,
- Mobility Digital Twins, Master Data Management in Automotive, Energy,
Construction, Real Estate, Manufacturing, Healthcare, IoT,
Smart Buildings & Smart Cities

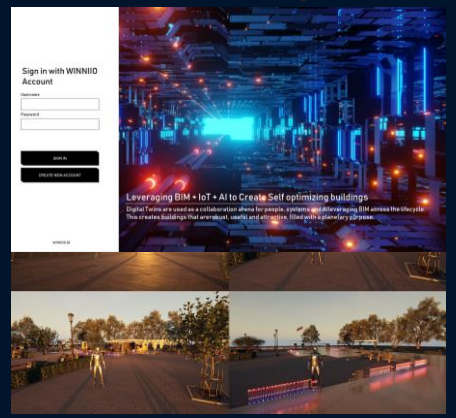
- Speaker and Influencer **Event Streaming Platforms for Industry 4.0**
Active Member of Digital Twin working groups **Digital Twin Subject Matter Expert**
- Co-Chair Manufacturing Group **Digital Twin Consortium**
- University Research Member in **Chalmers Digital Twin City Center**
- Pioneering the Future of Mobility **Mobility X-Lab Participant**
- Thought Leader in Smart Buildings for **AutomatedBuildings**
Podcast Creator & Newsletter Editor **Beyond Buildings**
- Subject Matter Expert Real Estate Digitalization **Proptech Digitalization Expert**

Consulting

JE DUNN CONSTRUCTION
EDX TECHNOLOGIES
GA GLASS AFTERCARE
PropTech SWEDEN
SEKAI Digital Twins
ZYNKA BIM
BLACK BUFFALO
EDX WIRELESS
MOLONGLO
RediMinds Create the Future
DIGITAL BUILDINGS

Thought Leadership

Platform Development



Team and Company skill sets

- Strategy and Advisory
- AI Development
- Smart Building Implementation roadmaps
- Digital Twin implementation Strategies
- Project Support Digitalization
- Technology Development
- AI-readiness strategies
- Vendor introductions/assessment
- Innovation on demand

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Working with leading companies globally

Global experience in Digital Twins

- **Guest lecturer Oxford University**
  How to succeed with Digital Twins and AI for the real estate lifecycle

- **Smart Heating Distributed Digital Twins**
  Project Lead, Data strategist, Event Streaming Evangelist SME Smart Buildings

- **National Digital Twin SME – Digital Tvilling**
  Subject Matter Expert Digital Twins – National Digital Twin Strategy Sweden

- **Smart City Collaboration Arena**
  Subject Matter Expert Digital Twins – Global ecosystem enabler

- **Healthcare AI Enablement scale-up in the US**
  CEO- advisory – Digitalization Roadmap
  Digital Twin/AI Enablement advisory

- **3D printing/IoT/Crypto Company in the US backed by Hyundai**
  Advisory Board/Digital Twin SME

- **Global XR Orchestration strategist EDX technologies**
  Strategy, BD, and implementation lead

- **Autonomous Cars & Digital Twins Veoneer/Ericsson**
  Innovation Lead, Ecosystem Enabler, Boundary spanner, SME Digital Twins

- **Connectivity Scale-up in the US**
  CEO- advisory – Digitalization Roadmap for a wireless mesh scale-up

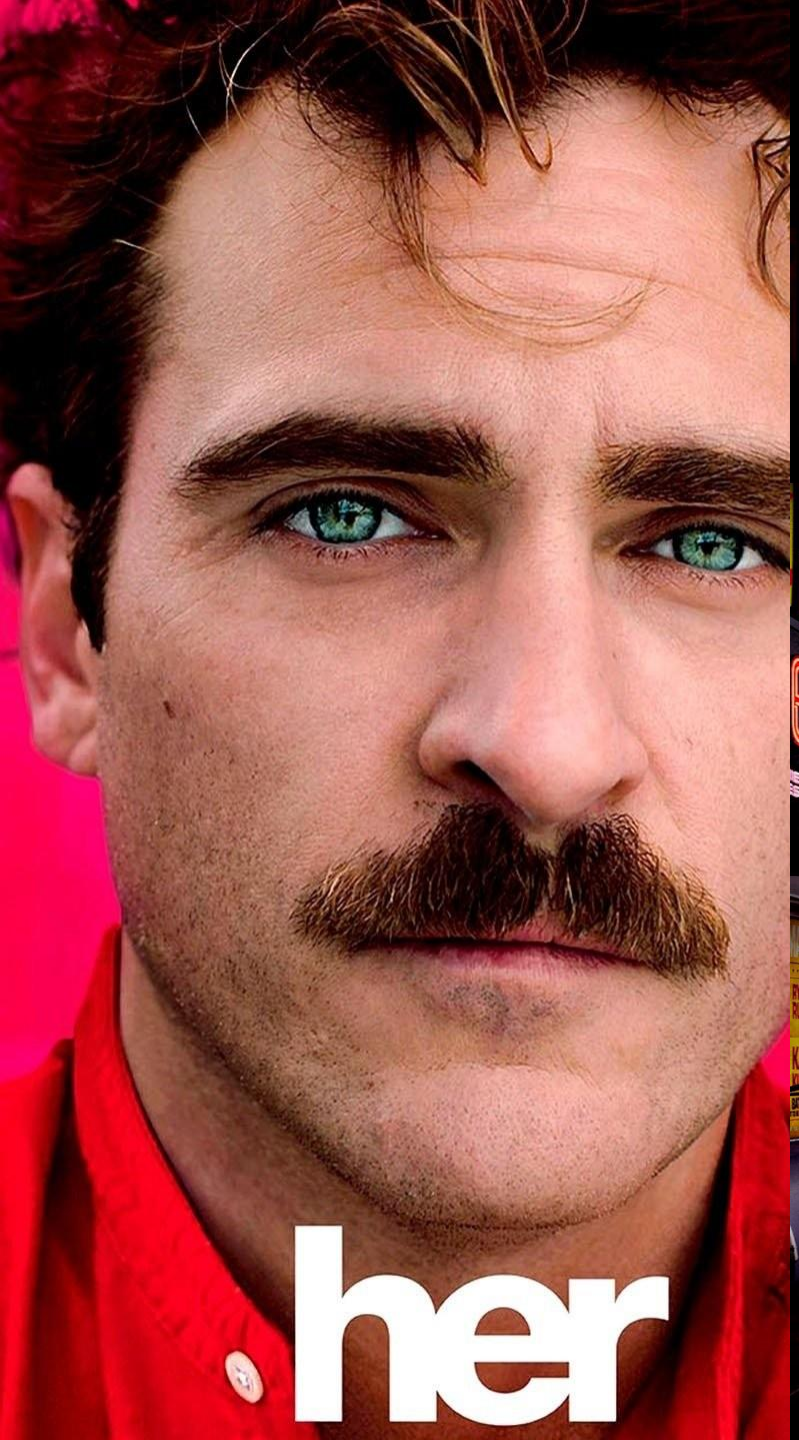
- **4 Billion General Contractor in the US**
  Digitalization Roadmap - Digital Twin Roadmap

- **GIS/BIM Digital Twin Scale up**
  CEO-advisory- Digitalization Roadmap

Advisor

- **Mobility Scale up in Sweden**
  AI-lossless compression algorithm for Movement patterns
- **Construction Scale-up**
  CEO- advisory – Digitalization Roadmap
- **AI-Blockchain Scale up in Sweden**
  Entrepreneurial advisory – Strategic Roadmap


NVIDIA CorrDiff: Resolving Extreme Weather Events With Generative AI
Visualize AI Augmented Weather Simulations
NVIDIA
0:01 / 1:27


her

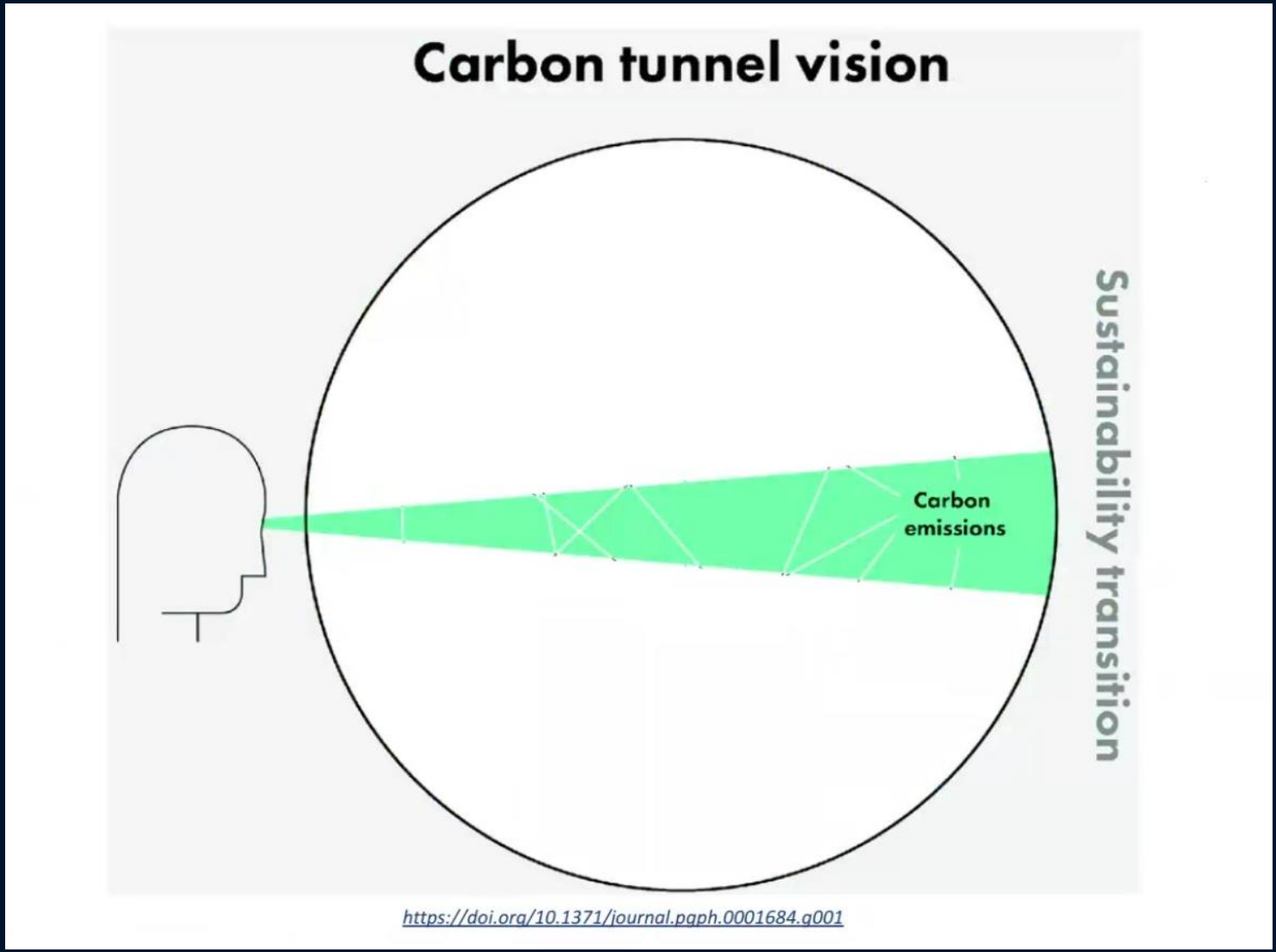

RYAN REYNOLDS
JUSTICE SMITH
POKÉMON
DETECTIVE
PIKACHU

Modern teknik

Vad händer om 5,10…40 år?

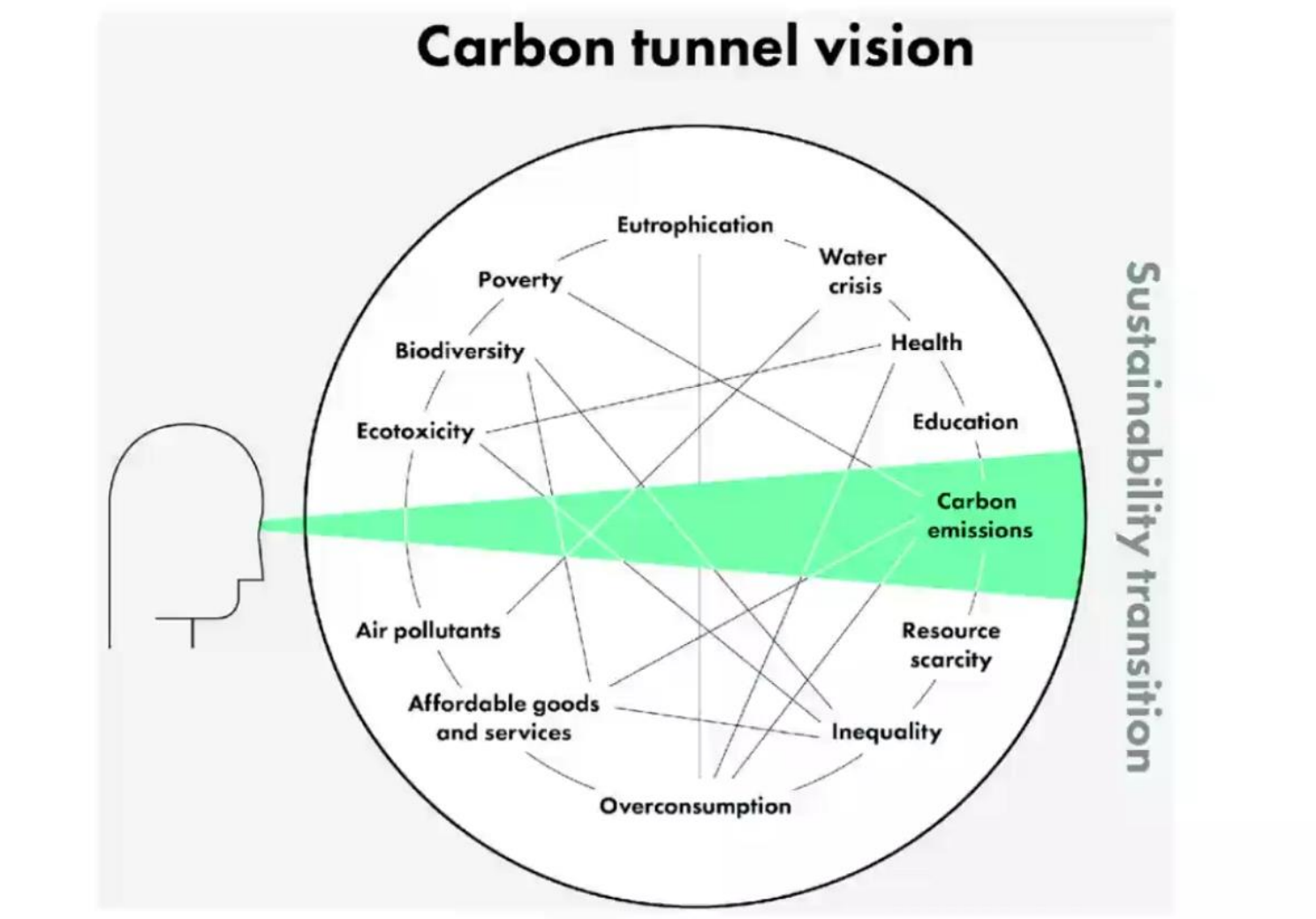
Ser vi hela bilden?

Hållbarhetsdiskussionen



Vad är hela bilden?

Hur använder vi kartor som bas för framtiden?



Digital Twin Methodology and the “Overview effect”

Accelerating knowledge transfer globally

Zoom out - Zoom in and **Reality Prompting**

“How do we get to x outcome in this area of the planet?”

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Scale, scope and Learning use cases for visual and virtual global cooperation

Zoom out - Zoom in and Reality Prompting

Creating a Dev-Environment of the planet for People, Systems and AI

Zoom out - Zoom in

- **Planet**
- **Biome**
- **Ecosystem**
- **Community**
- **Population**
- **Cities**
- People
- Buildings
- Rooms
- Components
- Software
- AI-Methods*
- Metadata
- Taxonomies
- Ontologies

** Langchain*
** Auto-GPT*
** Autonomous Agents*

"Where do we build this building and where should all the resources come from in this area of the planet?"

EDX Technologies – National Digital Twin orchestration platform allowing for XR collaboration and real-time insight of physical assets, real-time data, VR/AR orchestration. Subscribe to any part of the planet, feed the Digital Twin with information, Digital Twin shows the best way to reach the future, showing where cell towers should be placed as an AR overlay in the city, how much it will cost, and the intended impact. Depicting 200 000 cell towers to identify, understand, collaborate across space and time.

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Record Reality, create a shared reality and run Reality-focues table top strategies

Multiplayer-collaboration with Reality in focus

Extreme XR Collaboration/Orchestration Platform to collaborate and invite to innovate globally

Zoom out - **Zoom in**

- Planet
- Biome
- Ecosystem
- Community
- Population
- Cities
- **People**
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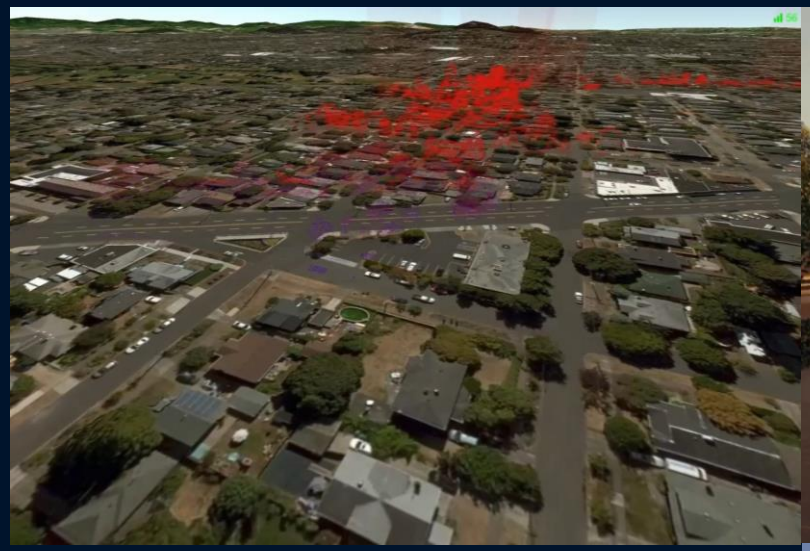

"Invite to innovate and remotely operate" – By leveraging Virtual Reality, Augmented Reality and Mixed Reality to make better decisions faster to run Extreme Collaboration strategies enabling the ability to fold space and time.

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Digital Twinning in practice

Keeping asset portfolios up to date with Digital Twins

By combining sensor data with work order systems and human dialogue interfaces, companies can easily keep their asset portfolios up to date.

Not only with VR/XR glasses, but also using a phone, ipad, or a headmounted display to make it easier for site inspections, and for the world to inform other systems, people, and AI what has happened, is happening and what will happen.

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BENEFITS DRIVEN DIGITAL TWIN IMPLEMENTATION METHODOLOGY

Zoom out to Zoom in – Digital Transformation Template

Capture Knowledge - Digitally

Outcome/Impact -> Action -> Insight -> Information -> Data | Continuous Contextual Business Transformation & Knowledge Transfer | Digital Business & Operating Models

DT Journey: Reality Emulation → Concurrent Engineering → Collective Intelligence → Contextual Intelligence → Continuous Intelligence → Perpetual Wisdom

Digital Mesh

Cycles

Creating a shared reality	Invite to Innovate	Emulation based Scenarios	100% Virtual first completion	Digital Twin Creation	Digital Twin Fine tuning	Knowledge Transformation
Use Cases						
• Job-that-is-done theory • Where and when on the planet • Who needs to be involved • Create Reality Canvas • Virtual First Mindset • Record Everything	• Invite to innovate • Define Scope, As is-To be • Virtual User Interaction • Validate Hypothesis • Collective Truth • Define the MVT	• MVT feedback • Scenario planning • Reality table top exercises • Leverage Open Source • Access to real-time data • Eliminate Constraints	• Physical Sensors • Meet initial KPIs • Confirm operational metrics, business value • Ontology creation • Remote Enablement	• Connected Everything • Command & Control • Real-time Decisions • Up-time optimization • Predictive Analytics • Root Cause Analysis	• Leverage Knowledge • Prescriptive Maintenance • AI driven prognostics • Universal Event Pipeline • Black Swan identification • Simulate Everything	• Up Cycle Exploration • Ecosystem Enablement • Share impact across the planet • SCM Optimization • Open-Source Contribution • Circular Strategies

Global Supply-c

Operating Context

Organization

Factory

Asset/ Component

From People
Organization agnostic
Concurrent Engineering
Collective Intelligence
Stakeholder Mapping
Digital Twin Enablement

From Planet
GIS, CIM, BIM, Scans
Satellite data
Reality Canvas

From Systems
Planetary scope
Operating Context
Standards identification
Ontology Alignment
Metadata Mastery

Spin Twin Lifecycle

AI & XR

Real-World Planetary Foundation in 3D+, understandable by all

REC ● Digital Mesh

Create Ontology Factories as the Foundation for AI factories

Virtual Minimal Viable Twinning — Days/Weeks

Prototype Launch — Weeks/Months

Scale Scope & Learning

Interoperable Operation – Future Foundations — Years/Decades

Phoenix Strategies — Perpetual

Leverage Explainable AI factories for exponential scale, scope and learning

Knowledge Graph Ontology foundation – creating relationships between fragmented realities

Alignment

• Stakeholder Mapping • PESTELED • Start/scale anywhere • 5 Why's • Invite to Demonstrate • Pace Layering alignment IT/OT	• Align with existing data • Align with industry standards (ISO) • KPIs & Success Factors • Organizational Landscape • Simulate VR/AR/XR • Industry Regulations	• CRM, ERP, Scorecard • Security/Data Strategy • Risk and Optimization • Validate Qualitatively • Validate Quantitatively • Create operational MVT	• Lifecycle consolidation • BIM/CIM/CITYGML/IFC • Data Fabric Integration • 5Ms for construction • FM alignment	• Ontology Factory • Historic data absorption • Humanized HMI • ML-Data Integration • Industry 4.0/5.0 base • Gamification	• AI Factory (algorithms) • Industrial Orchestration • Distributed Intelligence • Global IT System health • Virtual Sensors • Meta-verse enablement	• IP consolidation • Lifecycle Analysis • Looping Strategies • Decomposable DT • Re-use knowledge • **Optimize DT Journey**

Industry

Cloud

Vendor Lock-in
Silo/Slow Data

Open Industry → M. Technology → Open Industry → Modern Technology → Open Industry → Modern Technology

AI Factories/Real Time Data
Mass Customization
Smaller batches

Edge/Hybrid, 5G/6G, Network Slicing/Distributed Intelligence

AI Journey: Human Decision Making → Data Contextualization → AI-Ready → AI-Infused → AI-Ingrained → Explainable AI Decision Making

Capture Knowledge - Digitally

Scale, Scope & Learning
Data Strategy/Logic

Data Traffic

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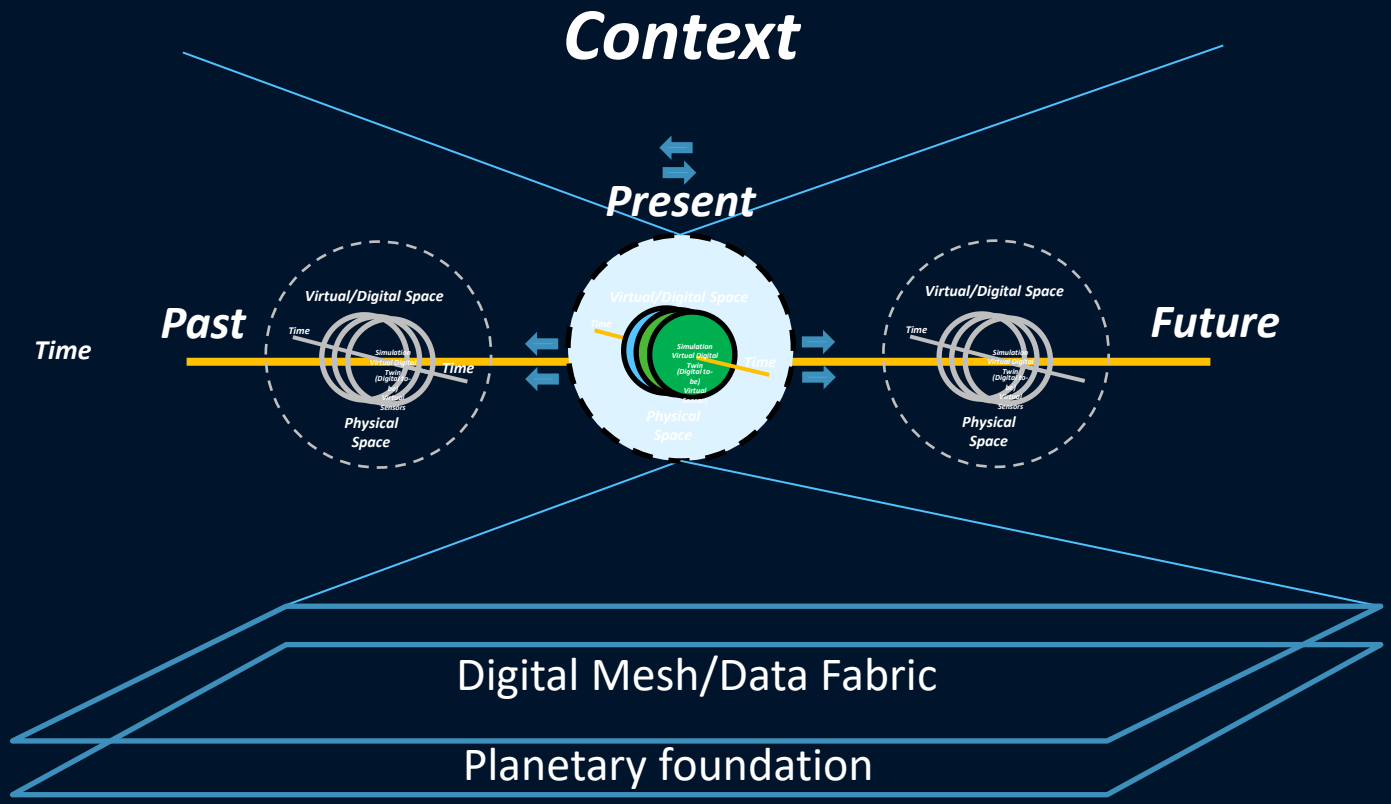
Companies and cities can simulate the future to transcend the now. But how?

Interoperable Digital Twin lifecycle templates

Everything should happen concurrently



Absorb the past, simulate the future, to transcend the now

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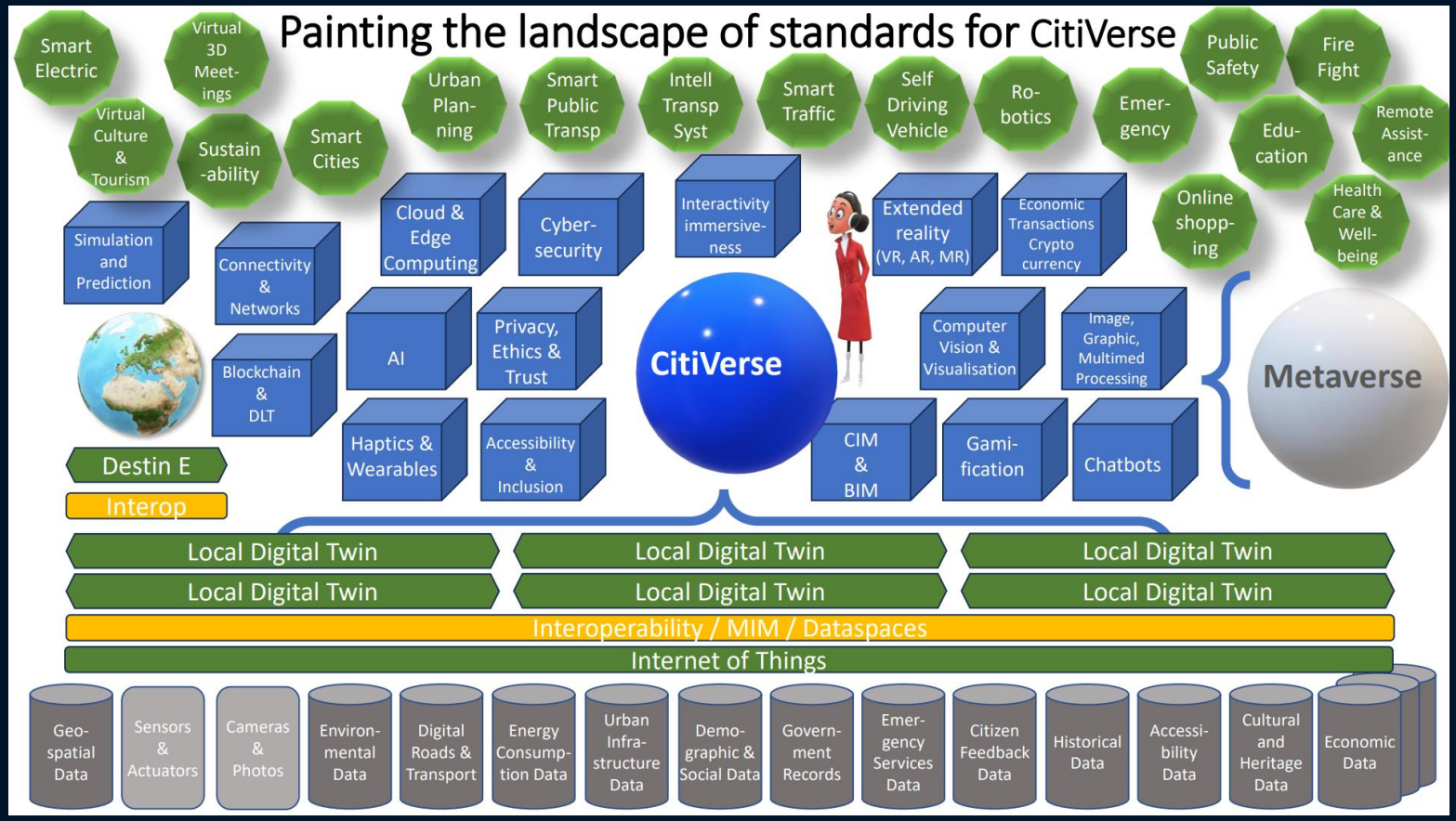
The past, present and future are right now stuck in fragmented pieces

Interoperability alignment is the key but how to get started?



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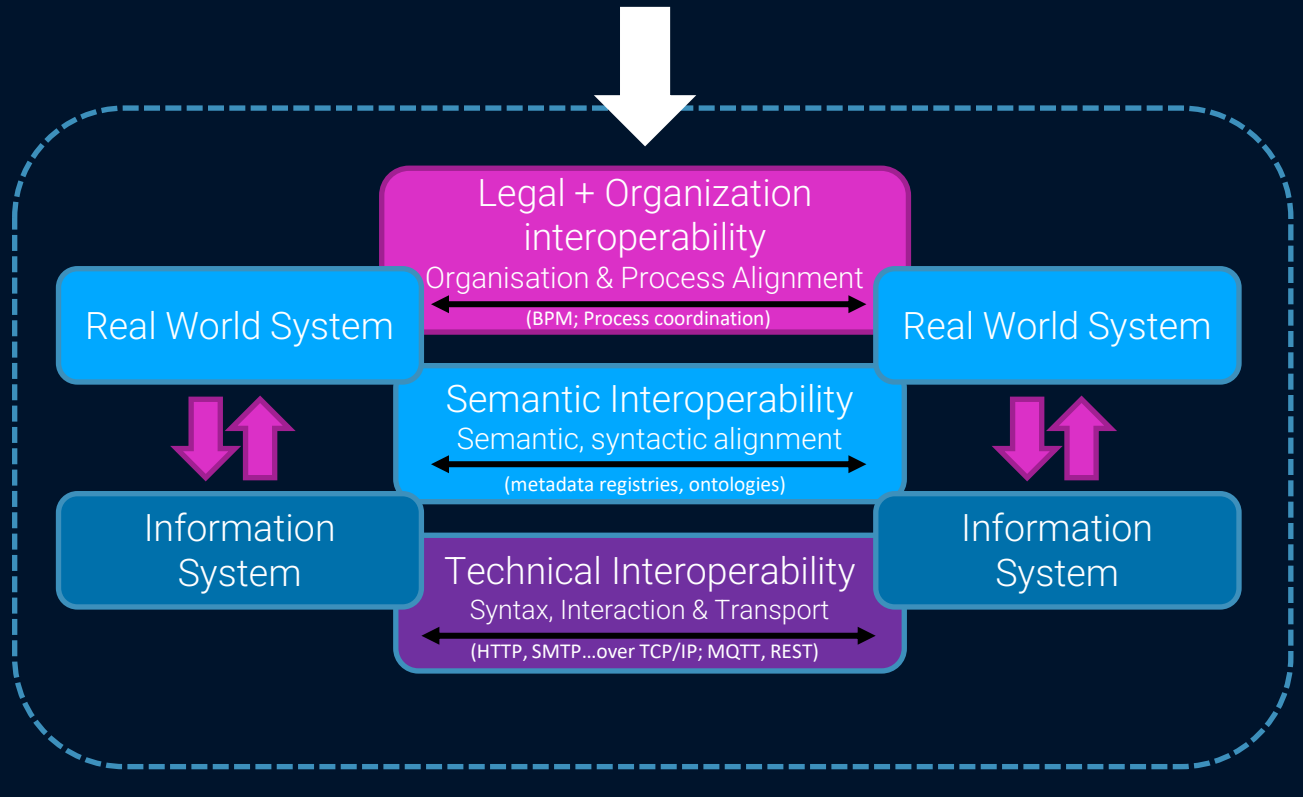
Accelerating knowledge transfer between people, systems and AI

The importance of Omni-Interoperability

Outcome/Impact -> Action -> Insight -> Information -> Data | Continuous Contextual Business Transformation & Knowledge Transfer | Digital Business & Operating Models

Outcome/Impact -> Action -> Insight -> Information -> Data

START WITH THE OUTCOME – NOT DATA



- Virtual first thinking
- Benefits-driven resiliency initiatives
- Leverage Simulation Capabilities
- Seamless transfer of knowledge between actors in a system
- Humans, machines, organizations, entities all on the same level.

- Where everything is understood between them, irrespectively if they are human or machines.

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Det som är utmaningen med kartdata och AI

Att sambanda eller inte sambanda? Är det frågan…?

- De flesta projekt misslyckas för att människor, system, och “AI-utvecklare” inte förstår kontext eller samband.

  Men vad händer ifall att alla ser de samband som tidigare har varit svårt att förstå och gällande säkerhetsobjekt och där 1+1+1 = Säkerhetsklassning 10?

Agenda

Vad jag hoppas att jag har pratat om

- Globala digitala tvillingar med XR orkestrering för virtuella demonstratorer och realtidsdata
- Självoptimiserande fastigheter byggd på CIM/BIM/IoT/AI för automatiskt minskad koldioxidavtryck
- Metodik för interoperabilitet mellan system, människor, organisationer och legala perspektiv
- Du kommer att lära dig hur du kan tänka för att komma igång, komma vidare och lyckas med digital transformation, kopplat till spatiell data och användningsområden för digitala tvillingar.

Det viktigaste gällande digitala tvillingar

Det viktigaste gällande Digitala Tvillingar och AI

- Poängen med digitala tvillingar är att testa saker virtuellt innan det görs i verkligheten och att få en digital kopia att visa hur bästa värde skall åstadkommas på kortast möjliga tid.

- **Innan** data kopplas på kan/bör planeras av människor som har ett intresse av området för digitala tvillingen. Skillnad mot “vanlig” planering är bland annat att det alltid finns en förståelse för hur real-tids data ska connectas, hur information skall nyttjas av andra system, och hur lösningar kan uppdateras över tid och leva för evigt.

- Människor behöver dels kunna ge input till digitala tvillingar, men även kunna förstå en output = behöver vara 4D (Var och när)

- Digitala tvillingar aggregerar data till information, som kan leda till insikter och beslut som ska leda till nytta UTAN att behöva integrera system med varandra –

- Kartan blir samlingsytan för disparata datakällor för människor för att förstå värdet med en förändring och SEDAN hitta data för att supportera ett beslut där nyttan är konkretiserad visuellt/kontextuellt.

Det som är utmaningen med kartdata och AI

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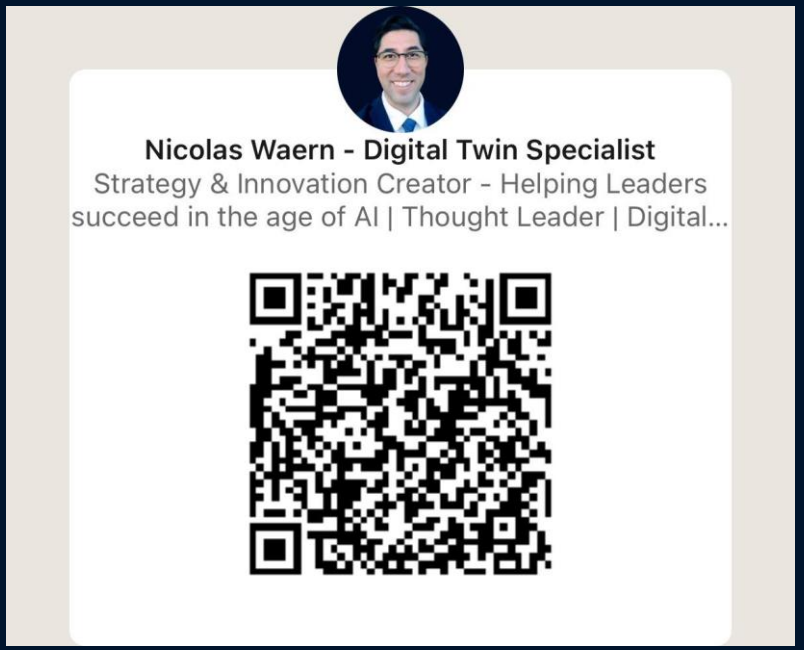
Kontaktuppgifter

Tid för Frågor!

Nicolas Waern
CEO & Founder WINNIIO AB
Strategy & Innovation Expert, Project Support, and Subject Matter Expert Smart Buildings and the real estate lifecycle

info@winniio.io
+46 703 47 87 44



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Example project hackathon with data from existing databases

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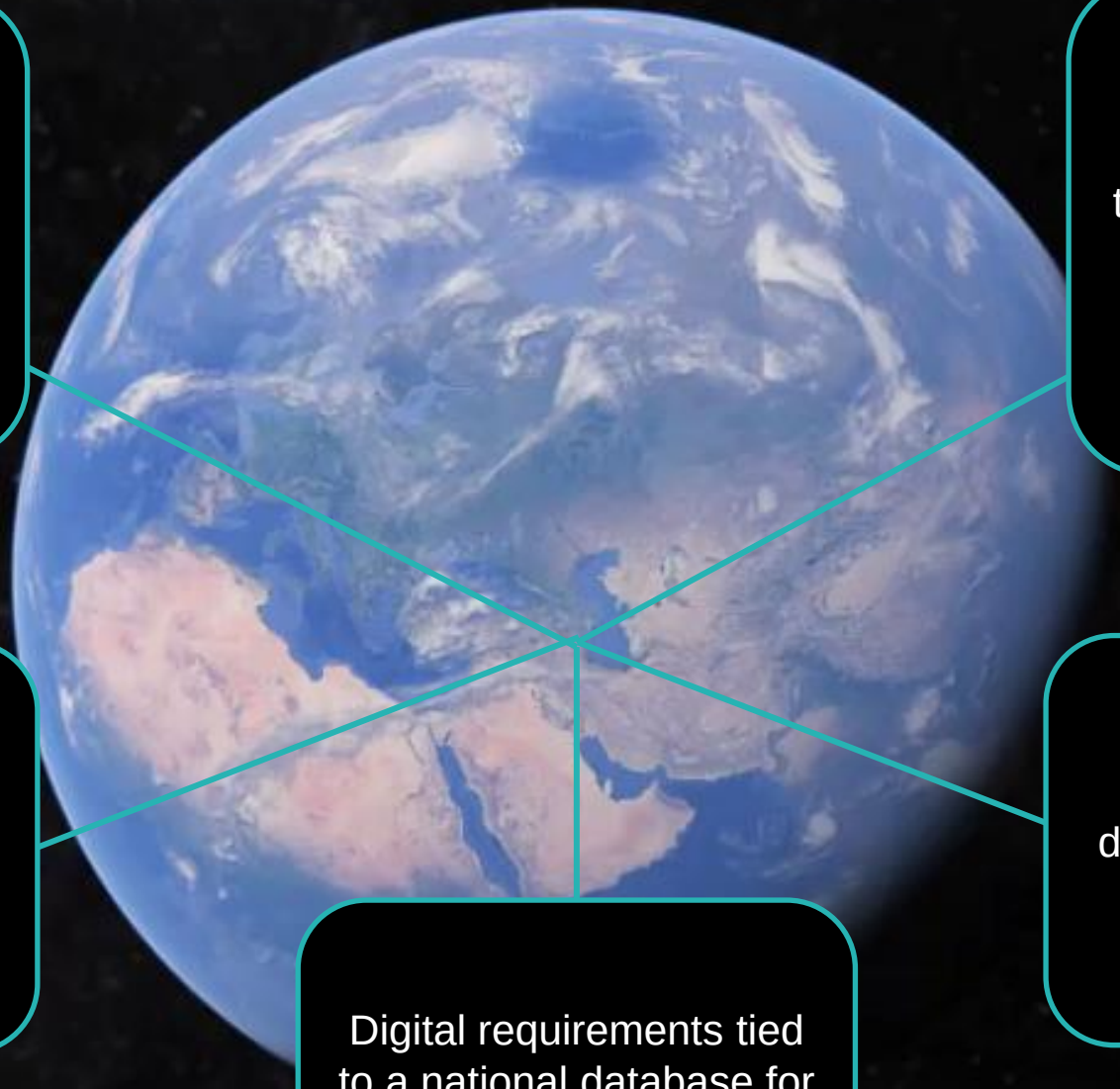
Digital Connection between climate calculations and a model.

Combine BIM with CIM to zoom out and zoom in in standardized ways across XR

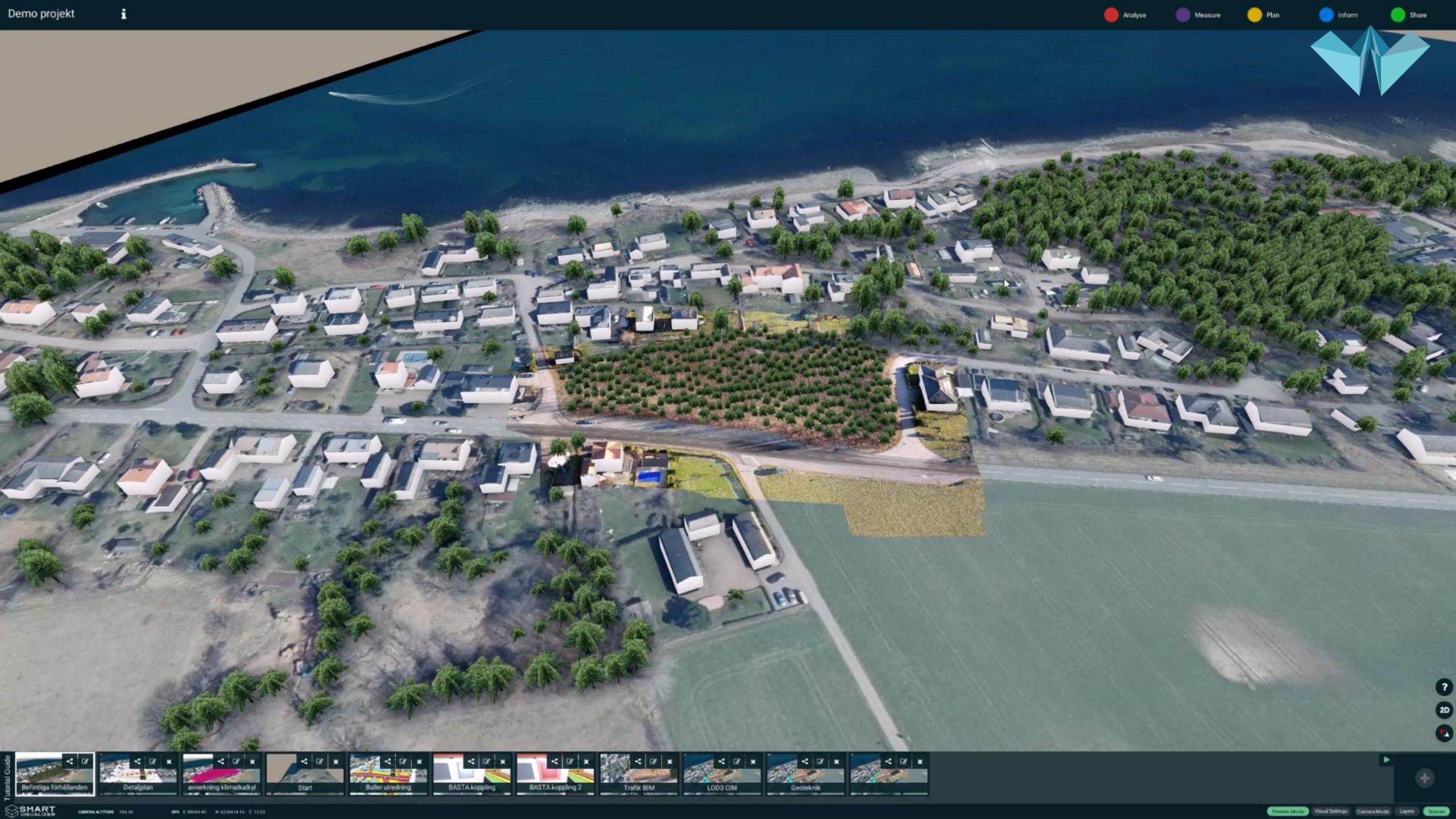


Digital connection between product selection tool and a model.

Connect with national road databases to increase LOD of roads from 100 to 300,400

Digital requirements tied to a national database for building codes to get it smart from start.

Align with existing frameworks


Demo projekt
Analyse
Measure
Plan
Inform
Share
Befintliga förhållanden
Detaljplan
avverkning klimatkalkyl
Start
Buller utredning
BASTA koppling
BASTA koppling 2
Trafik BIM
LOD3 CIM
Geoteknik
Tutorial Guide
SMART VISUALIZER
2D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Geoteknik
Tutorial Guide
SMART VISUALIZER
2D

Nicolas

Digital Twin, IoT, AI, Strategy and Innovation
10000+ hours

Miso

Robert

Construction
10000+ hours

Csaba

Construction BIMVDC
10000+ hours

Platform developer/GIS Expert
10000+ hours

Capture Knowledge - Digitally

From People
Organization agnostic
Concurrent Engineering
Collective Intelligence
Stakeholder Mapping
Digital Twin Enablement

From Planet
GIS, CIM, BIM, Scans
Satellite data
Reality Canvas

From Systems
Planetary scope
Operating Context
Standards identification
Ontology Alignment
Metadata Mastery

Capture Knowledge - Digitally

Scale, Scope & Learning Data Strategy/Logic

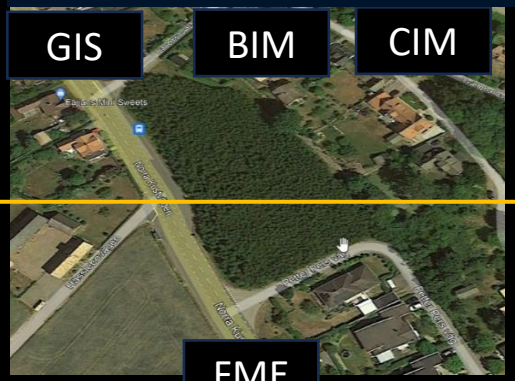
Data Traffic

Shared Reality

Outcome/Impact -> Action -> Insight -> Information -> Data | Continuous Contextual Business Transformation & Knowledge Transfer | Digital Business & Operating Models

Shared Reality | Concurrent Engineering | Collective Intelligence | Contextual Intelligence | Continuous Intelligence | Perpetual Wisdom

GIS BIM CIM



FME

FME

FME

FME

API SMIL(4)

API Climate calculations

API **BASTA (3)**

API BIM->LOD3 (2)

API NVDB (5)

CIM model
CityGML
3DCITYDB

AMA - CoClass

Design | Construction | Operations | Demolition

AI Journey | Human Decision Making | Data Contextualization | AI-Ready | AI-Infused | AI-Ingrained | Explainable AI Decision Making

SVENSK STANDARD
SS-EN ISO 19650-1:2019

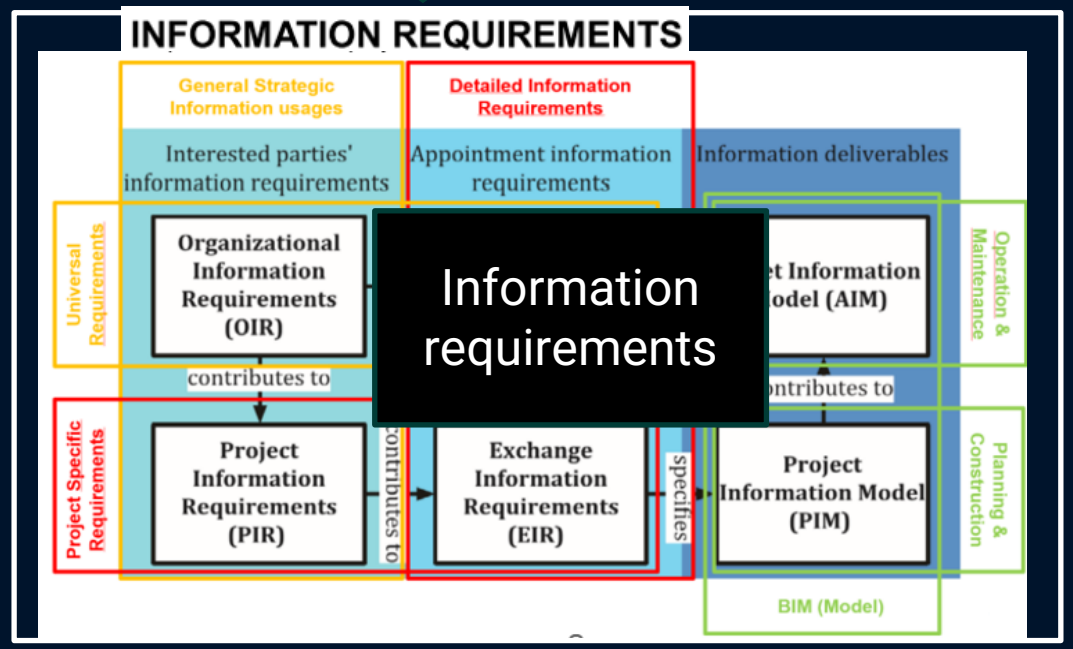
Fastställd/Approved: 2019-01-08
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 35.240.67; 91.0

Strukturerin
miljö – Inform
byggnadsinf
Del 1: Begre

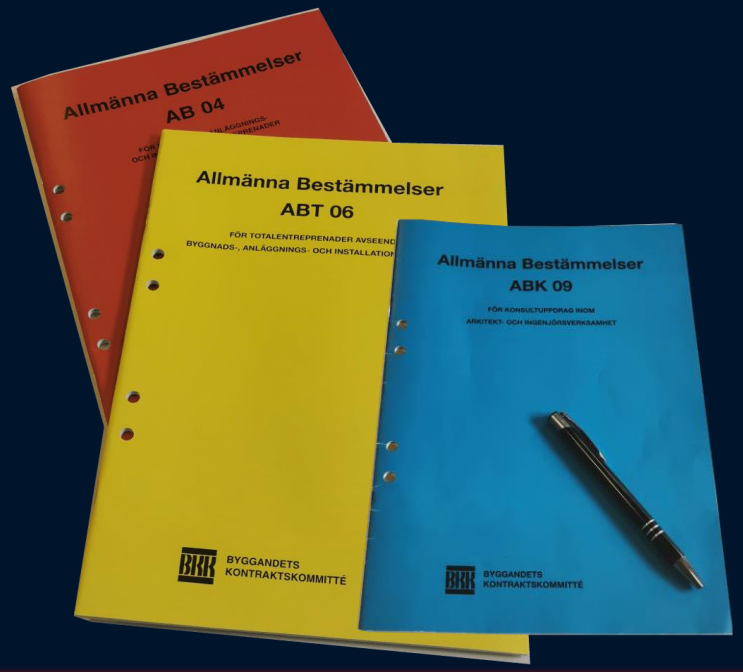
Swedish ISO standard

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – information management using building information modelling –
Part 1: Concepts and principles (ISO 19650-1:2018)

Contextual National Guidelines



Contract



Requirement	BIM E	project B.XXXX
Open		

Letting reality make the requirements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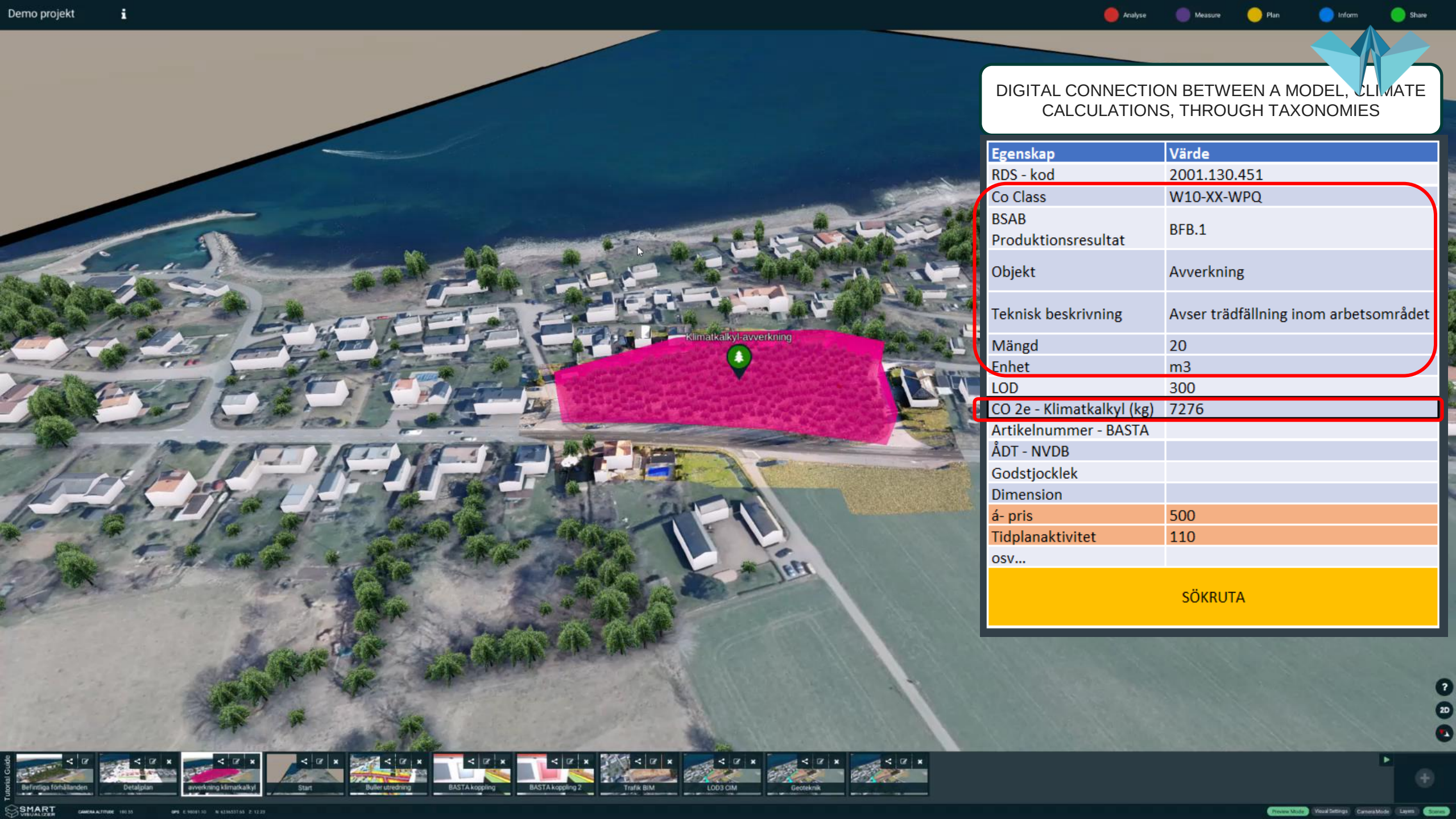


DIGITAL CONNECTION BETWEEN A MODEL, CLIMATE CALCULATIONS, THROUGH TAXONOMIES

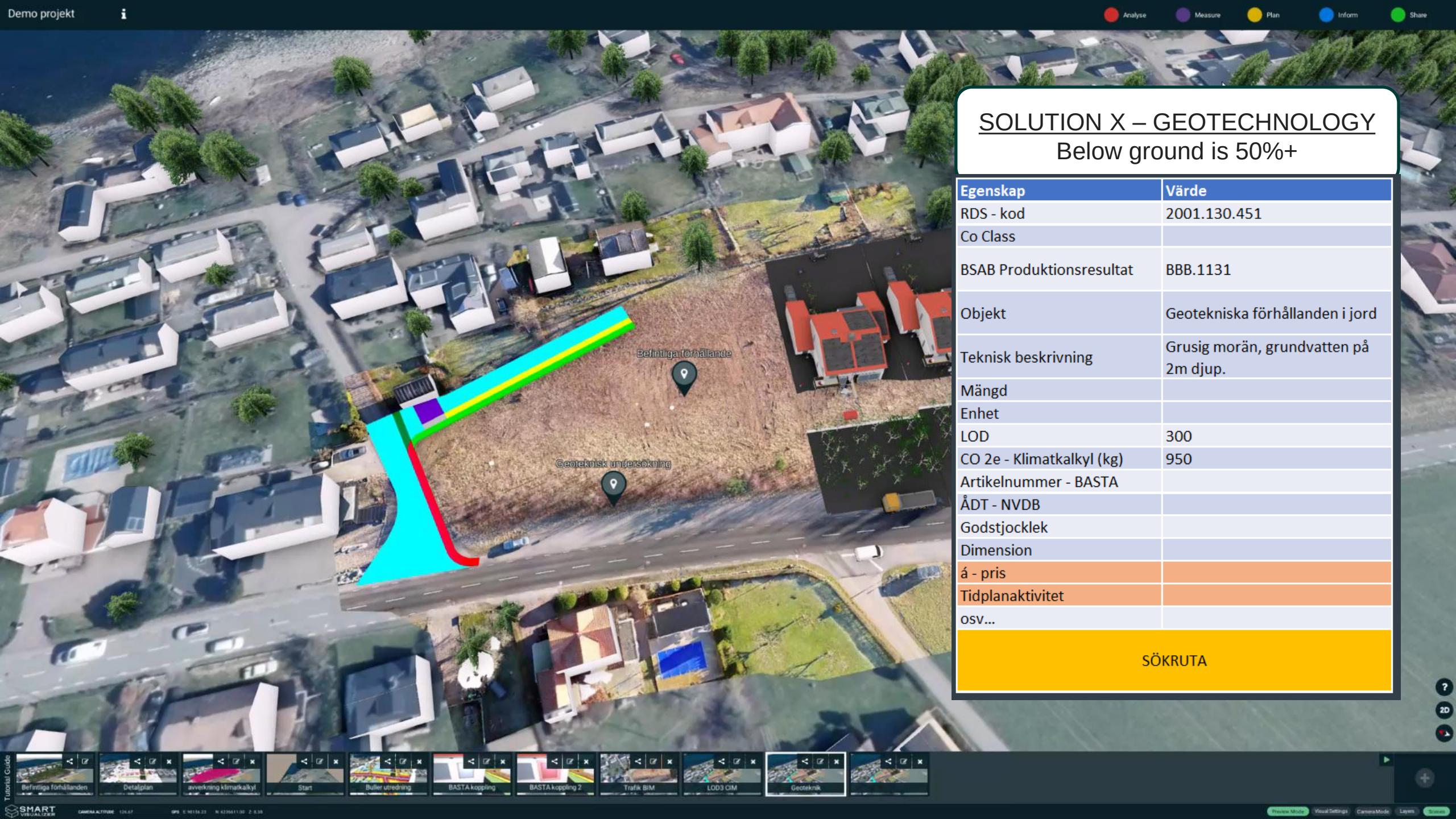
Egenskap	Värde
RDS - kod	2001.130.451
Co Class	W10-XX-WPQ
BSAB Produktionsresultat	BFB.1
Objekt	Avverkning
Teknisk beskrivning	Avser trädfällning inom arbetsområdet
Mängd	20
Enhet	m3
LOD	300
CO 2e - Klimatkalkyl (kg)	7276
Artikelnummer - BASTA	
ÅDT - NVDB	
Godstjocklek	
Dimension	
á- pris	500
Tidplanaktivitet	110
osv...	

SÖKRUTA

CONNECTING DATA FROM A PRODUCT DATABASE DIRECTLY TO THE BIM MODEL

Egenskap	Värde
RDS - kod	2001.130.451
Co Class	
BSAB Produktionsresultat	NSC.1
Objekt	Fönster
Teknisk beskrivning	Fast/öppningsbart fönster i aluminiumbeklätt trä inåtgående 3-glas (Rak profil)
Mängd	1
Enhet	st
LOD	400
CO 2e - Klimatkalkyl (kg)	
Artikelnummer - BASTA	8113F
ÅDT - NVDB	
Varumärke	Svenska fönster
BK04-kod	4101
á - pris	
Tidplanaktivitet	
osv...	
SÖKRUTA	

API CONNECTING BIM MODEL, 3CIM, NATIONAL ROAD DATABASE. LET THE REALITY SET THE REQUIREMENTS SO THAT IT BECOMES SMART FROM START.



SOLUTION X – GEOTECHNOLOGY

Below ground is 50%+

Egenskap	Värde
RDS - kod	2001.130.451
Co Class	
BSAB Produktionsresultat	BBB.1131
Objekt	Geotekniska förhållanden i jord
Teknisk beskrivning	Grusig morän, grundvatten på 2m djup.
Mängd	
Enhet	
LOD	300
CO 2e - Klimatkalkyl (kg)	950
Artikelnummer - BASTA	
ÅDT - NVDB	
Godstjocklek	
Dimension	
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SÖKRUTA

Zoom in zoom out

CONTACT DETAILS and QUESTIONS

Time for questions!

Nicolas Waern

CEO & Founder WINNIIO AB

Strategy & Innovation Expert, Project Support, and Subject Matter Expert Smart Buildings and the real estate lifecycle

info@winniio.io

+46 703 47 87 44