

ace



ACE GLOBAL B.V.

— ACE LAYER CAKE CONCEPT

From climate-resilient sports pitch to the city of the future

ACE Global B.V. presents the ACE Layer Cake Concept

- 01 ACE created the innovative, integrated ACE Layer Cake Concept and contributes it as a partner to the EnergieVeld consortium, winner of the 'Scale Up' tender.
- 02 The ACE Layer Cake creates three functional layers within a single site: existing sports facilities remain fully operational at surface level, while community infrastructure and resilience functions - including energy storage - are integrated beneath the pitch.
- 03 During the R&D phase, prototype future-proof field systems have been built and are being tested in the Ookmeer polder in Amsterdam. ACE is simultaneously developing the ACE Index, ACE Dynamic Decision-Making Dashboard (DDD) and ACE Digital Twin to simulate, monitor and control the integrated system.
- 04 As lead integrator, ACE is responsible for quality assurance, system integration and scalability, with the goal of enabling future deployment across sports parks in Amsterdam and Haarlem.



ACE DIGITAL TWIN – ACE LAYER CAKE CONCEPT

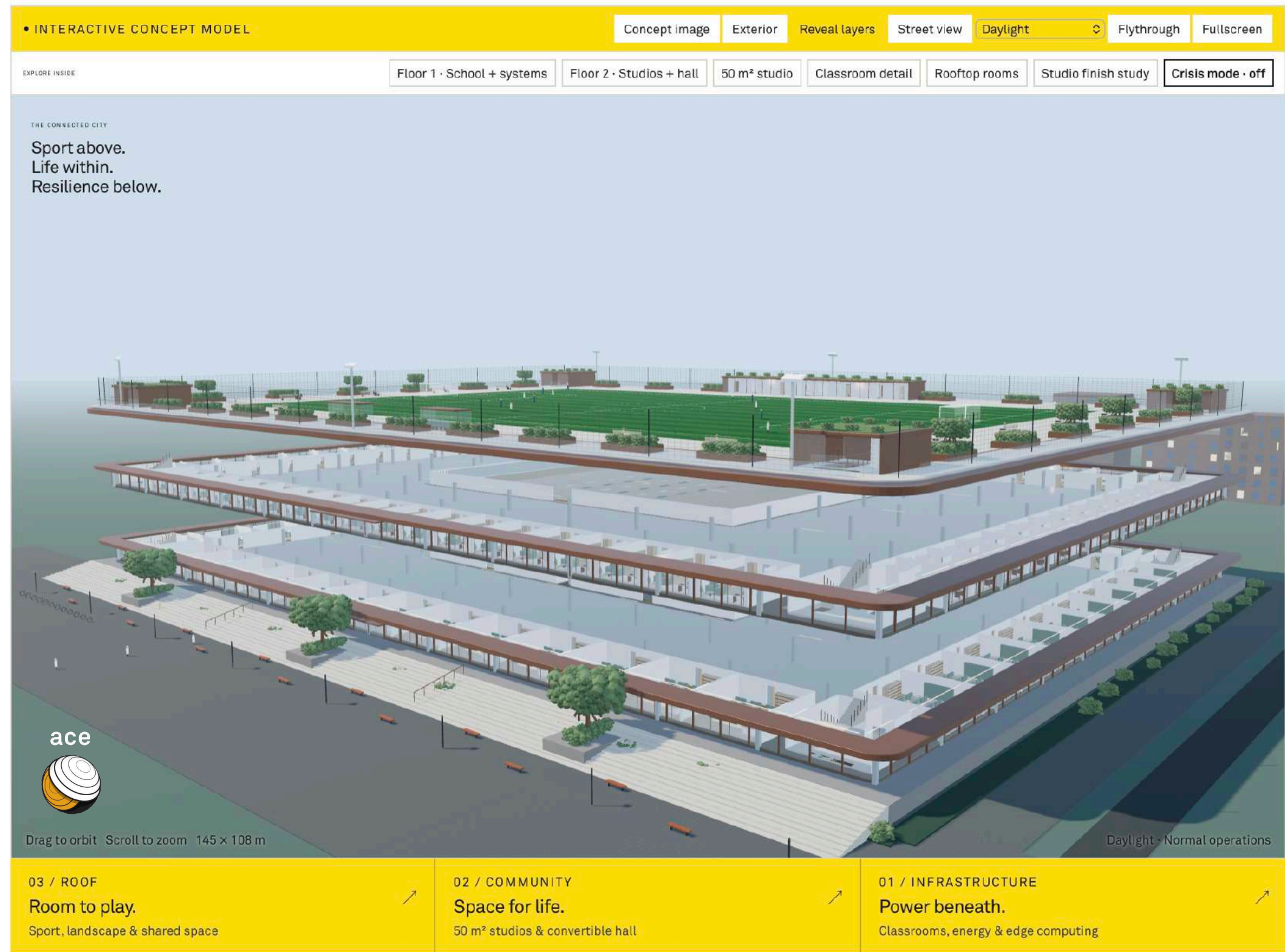
EXECUTIVE SUMMARY

ACE Global B.V. presents the ACE Layer Cake Concept

ACE / AMSTERDAM URBAN GRID HUB

THE LAYER CAKE

One footprint. A new layer of possibility.

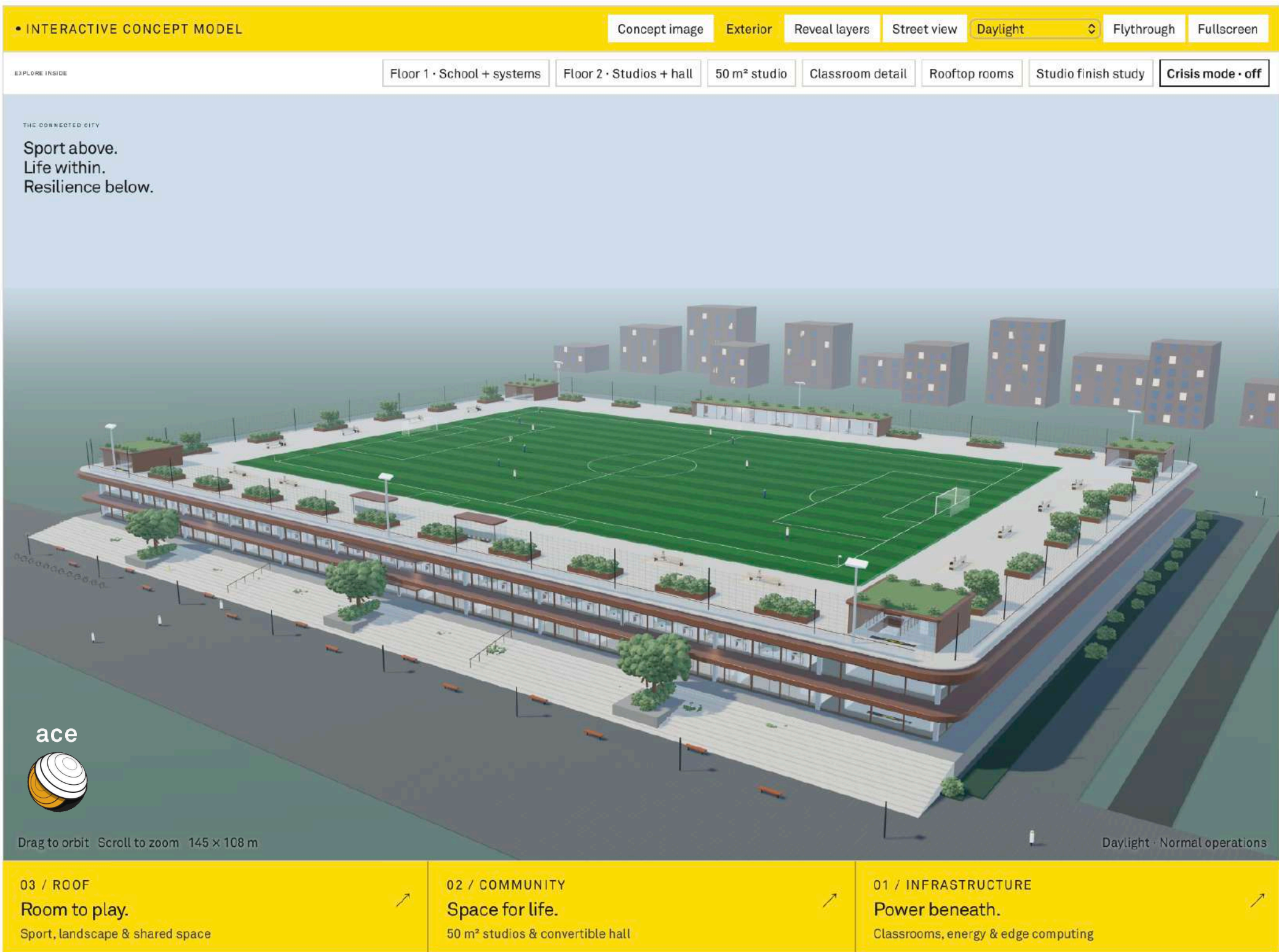


ACE LAYER CAKE CONCEPT Amsterdam · Concept design / September 2026

ACE / AMSTERDAM URBAN GRID HUB

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One footprint. A new layer of possibility.



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Three layers on one site: elevating the sports pitch

The ACE Layer Cake elevates existing sports pitches to create additional functional space beneath them, without displacing existing activities or communities.

At surface level, the pitches continue to serve their primary sporting function while also contributing to wider urban challenges, including heat stress, flooding and energy resilience.

Beneath the pitches, new space is created for energy storage, community services, education, healthcare, and safety and resilience hubs.

In cities where public space is increasingly scarce, the ACE Layer Cake offers a significant advantage: it creates valuable new urban capacity within the existing footprint, without displacing existing uses or communities.



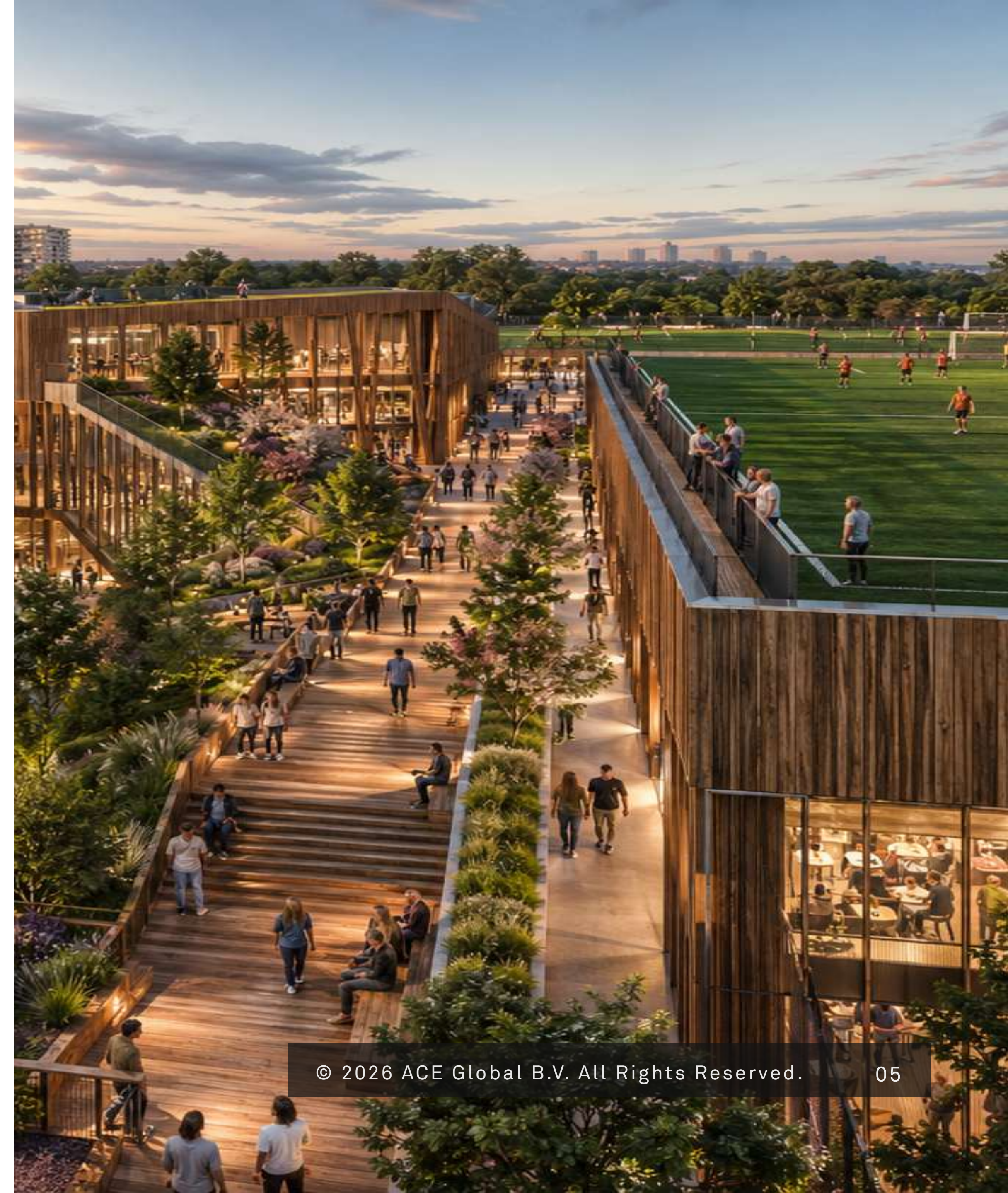
The sports park as the social hub of the neighbourhood

OBJECTIVE

Amsterdam's sports parks can become far more than places for sport. They have the potential to develop into multifunctional sports, social and community hubs, bringing together health and elite sport, education, social services, safety and resilience, and energy infrastructure within a single integrated environment.

OPPORTUNITY

Over the next 10 years, Amsterdam aims to create nearly 3 million m² of additional community space within its sports parks. The ACE Layer Cake can help unlock this capacity through intelligent dual use of space and the integration of functions beneath existing sports facilities. This includes combining community facilities, energy storage, and safety and resilience hubs that can serve as emergency support centres for surrounding neighbourhoods. Energy storage can also help reduce pressure on the electricity grid, while autonomous systems strengthen local resilience by supporting essential services during the critical first 72 hours of a major disruption or disaster.





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Investment Strategy: How, Where and Why to Invest

Local authorities, central government and the private sector need clear, data-driven insight into the city’s future spatial, social and infrastructure requirements to make informed investment decisions.

ACE begins by analysing publicly available demographic, social and economic data (BBGA). This forms the foundation of the ACE Index - a strategic investment and policy tool designed to identify:

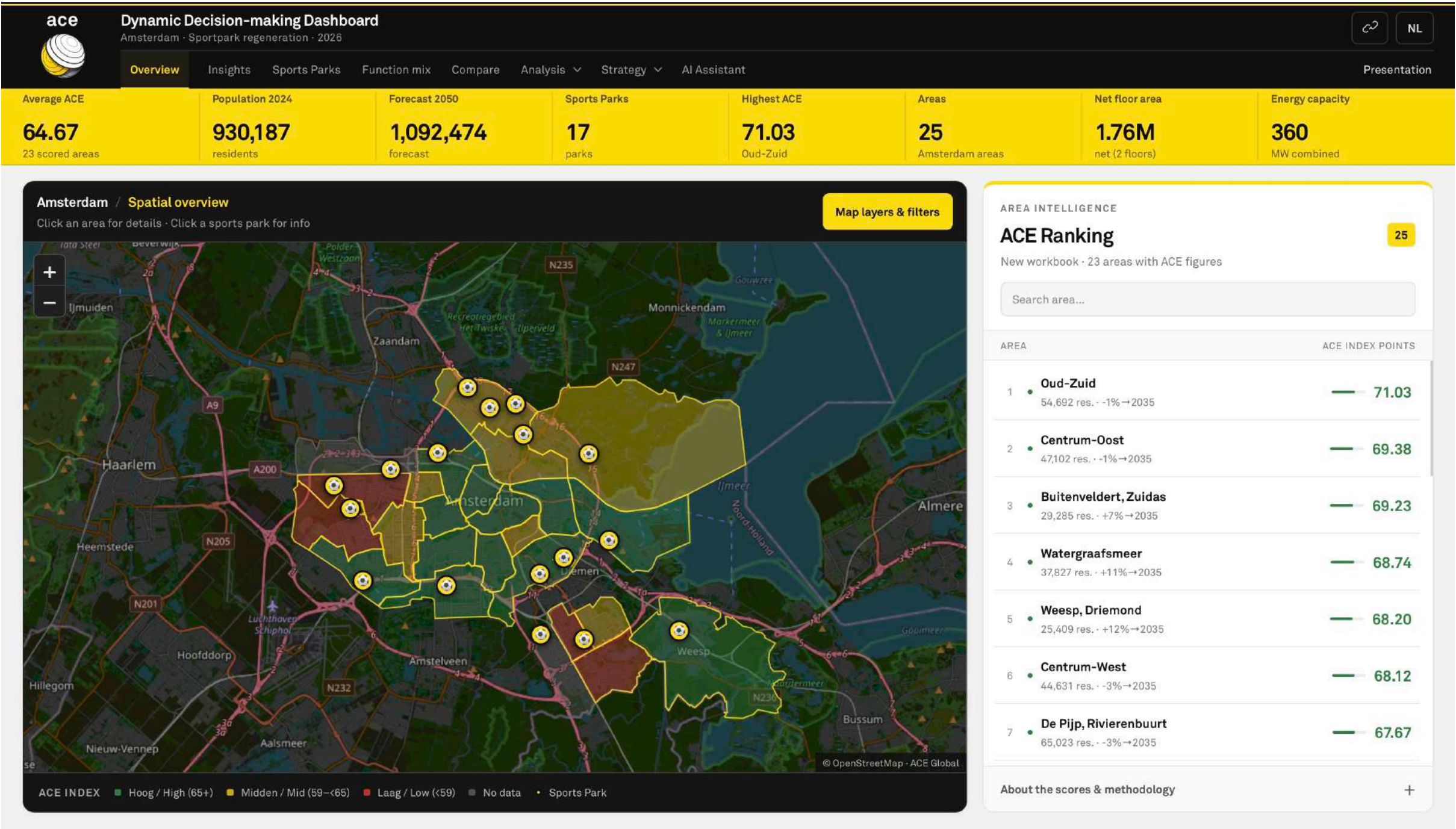
Urgency and areas of greatest need.

Investment rationale and priorities.

Spatial opportunities.

Expected social impact at neighbourhood and city level.

Based on these insights, ACE can determine where investment is most needed, why it is justified and how it can create the greatest impact.



ACE proposal: Integrate sports infrastructure, autonomous energy storage and community functions within Safety & Resilience Hubs (Emergency Support Centres), creating multifunctional assets that strengthen both everyday urban services and long-term city resilience.

One Decision-Making Platform

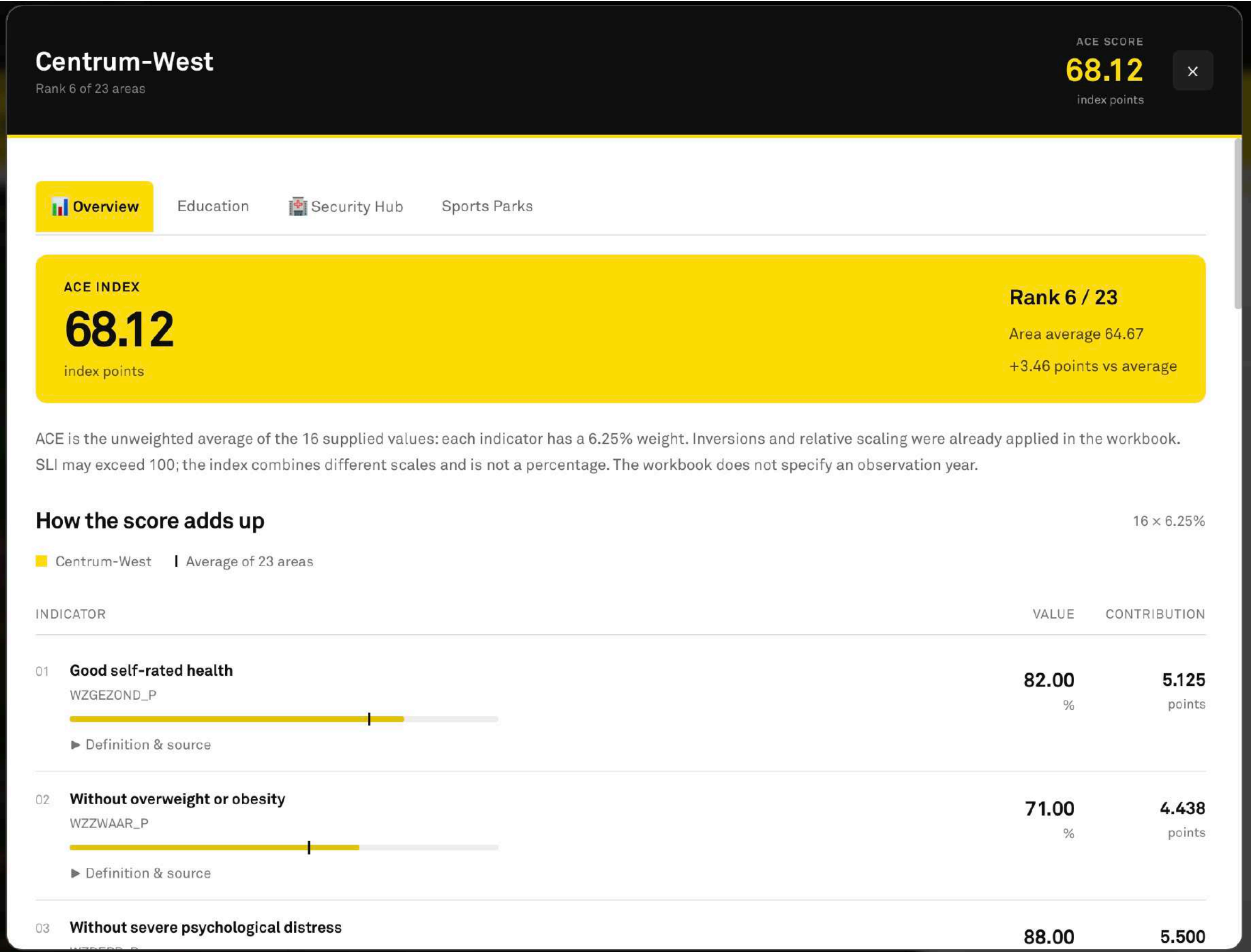
From city-wide data to park-level investment decisions. 25 districts. One methodology. Clear priorities.

The dashboard identifies where intervention is most urgent, what each location can accommodate, and where public investment can generate the greatest combined social, spatial and resilience impact.

Each park is read as a case: need score, spatial capacity, programme mix, energy storage potential and temporary housing pressure.

All 25 Amsterdam districts are ranked on the same basis, so priorities can be compared and defended.

Source data: BBGA Amsterdam, Liander grid data.



AREA OVERVIEW – ACE INDEX & SUBSCORES



Shared space, shared investment

3M

m² of community space Amsterdam needs within ten years.

3.5

m² per person: the BZK standard for emergency shelter capacity.

72h

of autonomous supply from on-site storage in a disaster.

140

artificial turf pitches in scope across Amsterdam and Haarlem.

By combining municipal community functions with national safety and resilience infrastructure within the same footprint, local and central government can share both space and investment.

Beyond financial savings, dual use creates wider public value across health, livability, area development, community participation and neighbourhood resilience.

What dual use delivers

- 01 Broader prosperity through stronger social cohesion.
- 02 Healthier communities through sport and better living environments.
- 03 Stronger neighbourhoods through participation and shared responsibility.
- 04 Greater resilience during emergencies and major disruptions.





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Sustainable technologies for the fields of the future

Developed with the Energy Field consortium and tested side by side at Ookmeer. Supporting technology rather than the subject of this presentation - details available on request.

01	02	03	04	05
Collector Field	Circular artificial turf	Climate Control Field	Climate Control & Collector Field	Aqua-thermal energy
BEING TESTED AT OOKMEER	ALREADY IN USE	BEING TESTED AT OOKMEER	BEING TESTED AT OOKMEER	ALREADY IN USE
Captures surplus heat from the playing surface and turns it into a usable energy source.	Recovered at end-of-life, reprocessed and reused as new pitch material.	Retains rainwater beneath the surface and prevents heat stress on and around the pitch.	The two combined: controlled evaporation, released only when heat stress is forecast.	Uses adjacent surface water as a heat source for the buildings around the pitch.

Ralph Control Systems



Ralph Control Systems
Simplicity, ease and control for the better

Smart environmental control for optimal performance

- Feels-like temperature
- Solar irradiation angle
- Mat temperature
- Wind
- Water temperature
- Outdoor temperature
- Ambient temperature
- Precipitation
- Evaporation

REAL-TIME DATA. SMARTER DECISIONS.
BETTER PLAYING CONDITIONS. LOWER COSTS.

FEELS-LIKE TEMPERATURE

SOLAR IRRADIATION ANGLE

MAT TEMPERATURE

WIND

WATER TEMPERATURE

OUTDOOR TEMPERATURE

AMBIENT TEMPERATURE

PRECIPITATION

EVAPORATION



OPTIMAL PLAYING CONDITIONS
For athletes, all year round

EXTEND FIELD LIFESPAN
Through data-driven maintenance

REDUCE COSTS
Energy, water & resources

DATA YOU CAN TRUST
Accurate, real-time, actionable

ralphcontrolsystems.nl

Ralph Control Systems provides real-time environmental monitoring across the sports park, generating data on temperature, wind, solar exposure, water and precipitation.

Within the ACE Layer Cake, this data supports smart-city management, climate adaptation and more responsive control of energy, water and public-space systems.



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The Human Scale as Our Starting Point

Behind every dataset, model and technology are people. Their everyday experience, their neighbourhood and their sense of community are the foundation of the ACE approach. Our spaces should feel welcoming, accessible and designed for daily life through:

Steps, terraces and raised plazas that encourage meeting and interaction.

Green, attractive public spaces that improve comfort and livability.

Safe, accessible and inclusive design for all users.

A welcoming atmosphere that encourages people to stay, participate and connect.

With every decision, we ask:

- Would you choose to spend time here - to exercise, learn, connect and unwind?
- That is the human scale: designing places around people and everyday life.





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Energy Field Consortium

The Energy Field consortium has been awarded the tender for scaling up future-proof artificial grass fields, issued by the cities of Amsterdam and Haarlem.

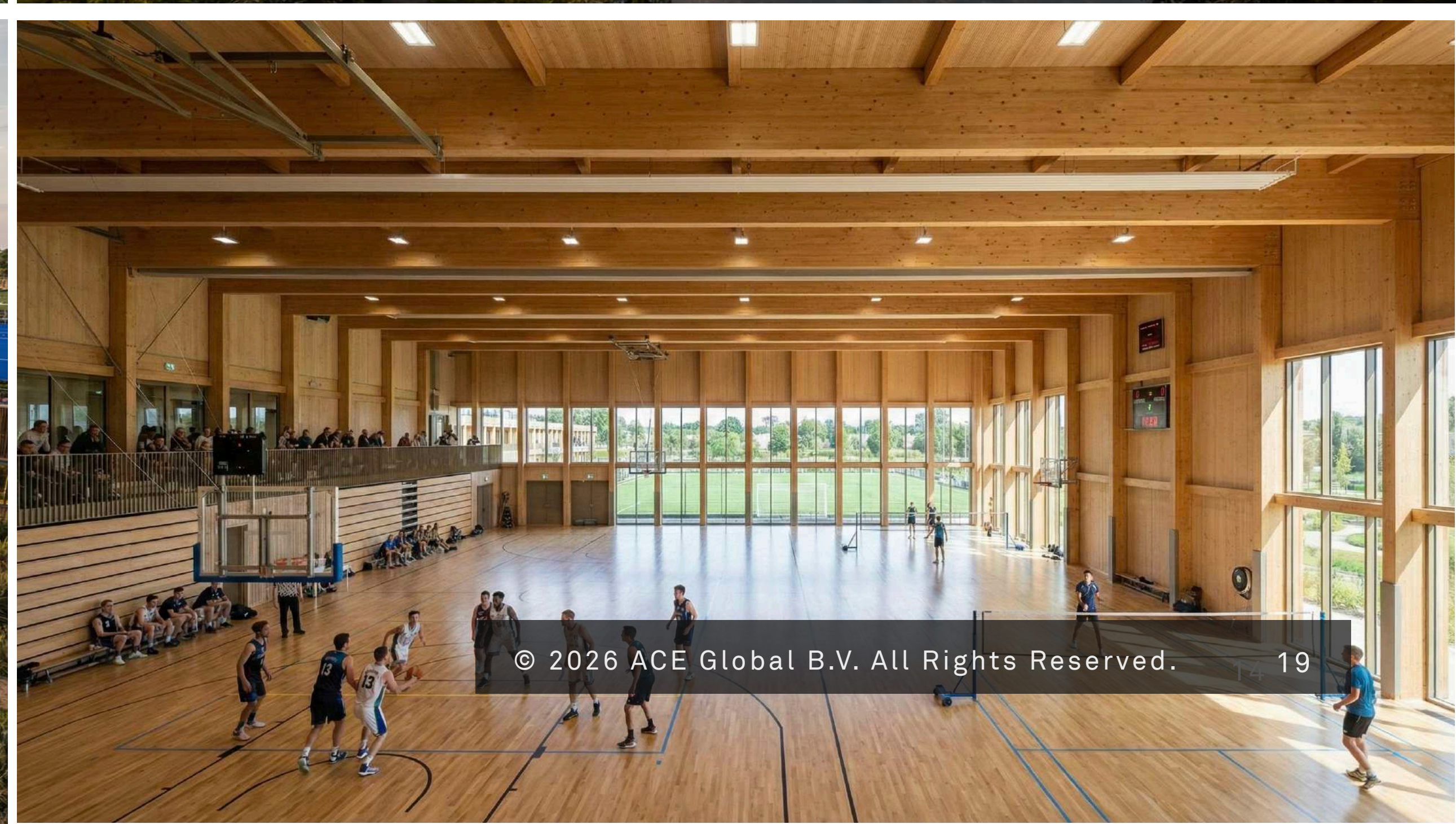
Through this tender the city aims to develop and upgrade approximately 140 fields that combine sport with energy storage, water management, circular construction and climate resilience. The project is built in a circular manner and helps the cities adapt to a changing climate.

ACE Global B.V. brings the ACE Layer Cake Concept © to the consortium and is developing the ACE Index, ACE Dynamic Decision-Making Dashboard and Digital Twin.

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— NEXT STEP

The future of sports parks starts here

The technology is ready.

The data is in place.

The Neighbourhoods are ready for action.



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