



Austrian Technologies for Hong Kong's Construction Industry

Wednesday, 7th December 2022

The Webinar will start at 3 PM HKT





MATEJ BANOZIC

BUSINESS MANAGER DIGITAL BUILDING
AUSTRIAN INSTITUTE OF TECHNOLOGY



DRIVING INNOVATION IN ENERGY RESEARCH

Austrian Tech for Hong Kong's Construction Industry

07th December 2022

Matej Banozic

Business Manager Digital Building Technologies

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

AIT CENTER FOR ENERGY FACTS & FIGURES

FUNDING FRAME (CO-FINANCED)

56 % **44 %**

NATIONAL

INTERNATIONAL



RESEARCHERS & SCIENTISTS

250+ engineering, physics,
architecture, IT, economics

RESEARCH FIELDS

12

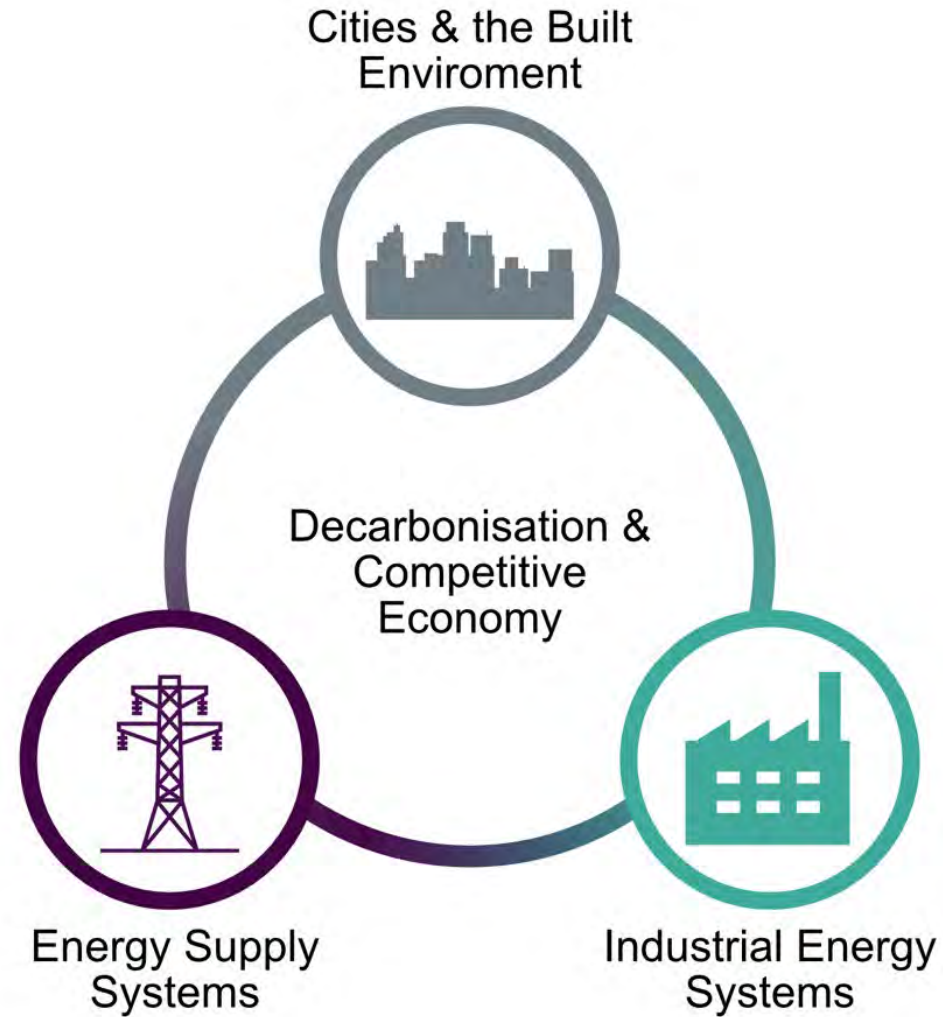
SCIENTIFIC PUBLICATIONS

270+ per year

NATIONALITIES

25+

STRATEGIC POSITIONING



Cities & the Built Environment

- Resilience: Climate change adaptation & mitigation
 - Digital integrated urban planning
 - Citizen participation & living labs
 - Digital city: urban data & analytics
 - Positive Energy Districts (PEDs)
 - Sustainable urban mobility
-
- Digital building technologies
 - Cooling & comfort for buildings
 - Refurbishment (technologies, business models)



RESEARCH FIELDS

Integrated Energy Systems

Integrated Energy Systems

Integrated Transport Optimisation

Electric Energy Systems

Power System Planning & Operation

Hybrid Power Plants

Power System Digitalisation

Power Electronics & System Components

Sustainable Thermal Energy Systems

Efficiency in Industrial Processes & Systems

Digitalisation & HVAC Technologies in Buildings

PS

Energy Conversion & Hydrogen

Energy Conversion & Hydrogen

Digital Resilient Cities

Smart and Carbon-neutral Urban Development

Integrated Digital Urban Planning

Climate Resilient Urban Pathways

PS

PS Principal Scientists

Relevant topics in buildings and the built environment

Reconstruction and Dismantling

- Circular Economy
- Retrofitting

Operation

- Energetic Optimization
- Error Recognition with AI Methods



Planning

- Open BIM Standardization
- Innovative Energy Concepts
- Energetic Optimization
- Renewable Energy

Construction

- CO2 Neutral Construction Site
- Renewable Energy

LABORATORY INFRASTRUCTURE

Comprehensive lab equipment for experimental and numerical investigations on various scales



- Heat pumps
- District heating & cooling
- Thermal storage
- Thermophysics



- Thin-film laboratory
- Opto-electronic- and material characterization labs
- PV modules & systems



- High voltage & high power laboratory
- Power electronics
- SmartEST (Smart Grids)
- DC Laboratory



- City Intelligence Lab
- Virtual Industry Lab (end 2023)



ANDREAS BRECHBUEHL

FOR
SILBER FENSTERBAU





Silber

PREMIUM WINDOWS & DOORS



Silber



SILBER – **sophisticated window and door construction.** For more than **150 years**, SILBER windows and doors have fulfilled all our customers' wishes in terms of materials, technology, production and design.

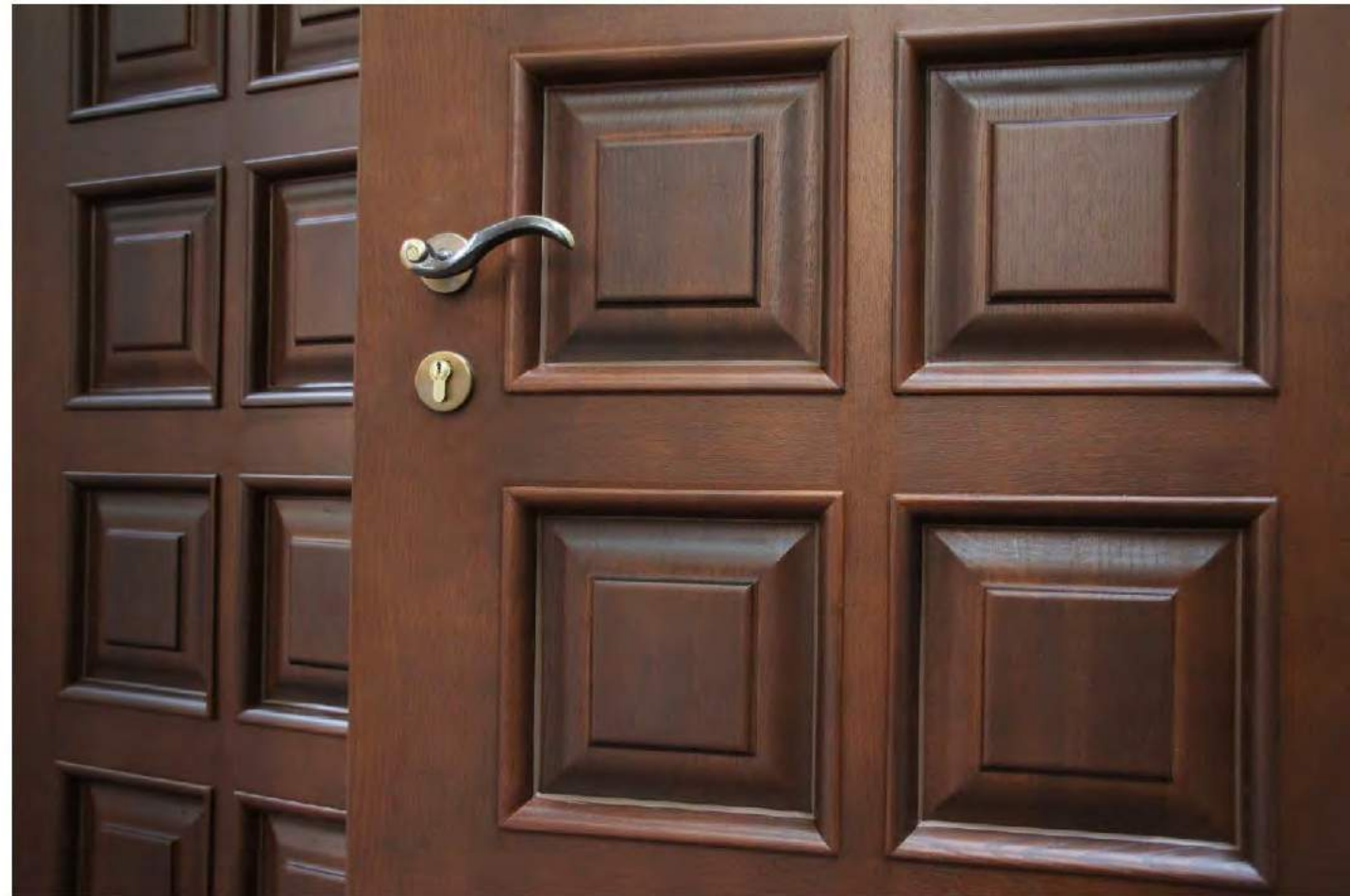
Precise – for love of detail

Lifespan, load-bearing capacity, aesthetics, **workmanship:** In all areas, the requirements of SILBER are many times higher than the norms. And even if our own **quality standards** are clearly defined, no product leaves the factory before it has been thoroughly checked again to ensure that it is perfect. Of course, that takes a lot of time. But every second is worth it – for your and our satisfaction.



SILBER windows and doors are handmade high-tech products that meet the very highest standards of safety and quality.

With the **latest technology**, four hinges prevent the door from warping or sagging. Thermal insulation and permanently elastic silicone seals guarantee the best U-values. The closed butt-joint ensures sustainable wood protection and durability, especially outside.



ENTRANCE DOOR – EXCLUSIVE & INDIVIDUAL

High-quality, natural materials and the **design of the front door** according to the wishes of our customers. Each individual piece is an avant-garde statement. The SILBER Entrance doors underlines the unique style of your building in its limitless variety.



About Silber

- **family owned business** from Austria / Europe established 150 years
- Individual Solutions in **Wood** in combination with **Aluminum** or **Bronze**
- **Variable types of openings**, forms and shapes
- Highest European quality suppliers for **Hardware and Fittings**
- tested and certified based on **EN Standards**
- **Attack Resistance up to RC3**
- **Acoustic tightness Rw 43dB**
- Highest U-values / **thermal insulation**
- **5-year warranty**

SILBER Windows and Doors

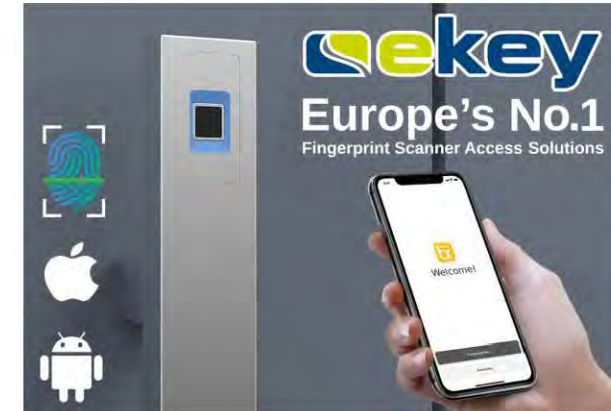




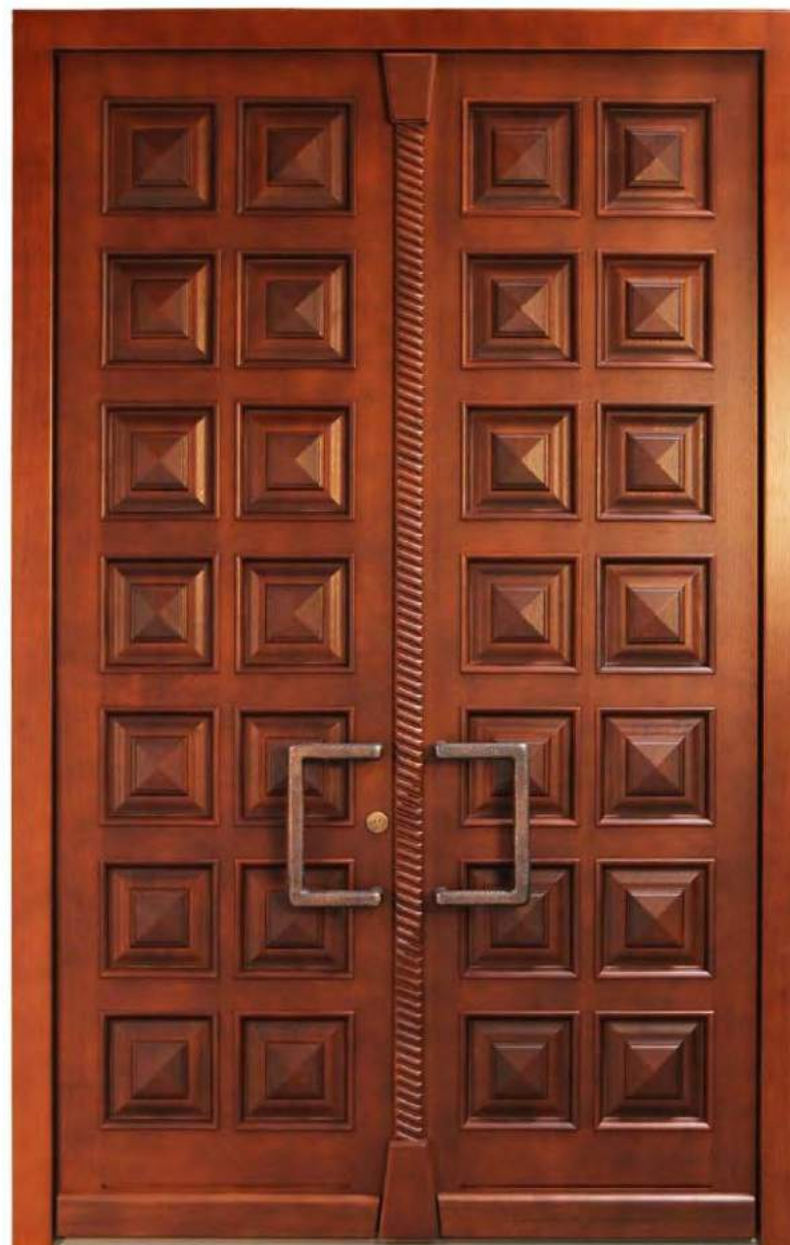


Entrance doors from **SILBER** are not only extremely beautiful, they are also **highly functional and particularly secure**.

- All standard woods used are suitable for **Attack Resistance in RC2 / 3** due to their strong construction.
- The massive front door core with **Thicknesses of 82 and 102 millimeters** offers a strong barrier.
- **High-security multi-point lock**, four concealed hinges with secured bolts
- **Security Cylinders**
- With **Biometric Access Control** from ekey.













There is a lot of **love and craftsmanship** in our windows.
We value the different types of wood with their characteristic properties. They store warmth and values for generations. In addition to wood as a natural product base material in a large variety of types, we rely on the **combination with aluminum or bronze**.



Thank you !



Silber

PREMIUM WINDOWS & DOORS

AUB Sales Partner

**for
Hong Kong & Macau**





MARCOS GARCIA

BUSINESS DEVELOPMENT MANAGER
RIEGL LASER MEASUREMENT SYSTEMS



 Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology



ATC
AUSTRIAN TECHNOLOGY CORPORATION





RIEGL Group of Companies

RIEGL Firmengruppe



Innovation in 3D

RIEGL Canada Ltd.
Toronto, Canada

RIEGL USA Inc.
Headquarters North America
Orlando, Florida

RIEGL UK Ltd.
York, United Kingdom

RIEGL Austria
Headquarters
Horn near Vienna, Austria

RIEGL China Ltd.
Beijing, China

RIEGL Asia Pacific Ltd.
Hong Kong, China

RIEGL Japan Ltd.
Tokyo, Japan

RIEGL Australia Ltd.
Southport, Australia

2 Riedenburgstraße 56



On the roof of the building: This is also where the long-range capabilities of the terrestrial laser scanners are tested.

*Auf dem Dach des Gebäudes:
Hier werden auch die Messeigenschaften
der terrestrischen Laserscanner bei
größeren Entfernungen überprüft*

The new production building in Horn has been available since 2021, doubling the available operating space. More than 26,900 square feet of additional working space expand the necessary company infrastructure to enable an efficient and up-to-date R&D and production.

2021 konnte das neue, zusätzliche Produktionsgebäude in Horn bezogen werden. Mehr als 2.500 m² zusätzliche Arbeits- und Aufenthaltsfläche erweitern die Unternehmensinfrastruktur und ermöglichen so eine effiziente und zeitgemäße Forschung, Entwicklung und Produktion.



RIEGL USA Inc. under the leadership of Johannes Riegl Jr. is responsible for RIEGL's North American business.

In November 2021, we moved to the new **North American headquarters in Winter Garden, Orlando, Florida.**

Für das Nordamerika-Geschäft zeichnet RIEGL USA Inc. unter der Leitung von Johannes Riegl jr. verantwortlich.

Im November 2021 wurde die neue Nordamerika-Zentrale in Winter Garden, Orlando, Florida, eröffnet.



Ribbon cutting at the opening in Winter Garden
Bei der Eröffnung des neuen Gebäudes in Winter Garden



RIEGL Laser Scanners & Scanning Systems

RIEGL Laserscanner & Scanning-Systeme



Innovation in 3D



NEW RIEGL VZ-600i

RIEGL's latest generation of professional Terrestrial Laser Scanners stands out with extreme versatility, high productivity, ultimate performance and additional mobility.

- broad range capability (0.5 m up to 1000 m)
- 5 sec scan time for low resolution overview scans
- 30 sec scan time for 6 mm resolution @ 10 m distance
- 60 scan positions per hour (with image acquisition)
- 3D position accuracy up to 3 mm @ 50 m
- precise real-time onboard registration
- 3 internal cameras & GNSS receiver
- weight 6 kg / 13 lbs
- prepared for mobile use





RIEGL VZ-i / VZ Series

Ultra high-performance 3D terrestrial laser scanning systems for more than 400 scans in just an 8-hour workday!

RIEGL VZ-400i / VZ-2000i

- up to 1.2 MHz PRR, up to 500,000 meas./sec
- range up to 800 / 2,500 m
- accuracy / precision: 5 / 3 mm

RIEGL VZ-4000 / VZ-6000

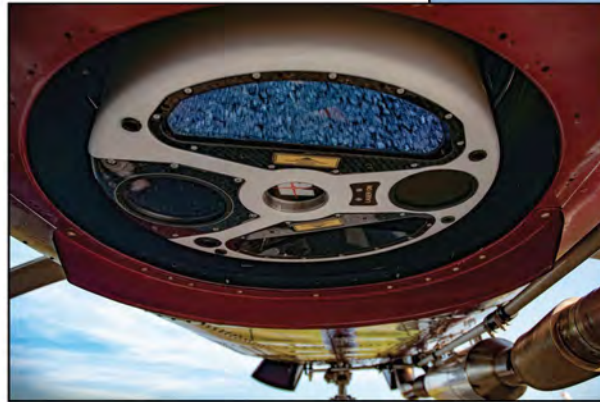
- up to 300 kHz PRR,
- range up to 4,000 / 6,000 m
- accuracy / precision: 15 / 10 mm



 75° FOV up to 1.25 MHz meas. rate operating altitude AGL up to 3,900 ft	NEW  75° FOV up to 1.25 MHz meas. rate operating altitude AGL up to 4,400 ft	 60° FOV up to 1.33 MHz meas. rate operating altitude AGL up to 9,900 ft <i>for customized system configurations</i>	 58° FOV forward/backward and nadir look up to 2.66 MHz meas. rate operating altitude AGL up to 12,800 ft <i>dual channel turnkey system for high altitude, large scale mapping</i>	NEW  60° FOV regular scan pattern VQ-1460: up to 2.9 MHz meas. rate VQ-1260: up to 1.46 MHz meas. rate operating altitude AGL up to 14,400 ft <i>turnkey system for high altitude, large scale mapping</i>						
VQ-480 II			VQ-580 II-S		VQ-780 II-S		VQ-1560 II-S		VQ-1460/VQ-1260	

for surveying at mid flight altitudes
 e.g. corridor mapping, city modeling, agriculture and forestry

for surveying at high flight altitudes
 e.g. wide area mapping of complex environments



Two *RIEGL* planes are available for verification of *RIEGL* airborne laser scanners and laser scanning systems as well as for demo flights.

Zwei RIEGL-eigene Flugzeuge stehen für die Überprüfung der Leistungsdaten von RIEGL airborne Laserscannern und Systemen - aber auch für Demoflüge - bereit.



RIEGL's Cessna T206H test plane equipped with VQX-1 wing pod

NEW RIEGL VQX-1 Wing Pod

Fully Integrated, Easily Mountable /Dismountable Airborne Laser Scanning Solution

- **robust and reliable wing pod:**
the wing pod is designed to carry a wide range of **RIEGL** sensors (VQ-480 II, VQ-580 II-(S), VUX-240, VUX-120²³, VUX-160²³ or VQ-840-G), an appropriate high-end IMU/GNSS system **and up to three high-resolution cameras**
- ready for user-friendly installation and straightforward application to facilitate various airborne mapping applications
- uncompromising lightweight construction
- quick installation and removal (including power cabling)
- GNSS antenna to be mounted appropriately
- EASA STC for Cessna 172-, 182- and 206- series in progress
- versatile configurability



RIEGL VQX-1 with VQ-580 II (-S)



RIEGL VQX-1 with VQ-840-G



RIEGL VQX-1 with VUX-240



RIEGL Helicopter Pods for Airborne Laser Scanning

- robust and reliable airborne scanner carrying platform
- full mechanical and electrical integration of sensor system components into aircraft fuselage
- quick installation & removal using the existing mounts (e.g. AirFILM Camera System); mounting and operation at end user's responsibility
- area exposed to wind approx. 0,114 m²

RIEGL VP-1 with RIEGL VUX-1

RIEGL VUX-1LR²² or VUX-1UAV²² LiDAR Sensor, IMU/GNSS unit with antenna, control unit, and digital camera(s) fully integrated

- total weight approx. 20 kg



RIEGL VPX-1 with VUX-240

RIEGL VUX-240 LiDAR Sensor, control unit, up to 3 Sony Alpha digital cameras and a high-end IMU/GNSS system with antenna fully integrated

- total weight approx. 20 kg

ENHANCED
PERFORMANCE



125 scan lines/sec
300 kHz eff. meas. rate
up to 4 cameras
including spherical camera

typ. point density
550 points/m²
on pavement
surface @ 80 km/h

VMY-1

ENHANCED
PERFORMANCE



250 scan lines/sec
600 kHz eff. meas. rate
up to 4 cameras
including spherical camera

typ. point density
1,100 points/m²
on pavement
surface @ 80 km/h

VMY-2



250 scan lines/sec
1.8 MHz eff. meas. rate
up to 4 cameras
including spherical camera
multiple swivel positions for
improved scan pattern in multi-
pass applications

typ. point density
3,200 points/m²
on pavement
surface @ 80 km/h

VMQ-1HA



500 scan lines/sec
3.6 MHz eff. meas. rate

up to 9 cameras
including spherical camera and
up to 2 highspeed pavement
cameras

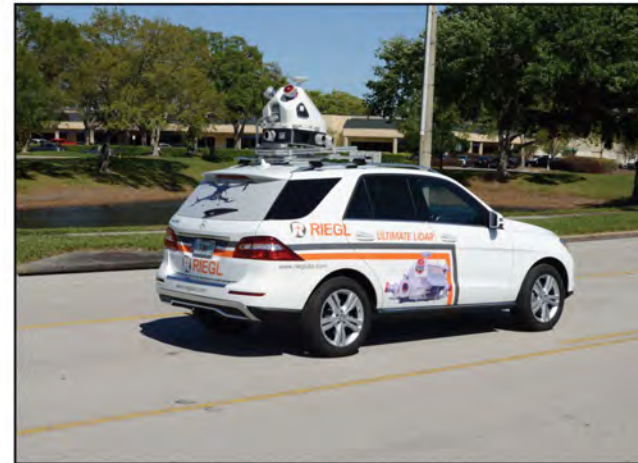
simultaneous capturing of
spherical and directional imagery
with a total resolution
of up to 1370 MP/sec

typ. point density
6,400 points/m²
on pavement
surface @ 80 km/h

VMX-2HA

A broad system portfolio serving all levels of applications:

transportation infrastructure mapping, city modeling, GIS mapping & asset management, road surface management, open-pit mine surveying, rapid capture of construction sites and bulk material, HD mapping for autonomous vehicles

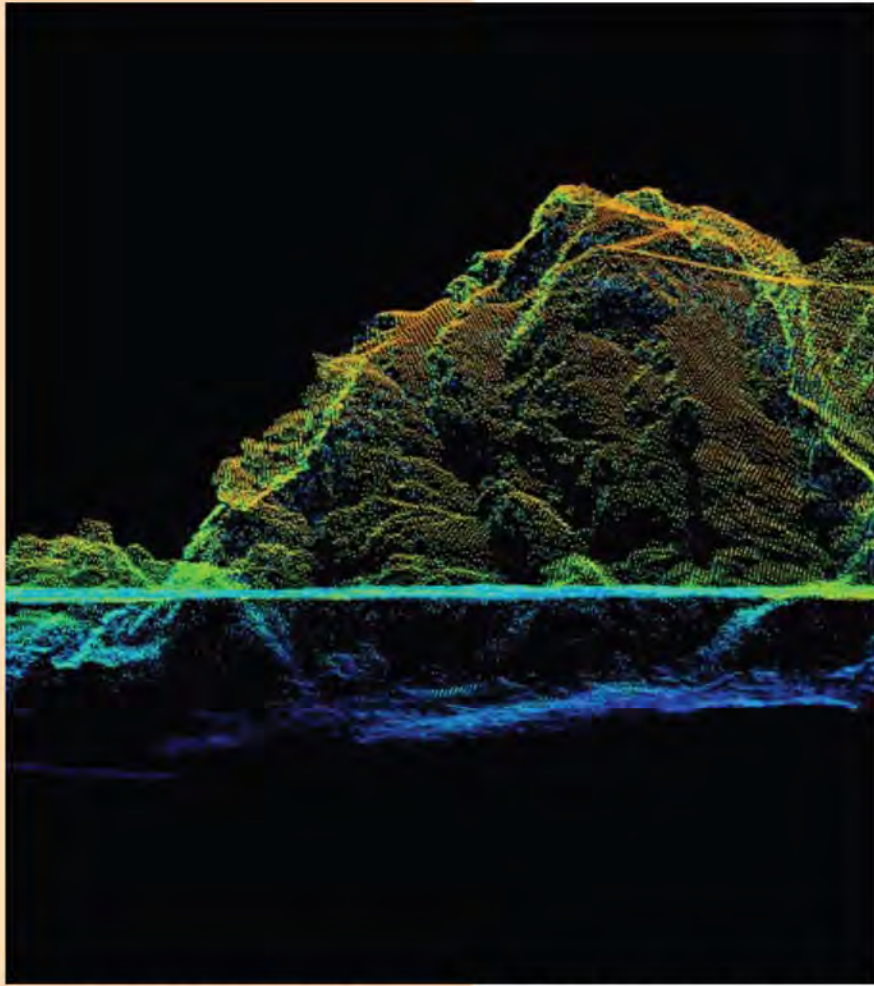






Distributed, supported
and serviced by

RiCOPTER[®]
... A RIEGL[®] COMPANY



simultaneously captured topo-bathymetric LiDAR data above and below the water line (rock formation „Les Deux Frères“ Cap Sicié Toulon, France)

Laser Scanners for Combined Topographic and Bathymetric Surveying

- compact and lightweight design
- visible green laser beam
- high spatial resolution due to measurement rate up to 200 kHz and high scanning speed of up to 100 scans/sec
- for installation on various platforms including UAVs

NEW RIEGL VQ-840-GL

- **reduced weight <10kg (22 lbs)**
- water penetration up to 2.5 Secchi Depths
- optional integration of inertial navigation system and digital camera

RIEGL VQ-840-G

- water penetration up to 2 Secchi depths
- optional integration of inertial navigation system and digital camera
- additional, fully integrated infrared laser rangefinder (optional)





GEORG MOLZER

FOUNDER & CEO
SHADOWMAP



 Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology





THE DIGITAL INTERFACE TO THE SUN

Austrian Technology Days Hong Kong 2022

Georg Molzer

Founder CEO

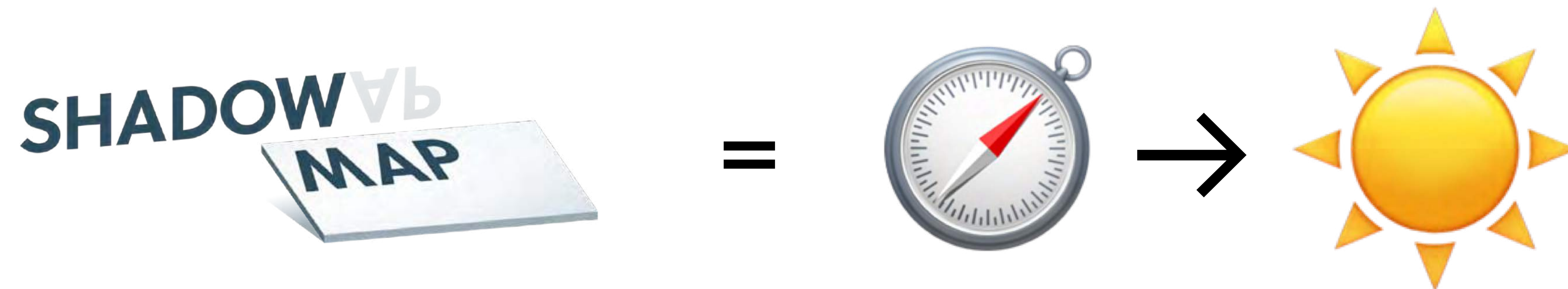
georg@shadowmap.org

WWW.SHADOWMAP.ORG

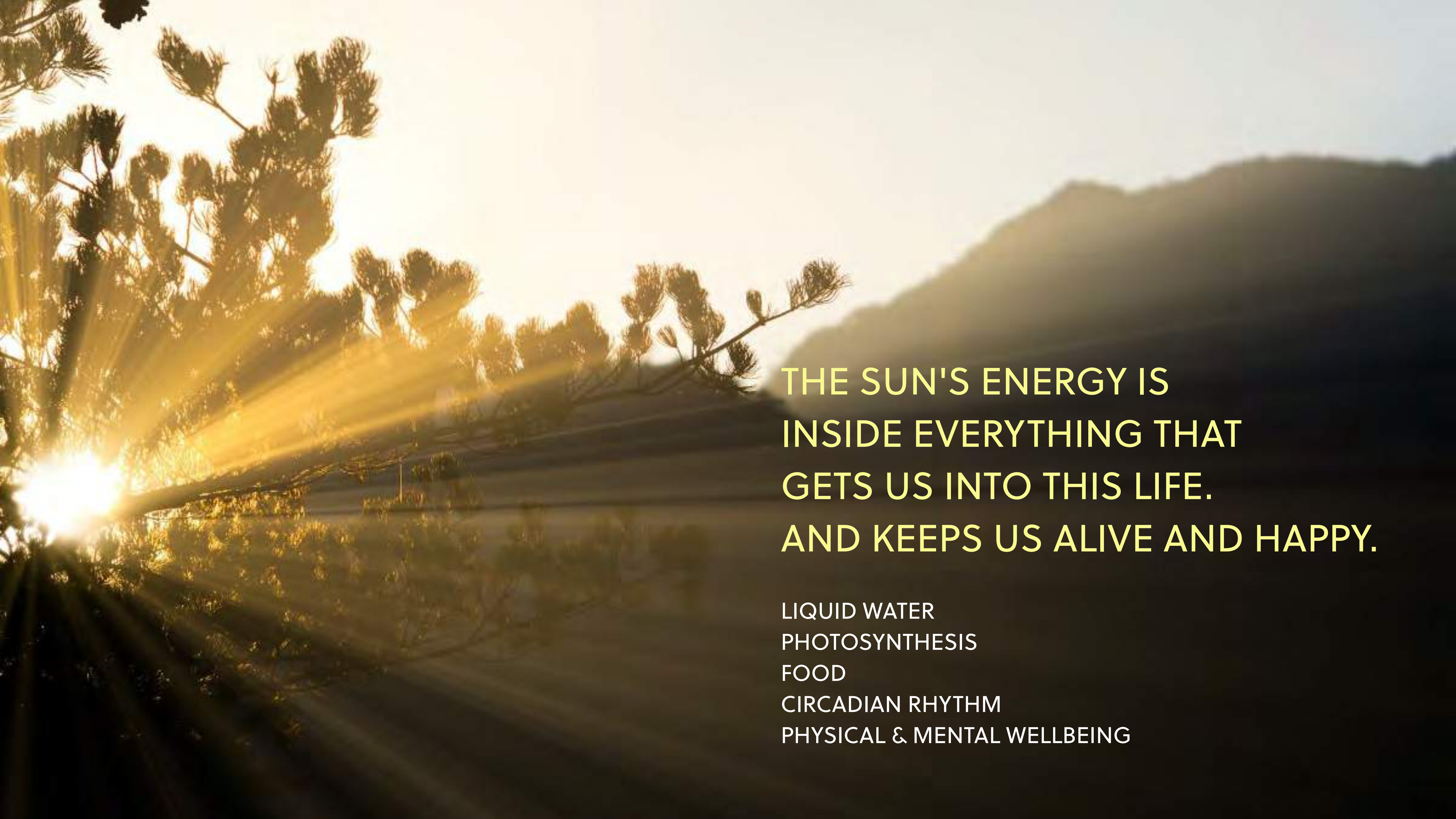




SHADOWMAP = COMPASS FOR THE SUN



SHADOWMAP = COMPASS FOR THE SUN



THE SUN'S ENERGY IS
INSIDE EVERYTHING THAT
GETS US INTO THIS LIFE.
AND KEEPS US ALIVE AND HAPPY.

LIQUID WATER
PHOTOSYNTHESIS
FOOD
CIRCADIAN RHYTHM
PHYSICAL & MENTAL WELLBEING

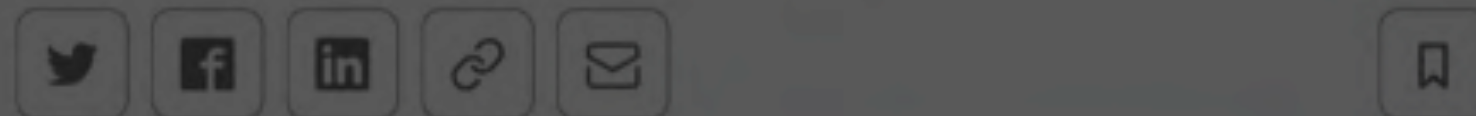
August 29, 2022
9:51 AM GMT+2
Last Updated 9 days ago

European Markets

Analysis: Forget showering, it's eat or heat for shocked Europeans hit by energy crisis

By Bozorgmehr Sharafedin and Canan Sevgili

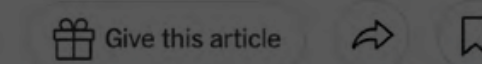
5 minute read



ENERGY CRISIS

As Russia Chokes Europe's Gas, France Enters Era of Energy 'Sobriety'

The government is helping residents with soaring gas and electric costs, but some businesses are already shutting down amid fears of rationing and blackouts.



Frankfurter Allgemeine

ZEITUNG ● FAZ.NET

HABECK-VORSTOSS

Nur noch 19 Grad in öffentlichen Gebäuden

AKTUALISIERT AM 12.08.2022 - 15:04



EXPLAIN TO ME HOW *THIS*



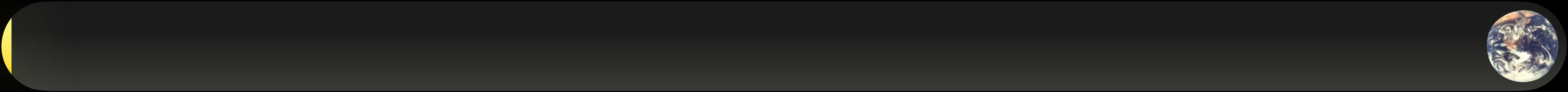
WILL NOT BE ABLE TO POWER THIS



WE COULD FULLY POWER 1.000 EARTHS. WITH 1 SUN*.

* BY COVERING THE WHOLE EARTH AT 22.3% PANEL EFFICIENCY

CURRENT STATE



0.65%

1 Earth

WE BELIEVE IN A WORLD THAT RUNS ON THE SUN



OUR CONTRIBUTION: DEMOCRATIZATION OF ACCESS TO INSOLATION DATA

INSTANT ON

RUNS EVERYWHERE

GLOBAL COVERAGE

SUPER SIMPLE UX





SHADOWMAP ALLOWS TO PLAN AND WORK WITH THE SUN BY
VISUALIZING* SUNLIGHT AND SHADOWS THROUGHOUT THE YEAR.

* SOON: ANALYZING

HOW IT WORKS



GLOBAL 3D DATA
TERRAIN, BUILDINGS & VEGETATION

+

MATHEMATICAL SUN MODEL
WORKS FOR ANY DATE/TIME/TIMEZONE

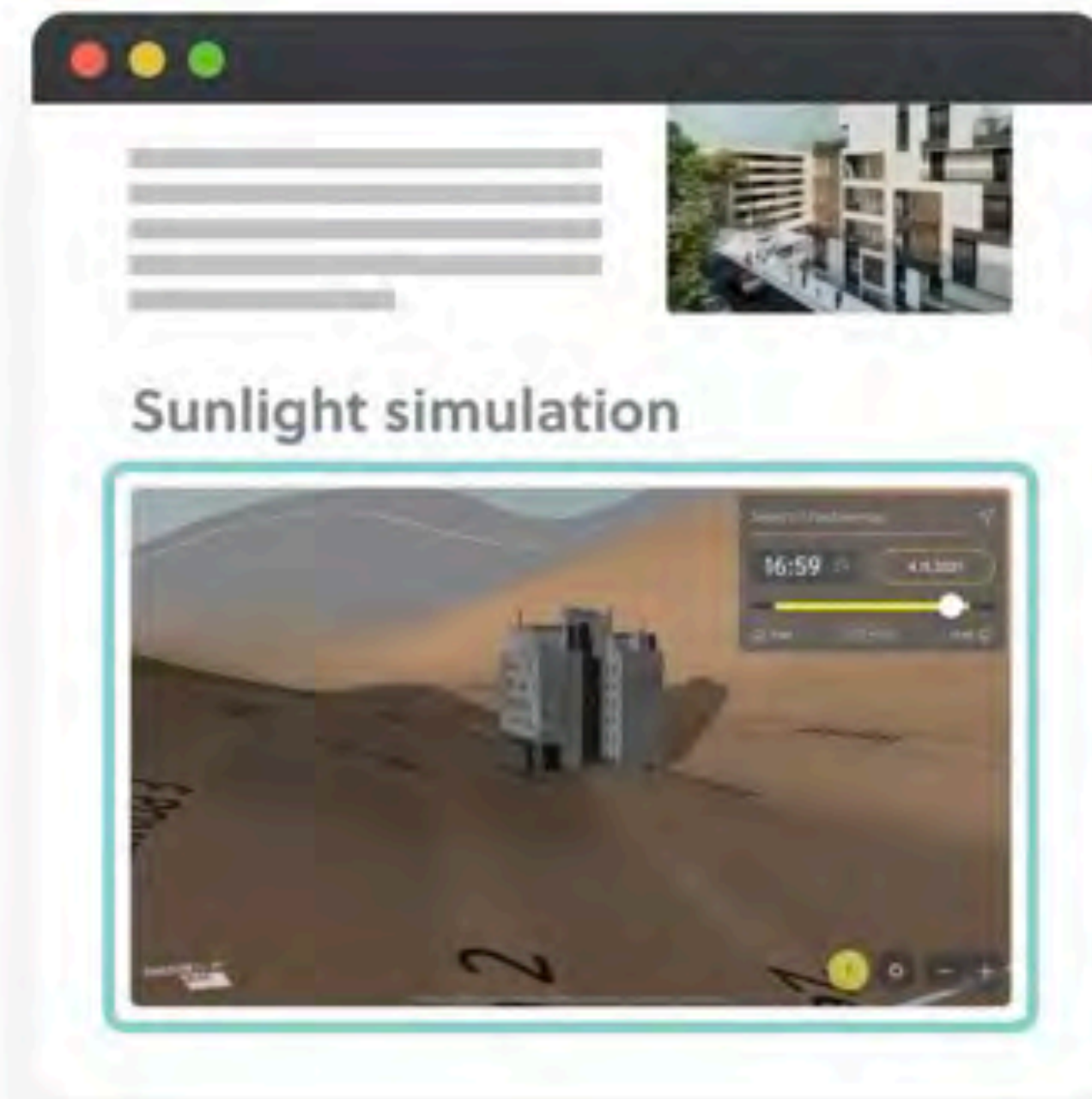
+

CUSTOM MAPS ENGINE
WEB BASED REALTIME 3D

HOW IT WORKS



IMPORT 3D MODELS

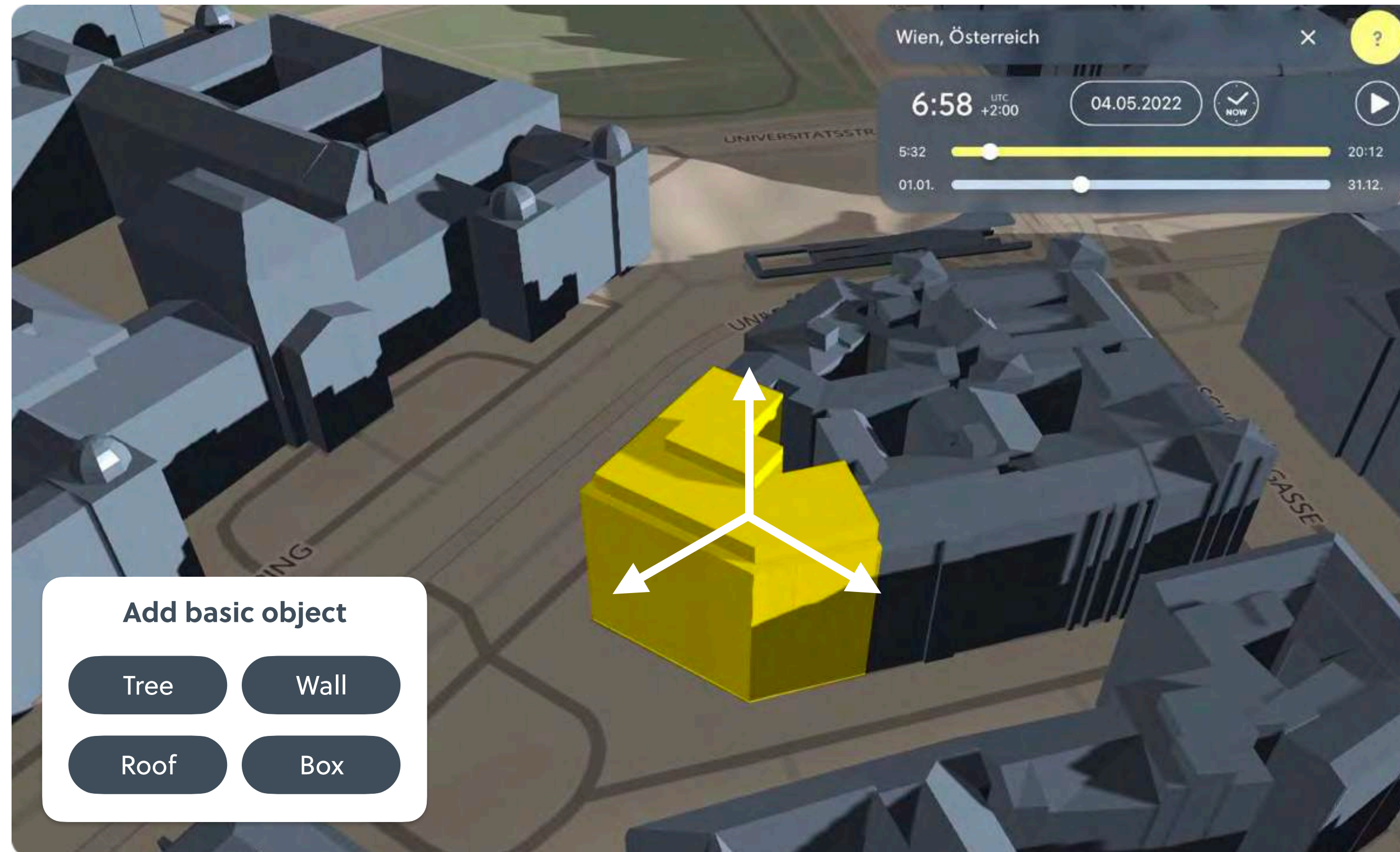


EMBED SHADOWMAP INTO
EXISTING WEBSITE/APP



PROVIDE INTERACTIVE 3D
SHADOW VISUALIZATION

SHOW REAL ESTATE IN ITS TRUE SUNLIGHT



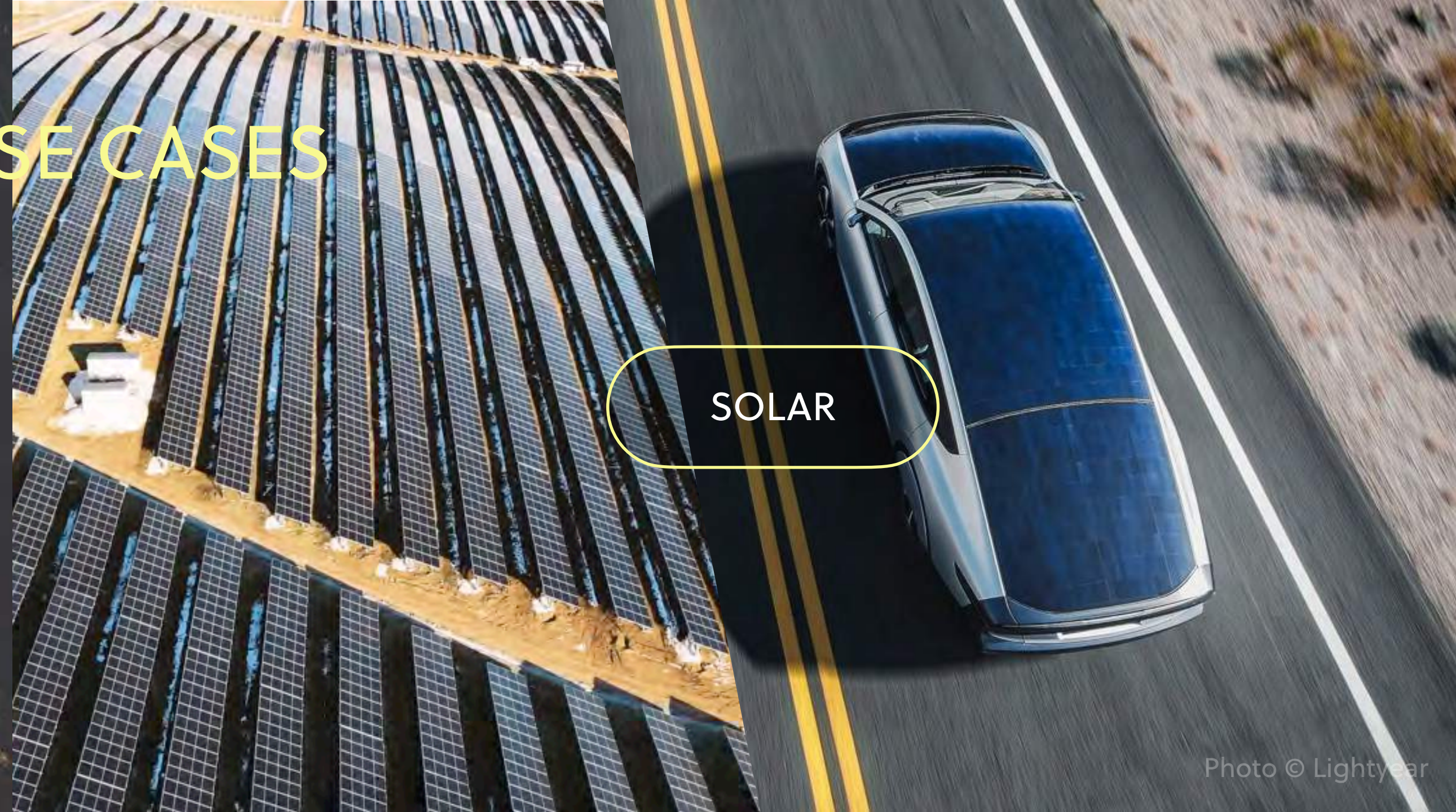
- FOR URBAN PLANNING, REAL ESTATE, SOLAR, ARCHITECTURE
- INTERACTIVE PROMOTION & PRESENTATION
- EMBEDDABLE
- FROM € 5000/MONTH ON A DISTRICT SCALE

READY FOR CITY SCALE INTEGRATION



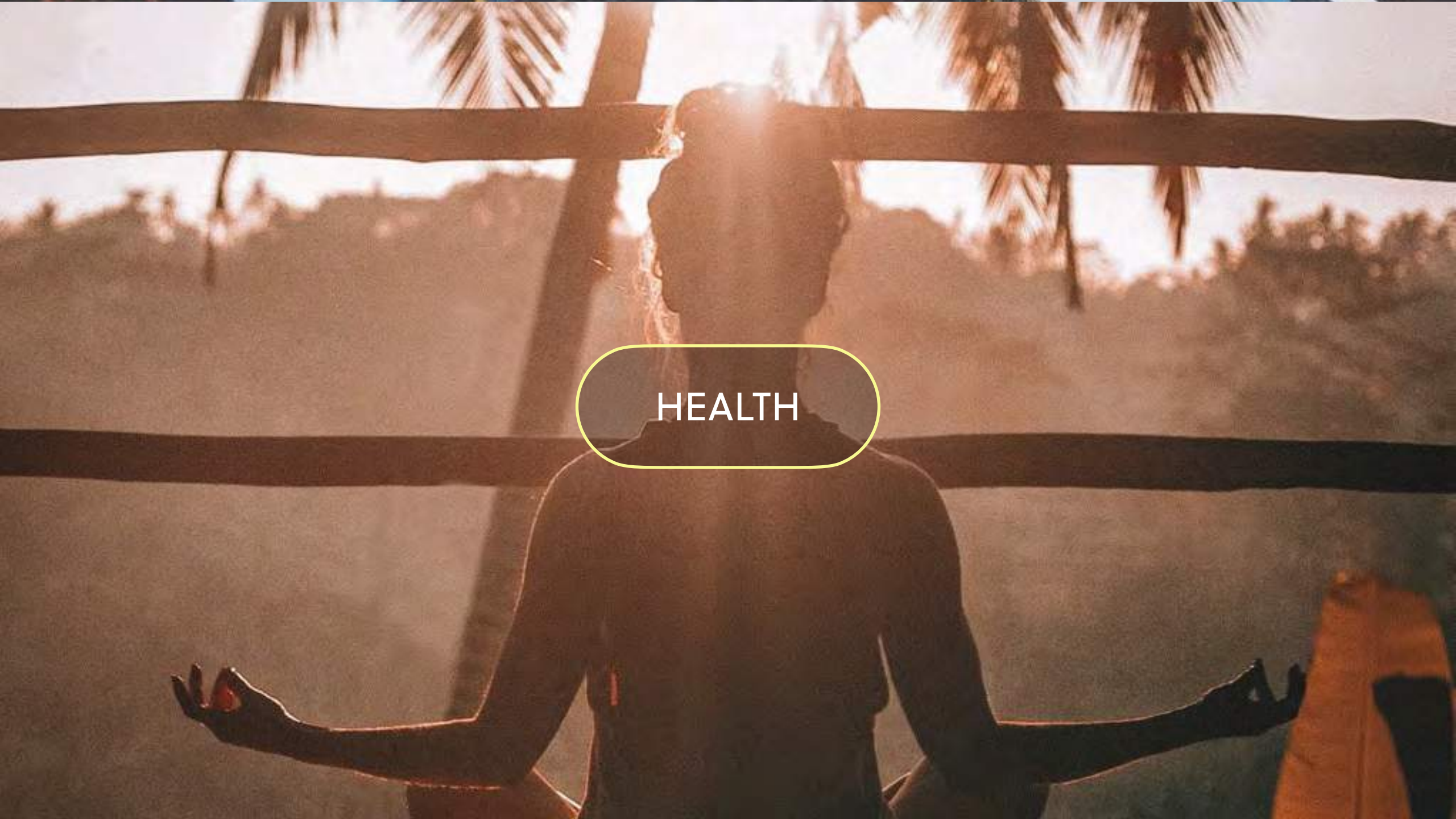
MORE USE CASES

REAL ESTATE / GREEN BUILDINGS / CLIMATE



SOLAR

Photo © Lightyear



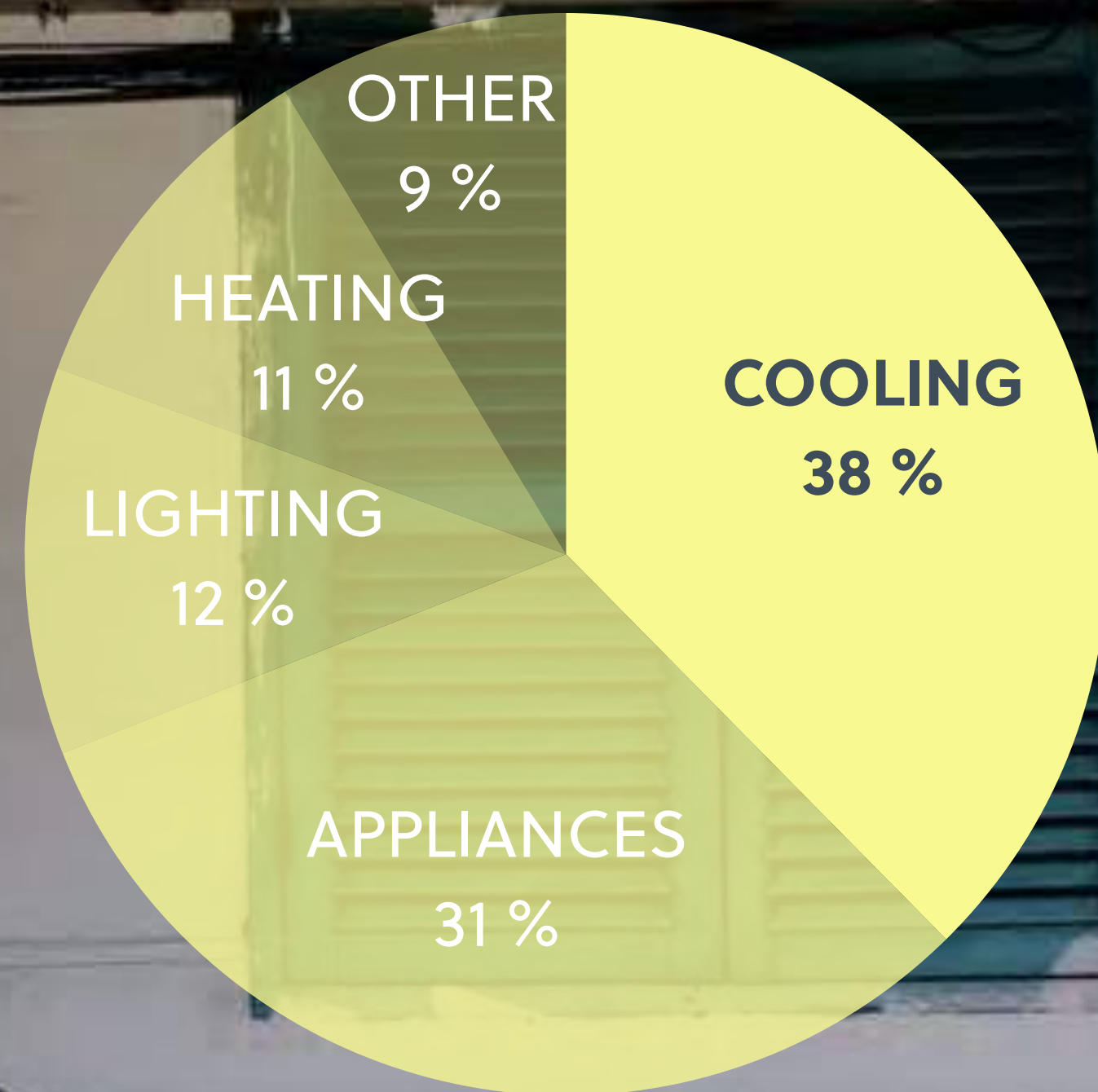
HEALTH



"EVERYTHING THE LIGHT TOUCHES" — MUFASA

Photo © Disney

COOLING



COOLING IS THE FASTEST GROWING
ENERGY DEMAND IN BUILDINGS (FORECAST TO 2050):

Source: iea.org

THE SHADOWMAPPERS

CEO

Georg Molzer



HEAD OF SALES

Ainhoa Barrio



SENIOR DEVELOPER

Erik Unger



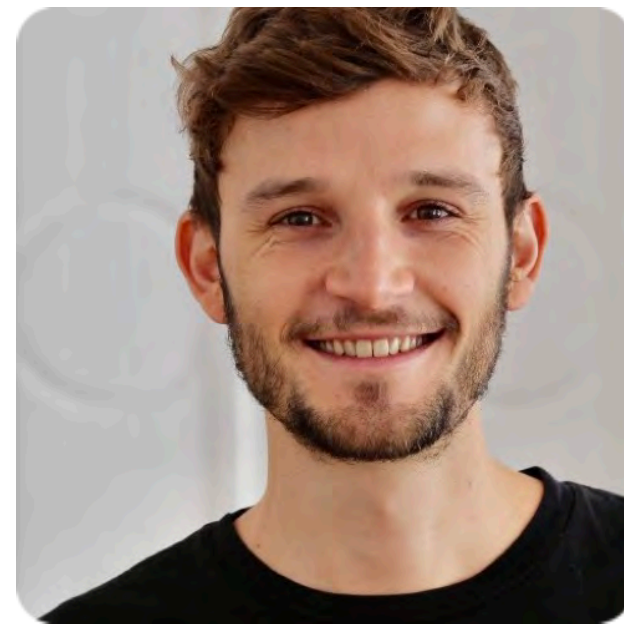
SOCIAL MEDIA + EDITORIAL

Emilia Savić



SENIOR DEVELOPER

Markus Klepp



CX + CONTENT

Michael Jus



SALES + PRODUCT

Gregor Petri



PEOPLE + CULTURE

Katrin Schnellrieder

MISSION

BUILDING THE TOOLS AND INSPIRING HUMANITY
TO RETURN INTO A SYNERGETIC RELATIONSHIP WITH THE SUN.

SHADOW 
MAP



We are looking forward to working with you!

Georg Molzer
Founder CEO
georg@shadowmap.org

WWW.SHADOWMAP.ORG



FRANZ HALLER

CEO
MIXTERESTING



Vision

Imagine to develop CO2 neutral concrete in just 2-3 months.

All at the same time:

- Reduction of the cost of the concrete
- Without changing the production method
- With consistent quality





MIXTERESTING

AI FOR GREEN CONCRETE



Concrete is the most widely used material



4,6 Bn. Tons
Cement/Year



24 Bn. Tons
Concrete/Year

Concrete is a huge CO₂ Emitter



8% of global Emission



MIXTERESTING

AI FOR GREEN CONCRETE

Our digital mixing master enables
10x faster concrete development
by using proprietary algorithms
and AI in a SaaS application.



Climate-KIC

Climate-KIC is supported by the
EIT, a body of the European Union



Customer benefits



10x
faster
results



5-10%
increased
profit margins



>10%
Reduction in
CO₂ emission



Running customer projects

Customer	Concrete Type	Concrete/Year in T	Savings	Saved amount of CO2 in Tons/Jahr
Austria	Standard	60.000	7%	600 Tons/Year
Germany	Standard	40.000	10%	560 Tons/Year
Austria	PreFab	40.000	10%	1.500 Tons/Year
Slovakia	Standard	15.000	5%	100 Tons/Year



Integration of CO₂ calculation in the software

Projects • Project Details

Recycled Aggregates

Objective: CO2 Creator: Bob Howard Last Iteration: 11.7.2022 Description: This is a demo project without protected ...

[START NEW ITERATION](#)

Iteration 9
11.7.2022, 10:06:49

Start Time

11.7.2022, 10:06:49

Objective

Price

Runtime

9.6s

Initiator

Bob Howard

Iteration 8
11.7.2022, 09:30:45

Iteration 7
7.7.2022, 15:39:19

Iteration 9

SUMMARY MIX DESIGNS MODEL ANALYSIS OPTIMIZ

OVERVIEW: MIX DESIGN PROPOSALS

Name	Price	CO2	Potential
AI-1	€118.56	112 kg/m ³	
AI-2	€174.20	152 kg/m ³	
AI-3	€175.63	152 kg/m ³	
AI-4	€178.03	156 kg/m ³	
AI-5	€183.42	152 kg/m ³	
AI-6	€184.91	157 kg/m ³	
AI-7	€187.75	114 kg/m ³	



Started new Cooperations/PoCs since Start of MCCH

- SIKA (Switzerland)
- Shimizu (Japan)
- Chryso (Saint Gobain, France)
- Cemex (Switzerland)
- Paebble AB (Sweden)
- Oberndorfer, Doka (Austria)
- Etc. etc.



MIXTERESTING speeds up time to market and
enables CO₂ neutral concrete in 3 months to help
the construction industry **get to net Zero.**

Mag. Franz Haller, CEO

+43 664 516 35 60

franz.haller@mixteresting.com



Climate-KIC

Climate-KIC is supported by the
EIT, a body of the European Union





Q & A



CONTACT US

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Register for 1-on-1 Meetings

