

SANTIAGO Des3ado®

THE 3D SIMULATOR FOR A SUSTAINABLE CITY, A SHOWCASE FOR FRENCH KNOW-HOW



Developed by Artelia "Ville & Transport" (City & Transport) in partnership with a consortium of companies, Santiago Des3aDo® is a 3D numerical model that simulates a real urban development project. This innovative decision- and design-aid tool to create a sustainable city was handed over to the Municipality of Santiago de Chile in June 2015.

The 3D simulator is one of two projects selected by the French Ministry of Foreign Trade to showcase French expertise in the area of "better urban living". The implementation of Santiago Deseado is in line with the Vivapolis initiative, which focuses on promoting the French industry's offering in terms of technical solutions for sustainable cities.

INNOVATIONS

- **A real technological achievement:** it was brought about by the combination of the 3D data generated, the integration of a lot of information from various sources, the visualisation of the urban project and the creation of real-time 3D navigation optimised to provide a representation of the solutions. The tool is also designed to give users an educational and fun experience.
- **A complete overview of the urban development of Santiago comprising all its components:** mobility, public infrastructure, sanitation, water, waste, energy, telecommunication, social distribution of inhabitants across the city, etc. All this data is compiled in the form of a 3D interactive map.
- **A combination of all the stages in creating a sustainable city:** it incorporates the identification of key issues, the comparison of different cities, urban optimisation solutions, the definition of integrated and sustainable urban projects, and a thematic catalogue of businesses.

KEY DATA

- 12 months to design the tool, including 6 months in Santiago
- 3 analysis levels: city, district, building
- 11 analysis keys: urban density, social equity, economy and employment, urban connectivity, cultural identity, nature in the city, use of resources, quality of life, risks and climate change, urban security, sustainable mobility
- 70 indicators mapped in order to assess Santiago's performance levels
- 40 packages of solutions
- 130 pre-selected companies offering more than 200 products

STAKEHOLDERS

- The Santiago Deseado simulator is a decision-support tool to aid the development of sustainable urban policies. It also paves the way for participative projects handled by local councillors and citizens to design their own sustainable and smart city, taking into account new digital technologies and multi-sector innovations.
- Carolina Toha, Mayor of Santiago de Chile, has opened the simulator to the general public by publishing the scan produced by the simulator on the internet. Chilean local councillors

and citizens can now find out how their city is performing, to understand the priority areas where action is required. The 3D interactive tour of the simulator takes in all the characteristics of the city – past and present – and provides all the data needed to develop a sustainable and inclusive urban policy.

► Artelia was the lead firm of the consortium, in partnership with Veolia, Architecture Studio, Arte Charpentier and Siradel.

IMPLEMENTATION

- Half of the time devoted to designing the simulator was spent in Santiago in order to ensure close collaboration with local political and technical players, as well as with the future users of the city. The result was Santiago Deseado, a unifying tool that combines a comprehensive overview of the objectives and the targeted actions on certain themes or locations.
- A website open to all collected the products of more than a hundred French companies. They are gathered in the simulator's catalogue, which acts as a genuine showroom for French expertise.

- Making the demonstrator available online ties in with an approach aiming to raise Chilean citizens' awareness in regard to the process of building a sustainable city.

Charline Froitier, Project Manager specialist in Hydraulic and Urban Structures at Artelia Ville & Transport

“With our teams, we started out by listing thousands of indicators supplied by the municipality of Santiago, and then we compared them with the data collected in Paris, Grenoble and Buenos Aires. The simulator does not assess the city's performance levels, but it compares them with other situations in order to provide local councillors with their own frames of reference. This comparative database is destined to be developed further in order to create a benchmark for cities around the world in the long term.”

RESULTS

/// A showcase of Santiago on an international scale:

Carolina Toha used the professional version of the simulator to present her sustainable development policy during COP 21.

/// Development of a large-scale sustainable urban project in the future:

based on the strategies developed, the simulator can be used to visualise different urban development scenarios by comparing their respective impacts. Two urban projects were illustrated and assessed for a site measuring 350 ha. In Santiago, Carolina Toha decided to apply this approach to the Pan-American highway, which splits the city both spatially and socially.

/// A tool that can be adapted and applied to other regions:

The city of Santiago served as an experimental case for consolidating the simulator as a whole. For Artelia and its partners, Santiago Deseado opens the way to deploying the simulator in several urban areas both in France and abroad in order to export French know-how in the fields of urban development, architecture, services and technology.



FINANCIAL ASPECT OF THE OPERATION

KEY DATA

- €2m of funding
- 5 partner companies
- 30 French experts
- 45 Chilean contact people
- 33 km² of buildings in 3D
- 350 ha of urban development projects

/// This project is the result of a bipartite agreement signed in March 2014 between Santiago City Council and Artelia, leader and representative of the consortium. The French government provided €2 million in funds in the framework of FASEP (French private sector aid fund) and the “Green Innovation” programme (private sector study and aid fund).

