

# SINGAPORE DREAMING THE SMARTCITY

Dassault Systèmes' **3DEXPERIENCity** solution is providing the Virtual Singapore platform with a digital referential of the city. Sustainable, connected and participative – the city truly is becoming smart.



## ” THE PROMISE OF A VIRTUAL SINGAPORE

### INSIGHT FROM

**George Loh,**  
Director Programmes, Singapore National Research Foundation

Singapore faces many challenges and our researchers are attempting to address some of them by developing models and through simulation. We decided to work on 3D models – the starting point for the Virtual Singapore project – and when we found about the 3DEXPERIENCE platform, we knew it would provide

us with an opportunity to build a virtual Singapore to work on and test out scenarios. There is a huge influx of data in the world today, which will be increasingly generated dynamically in real time, via connected devices and the Internet of Things. We are running an experiment that draws on data from the urban environment, while also giving our students a firmer

grasp of data about themselves. Our partnership with Dassault Systèmes has been honest and open, both in terms of our relationship with the R&D team and management as a whole. Our goals are perfectly aligned.”



### PROJET MANAGEMENT

#### VIRTUAL SINGAPORE

is led by the Singapore National Research Foundation, in partnership with the Singapore Land Authority and the Infocomm Development Authority of Singapore. The gradual roll-out of the project is expected to be completed in 2018.



#### 3DEXPERIENCity

THE VIRTUAL SINGAPORE PROJECT IS BACKED BY THE 3DEXPERIENCity SOLUTION, WHICH WAS DEVELOPED BY DASSAULT SYSTEMES IN 2012 AND ENHANCED IN APRIL 2013 BY THE ACQUISITION OF TERRITORIAL-MODELING SPECIALIST ARCHIVIDÉO. THE PROJECT IS MUCH MORE THAN SIMPLY A 3D VIEW. IT'S A DIGITAL INDEX OF THE CITY – EVERY BUILDING IS IDENTIFIED IN THE SYSTEM, ALONG WITH DATA ON ITS CONSTRUCTION, MANAGEMENT, AND THE TRANSPORTATION AND ENERGY NETWORKS THAT SERVE IT.

#### JUNE 2015

#### DECISION AND AGREEMENT

Dassault Systèmes develops Virtual Singapore, in collaboration with the Singapore Research Foundation, to provide 3D modeling of the city for government, business, researchers, and citizens.

#### SEPTEMBER 2015

#### SENSg TRIAL

WITH SINGAPOREAN STUDENTS BY THE SINGAPORE NATIONAL RESEARCH FOUNDATION

#### SENSg: A LABORATORY WORN AROUND THE NECK

Designed and developed by researchers at Singapore University of Technology and Design (SUTD), SENSg is a small box that is worn around the neck. A full-fledged miniature laboratory, the device has sensors that measure travel, number of steps taken, temperature, humidity, atmospheric pressure, light intensity, and sound pressure levels. It uses Wi-Fi signals to identify its location and upload the collected data to a secure database, once a known hotspot is within range. The data is anonymous, stored securely, and can be viewed by the participants that produced it.

#### DECEMBER 2014

#### PRESENTATION OF THE 3DEXPERIENCE SOLUTION DURING THE VIRTUAL SINGAPORE CALL FOR TENDERS

In 2005, Singapore launched iN2015, a 10 year-program to transform the city-state into an intelligent nation, a global city. The agency in charge, the Smart Nation Programme Office, reports directly to the Prime Minister's Office.

#### JUNE-SEPTEMBER 2015

#### CONSTRUCTION OF VIRTUAL SINGAPORE



#### DECEMBER 2015

#### PRESENTATION OF THE FINAL PLATFORM AND EMBEDDING OF ALL TRIAL DATA




# VIRTUAL SINGAPORE

## DATA

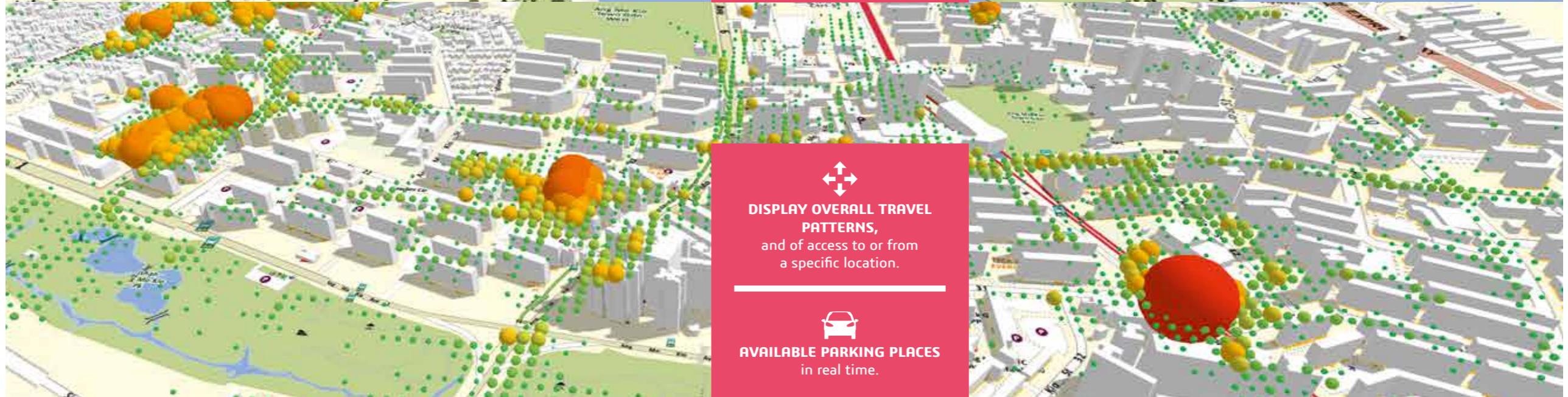
### NSE AND DATA CROWDSOURCING


The National Science Experiment (NSE) has two main goals: to introduce students to the practical applications of science, technology, engineering, and mathematics, and to gather data on their environment that can be input into Virtual Singapore. Organized by the Singapore National Research Foundation and a number of partners from the academic and scientific world, the program kicked off in 2015 with a pilot project involving 300 young Singaporeans. There were 45,000 participants by the end of 2015, and more than 250,000 students are expected to take part by 2017. The participants are provided with a SENSg, a device capable of gathering multiple types of physical data on the environment. This information is sent to a central server using wireless technology. The students can view data about themselves online, such as number of steps walked, time spent outdoors, travel, and their carbon footprint. Projects like SENSg will help make the use of big data perfectly normal for the participants.




  
**CALCULATION OF THE PERCENTAGE OF LIGHT AND SHADE**  
 for each building, in relation to the position of the sun.

**DATA CONSOLIDATION**  
 Virtual Singapore uses both data gathered from various public institutions and data collected in real time. The platform serves as a single point of access for content and applications originating from several sources, in multiple formats. The content can be real-time, proprietary, open data, system-based, or from connected objects.




  
**DISPLAY OVERALL TRAVEL PATTERNS,**  
 and of access to or from a specific location.

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**AVAILABLE PARKING PLACES**  
 in real time.



  
**WEATHER SIMULATIONS**  
 (winds, currents, etc.)