



Exploit Technology for Smart Urban Planning

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Singapore
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Singapore

high density, high
quality living
environment in
Asia and the World

Top in Asia
Mercer 2014 quality of life survey



What are our
planning
Challenges

Singapore - Challenges in Planning

- Limited land space: about 710 km sq for 5+ mil people
- Need land for City and Country functions



Singapore – Challenges in Planning

Complex operating environment globally and locally e.g.
climate change, ageing population



Euro crisis 2013 - Marketplace BBC



Haze in Singapore 2013



Ageing population

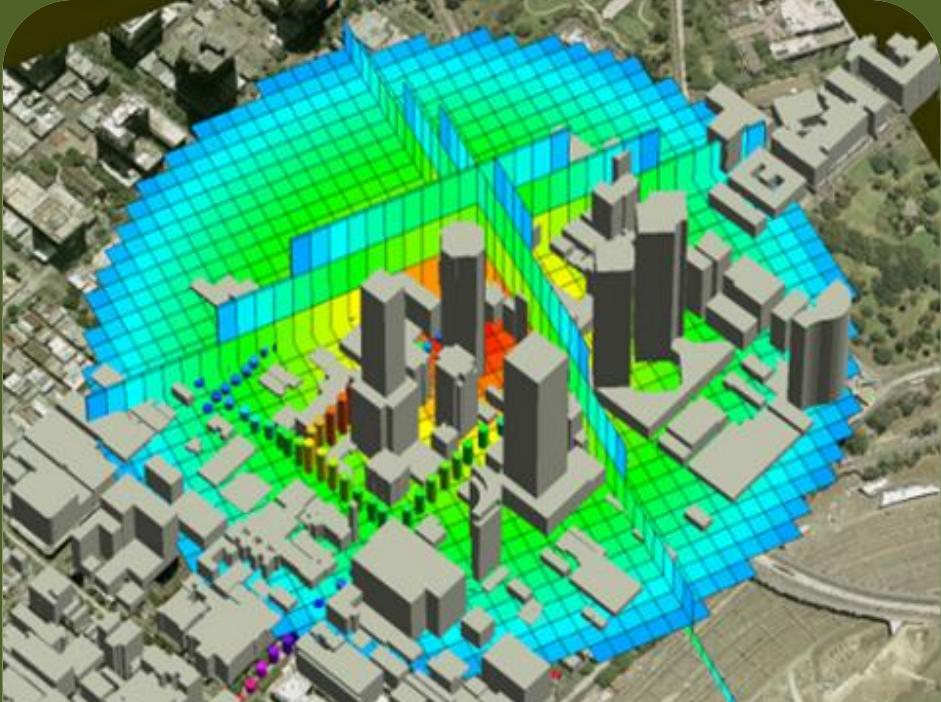
What are
the new
opportunities ?

Embrace Technology

Next generation, smart and powerful digital planning tools, engage citizens and community



- **Technology innovation** e.g. mobile, social, Internet of things
- **More granular data** e.g. real time, big data
- **Smarter tools** e.g. simulation, modeling, smart devices



- Social innovation
- crowd sourcing, civil engagement, hackathons, community involvement

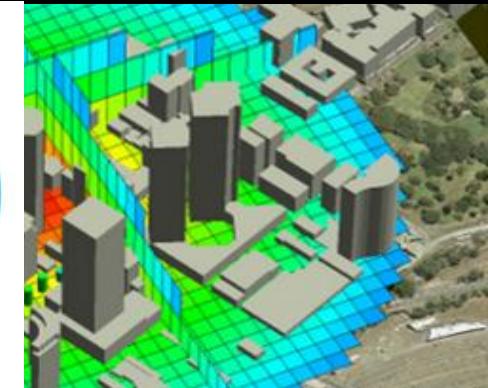


Our Strategy

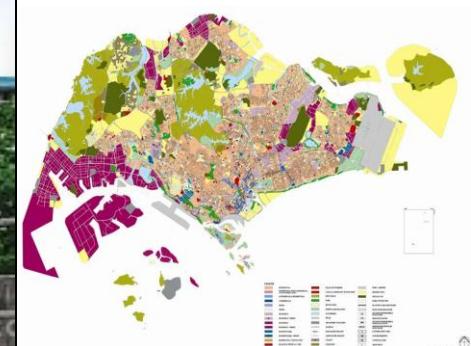
Smart Nation Integrated City Planning

Integrated City Planning

Long Term (50 years)
- Concept Planning



Mid Term (15 years)
- Master Planning



Short Term (2-5 years)
- Local Precinct Planning



Exploit Data - Geospatial, Real Time

(1) Planning & Development Data
- road, landuse, infrastructure



(2) Social / Demographics Data
- population, social services



(3) People and vehicular flow Data
- Real time traffic, parking,



(4) Customer Feedback / Crowd Sourcing / Ground Sensing Data

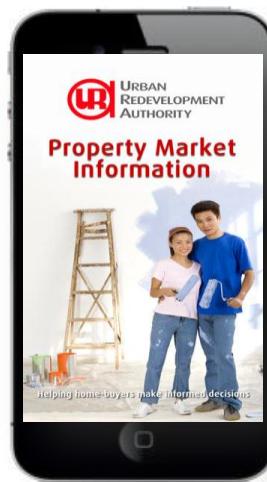


Share Data/App with Community

Public access of data and apps via website, mobile apps and government data sharing portal



URA Map in URA Online



Smart phone app
Master Plan,
property market



My Conservation Portal

Conservation Area or Address e.g. 45 Maxwell Rd.



OneMap | watercolor



PUBLIC CITY
FOR PUBLIC SPACES
COMPETITION

Are you brimming with great ideas on how to enhance the public spaces around you? Perhaps you will like to turn an unused open space into a recreational sports corner! Or have a playground in Marina Bay? The Urban Redevelopment Authority is inviting you to conceive creative visions of selected public spaces around Singapore. For more information on submission requirements, click here!



And stand a chance to
WIN UP TO \$10,000 IN CASH PRIZES!

Competition ends on 14 February 2014

Online Development Register

Geospatial data app allows public to retrieve past development and planning decisions

The screenshot shows a map of Maxwell Road area in Singapore. A specific location on the map is highlighted with a purple polygon, and a callout box provides detailed information about a planning decision:

Planning Decision

- Decision No. : P310510-22G1-Z000
- Decision Date : 08-JUN-2010
- Decision Type : Written Permission
- Application Type : Addition/Alteration to Buildings (Others)
- Address : 45 MAXWELL ROAD, URA CENTRE
- MK/TS Lot No. : TS04 00690L

Request for Decision Notice

Detailed description of the map: The map shows the intersection of Maxwell Rd and Neil Rd. To the west is Duxton Hill Rd, and to the east is Murray St. Numbered plots (e.g., 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45) are labeled along the roads. Landmarks shown include Jinrikisha Stn, S'pore City Gallery, The URA Ctr, Maxwell Hse, Murray Ter, and MND Bldg Annex A.

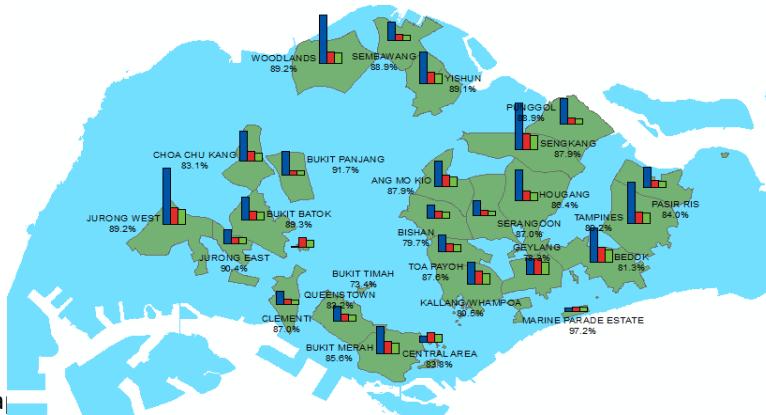
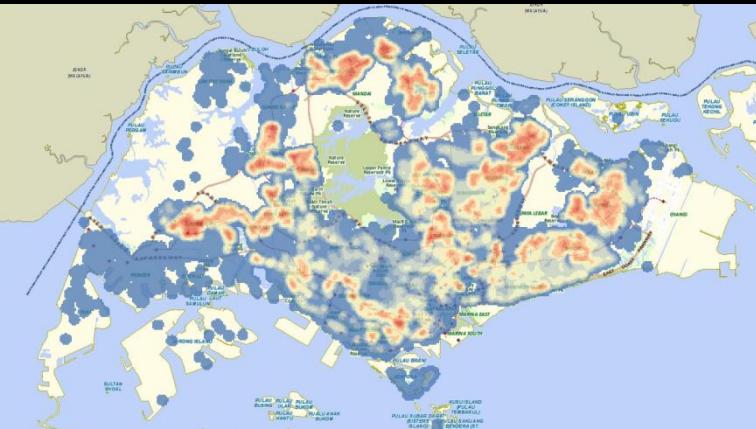


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ePlanner - Geospatial Analytics

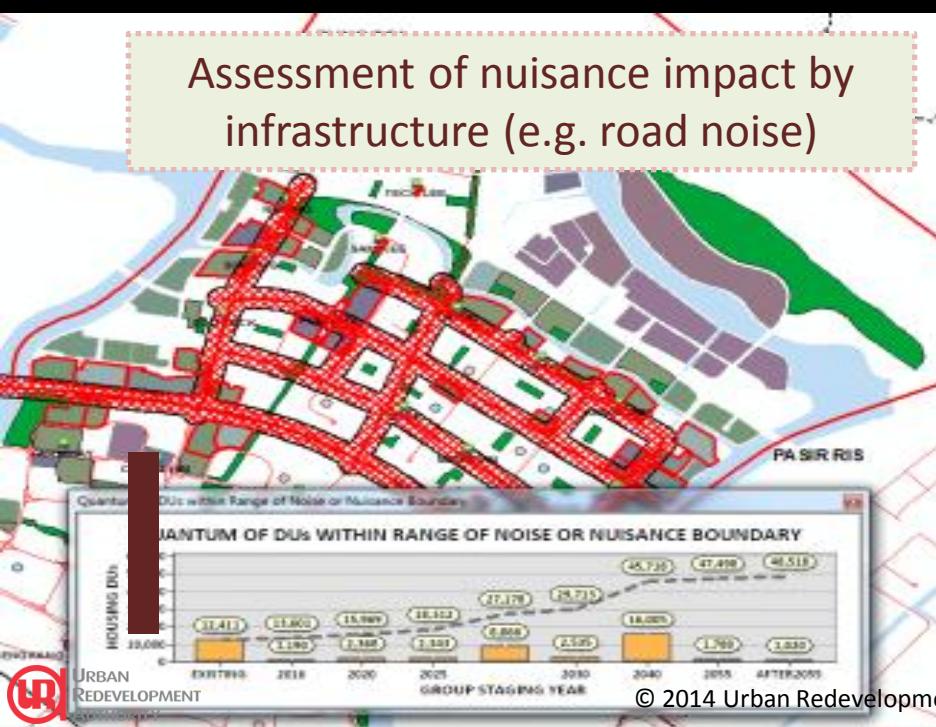
One-stop geospatial planning analytics portal for planners

- multi-platform and device
- Make GIS /data analytics easy for everyone



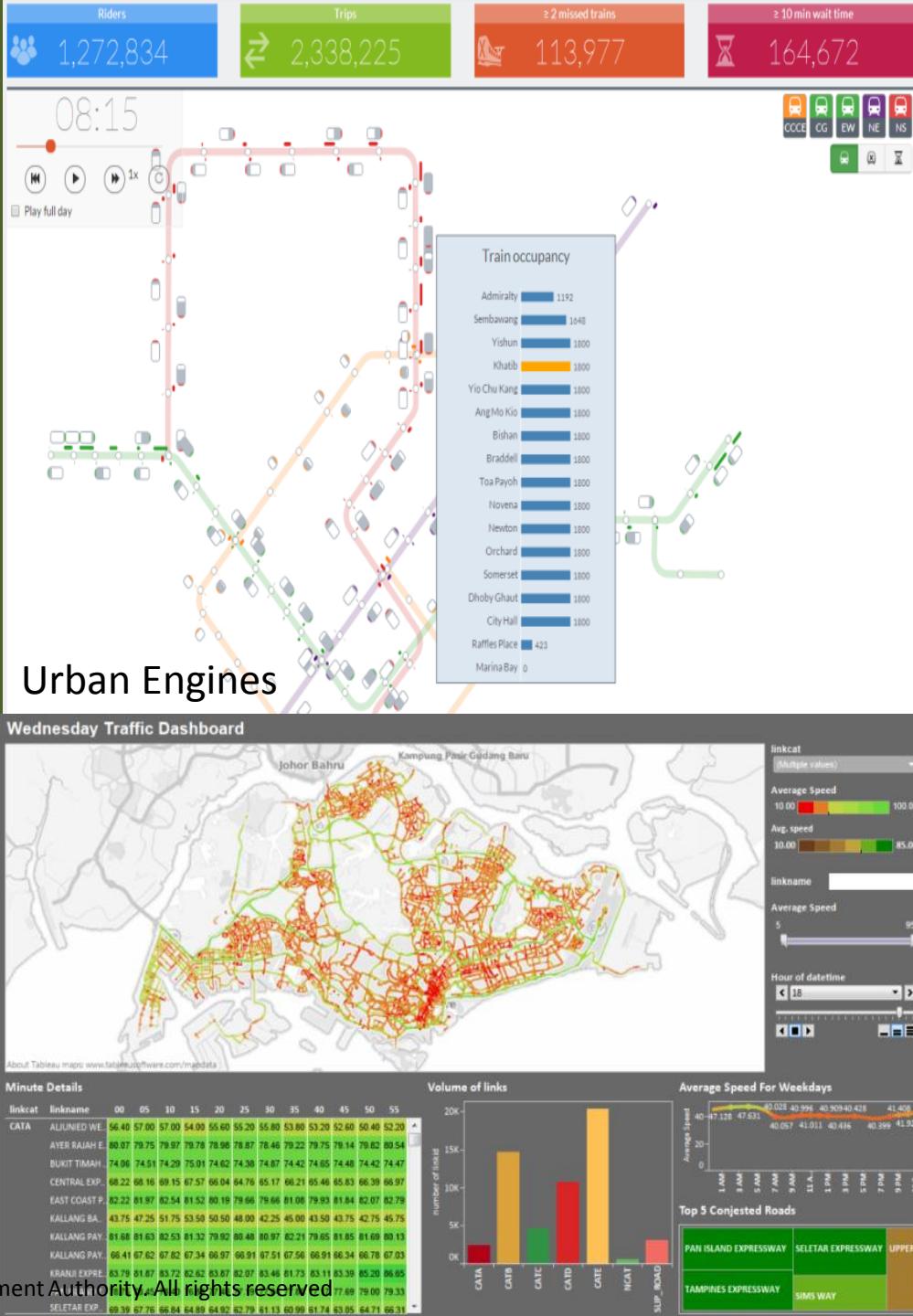
GIS-Enabled Mapping, Modelling & Analysis platform (GEMMA)

- Multi dimensional, multi time-scale planning analysis and evaluation of planning scenarios
 - Collaborating with A*STAR (I2R) and relevant agencies
 - Develop plans for specific land uses and different timeframe
 - Study multiple land use planning strategies and scenarios very quickly



Big Data Planning Analytics

- Analyse travel and trip patterns using Ezlink and mobile data (Home work flow)
- Predictive analysis on travel demand due to new developments /landuse



Digital 3D Urban Model Singapore

- 3D urban model of Singapore : 150,000 massing models, more than 70 sq km city models
- 3D analysis - shadow analysis, line of sight, etc.



Rule Base 3D Modeling

- Create rich attributes and semantic for city information model
- Facilitate planning, design, evaluation using rule-based modelling (ESRI)



Incorporate KPIs

No. of Resident vehicles:
No. of Hotel Rooms:
Commercial floor area: sqm
No. of shoppers:
Office floor area: sqm
No. of office workers:
No. of Parking Lots:
Electrical Consumption: kWh/year
Waste Domestic: kg/year
Water Consumption: L/year



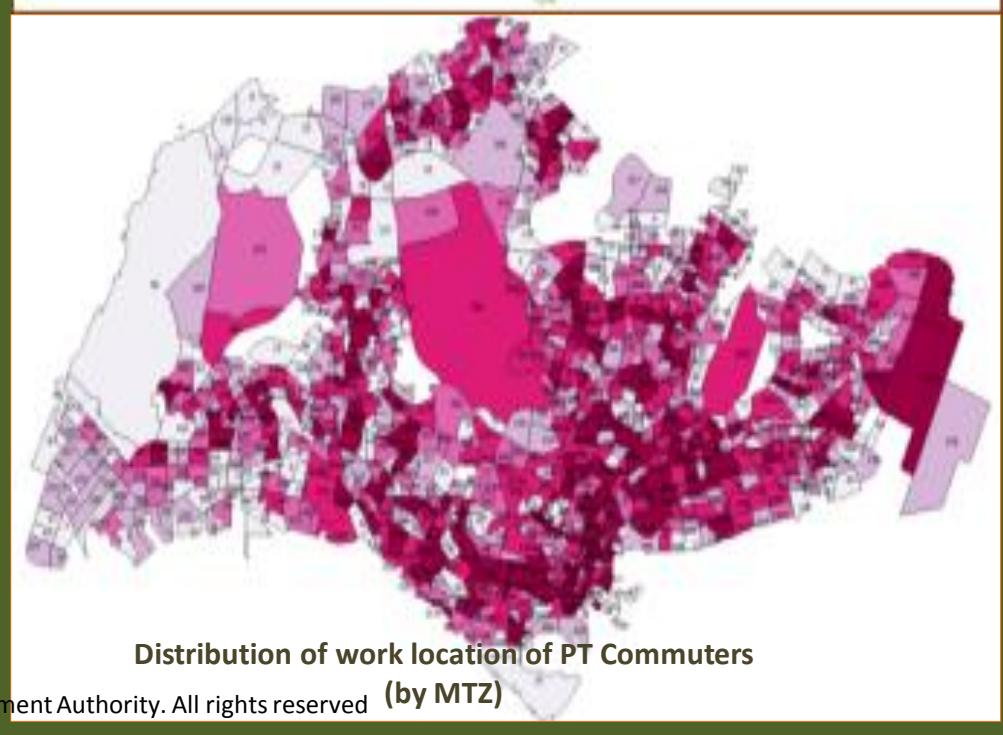
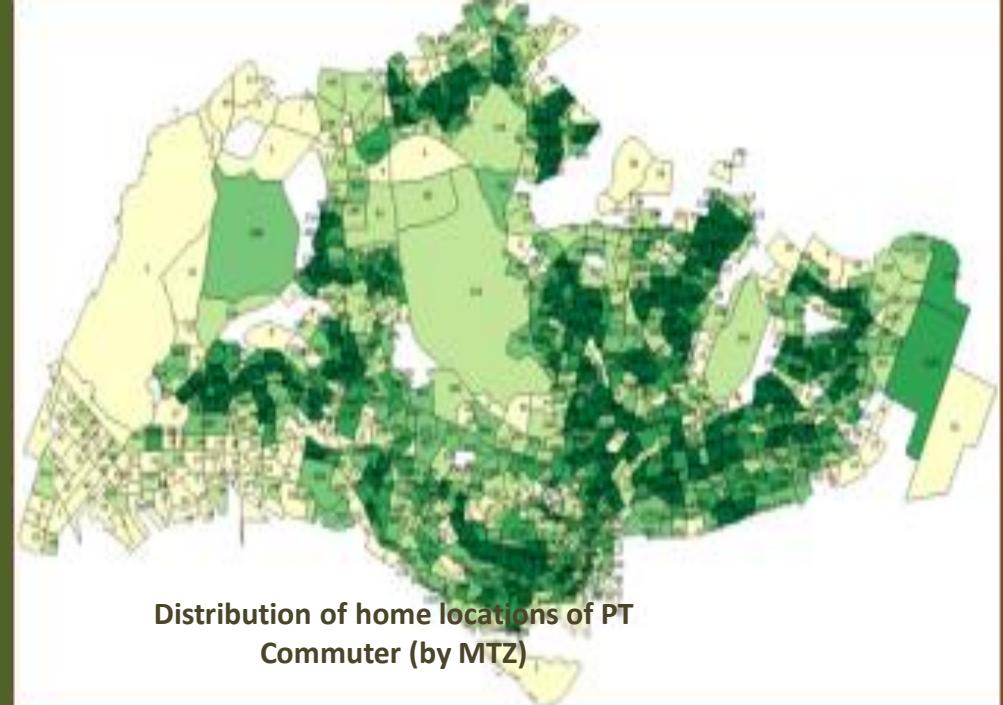
3D Immersive Planning Review Room (The White Space)

- Immersive 3D virtual city environment for planning review, industry and community engagement



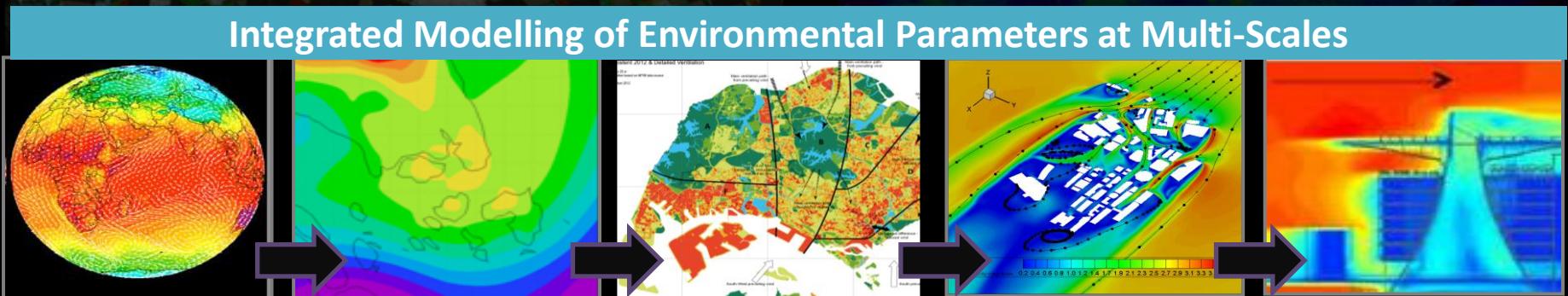
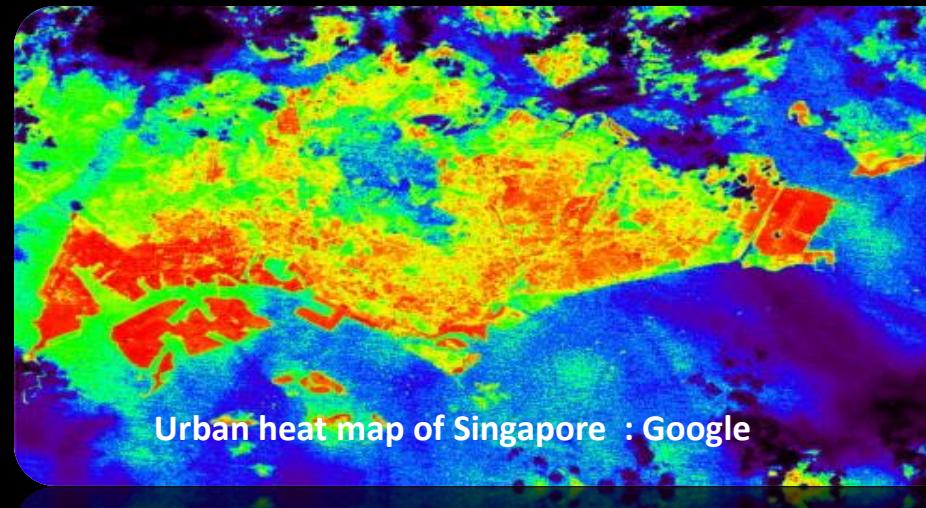
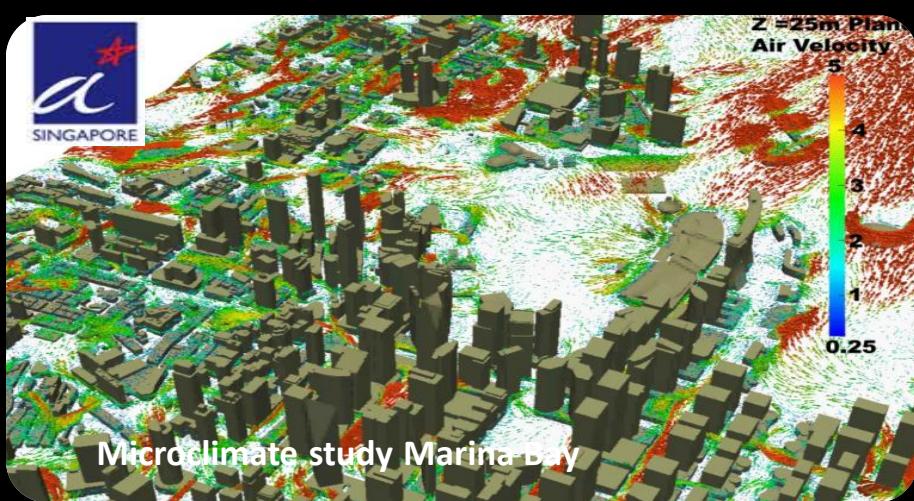
Integrated City Planning (ICP) Modelling

- Taps on Big Data and data analytics tools to evaluate landuse and transport scenario better respond to changing trends
- Collaborate with A*STAR, LTA, MND, HDB, IDA, RAHS PO



Quantitative Urban Environment Simulation Tool (QUEST)

- Model the effects of urbanisation on localised windflow, temperature, and thermal comfort at different scales



Conclusions



Good governance

- Data protection, privacy
- Resilient, security and risk

\$23.6 m

Insane price at Amazon
For this book

Bordeebook and Profinath
Algorithm went wrong

PETER A. LAWRENCE

The Making of a Fly

THE GENETICS OF ANIMAL DESIGN



\$ 1 Trillion

Flash Crash Dow 6 May 2010

600 points in a few minutes

High frequency trading

Auto- Algorithm went wrong





City is about people, connections and interactions
Smart Technology is only the enabler

Conclusions

Smart and integrated city planning is a joint effort among agencies and research community. Smart technology is the enabler, it is about enhancing the quality of living and experience of people in the city.

Thank You