For this project Rotterdam is conceptually hosting the World Expo of 2025, an event that tackles global problems through innovation and cultural exchange. Given their size, World Expos are part of the urban development strategies of their host-cities. They are extremely efficient tools to modernize transportation infrastructures, introduce innovative urban services and develop new economic and cultural activities. Therefore this project was seeking for a challenge that was interesting as global problem and at the same time could be part of the urban development strategy of Rotterdam. This strategy consists of:

(1) a green, healthy and resilient city
(2) cleaner energy at lower costs
(3) strong and innovative economy

Sustainable mobility is the theme that covers all three and requires global attention too. For this, it is important that citizens are stimulated to be part of it (movement) and to let people feel connected with the(ir) environment by increasing Rotterdam’s waterfront enjoyment and offering more knowledge and information on solutions and improvements (awareness). Therefore the research question is: how to design a hub that supports sustainable mobility and at same time establishes a user-environment connection in Rotterdam for 2025?

To create a design that gives answer to this question, HUB010 aims are:

(1) - Clean air: optimising sustainable mobility aimed at less-polluting vehicles in the city centre and growing use of bicycles and public transport.
   - More green spaces: increasing the quantity and diversity of useful plants and vegetation in (and around) the city.
(2) - The sun as a source of energy: facilitating expansion of the application of solar energy.
(3) - Opportunities for clean technology: promoting the clean technology industry in Rotterdam.

These aims are translated to a playful urban landscape experience that consist of functions like a bicycle rental (movement), auditorium (awareness) and a viewpoint (enjoyment). It is located next to the Maashaven, where a connection creates a continuity flow for pedestrians, cyclists and boaters between Kaap and Charlois. The geometric result of HUB010 is achieved by using agent-based algorithms and performance-oriented parametric scripting.

Key words: agent-based algorithms, hub, performance-oriented, renewable energy, sustainable mobility, transport, urban landscape