

# SMART Infrastructure Facility



CogniCity  
An open framework  
for urban data

**smart**  
infrastructure facility



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

# CogniCity

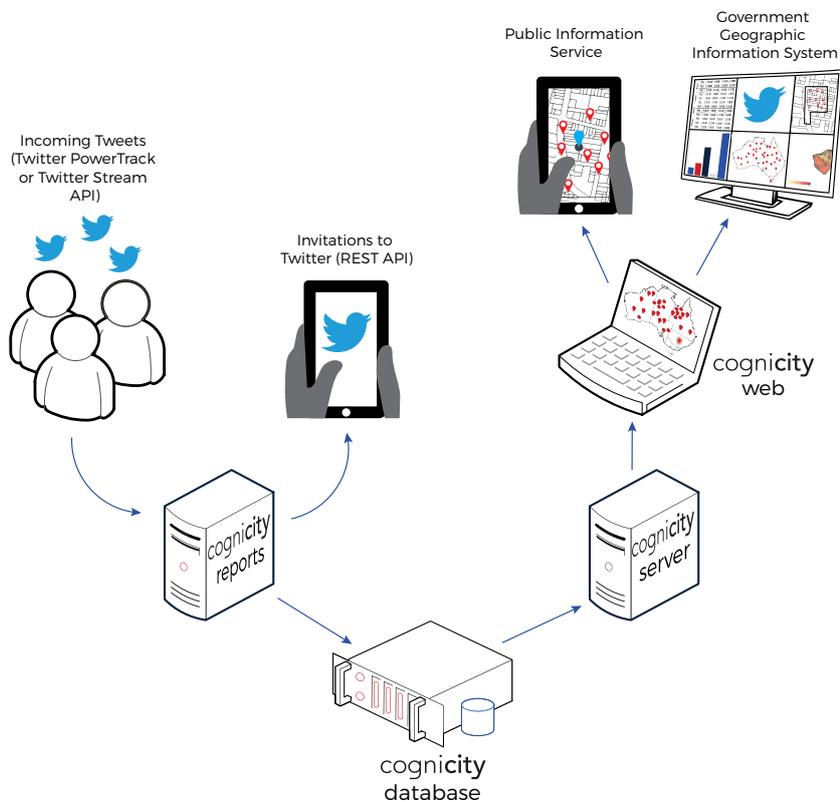
CogniCity harnesses the power of social media by gathering, sorting and displaying real-time situational reports from urban infrastructure issues such as flooding or traffic congestion.

This powerful toolset makes information available in real-time to citizens in need of daily information, meanwhile conducting predictive analysis to better inform and prepare for future planning.

## COGNICITY IS SPLIT INTO THREE MODULES:

- CogniCity-server
- CogniCity-reports
- CogniCity-web

This modular approach allows you to pick and choose what parts of the framework you wish to use, while also providing a solid foundation for adding your own modules.



## Why it's useful

### Analyse

Using spatial database technology, CogniCity can use real-time data to develop predictive tools to ready cities for future disasters and become more resilient in day-to-day operations.

### Collect

Real-time two-way communication using sensors to collect data and information from citizens in an affected area.

### Communicate

Real-time maps help citizens plan and react to changing infrastructure conditions. CogniCity harnesses the power of citizen knowledge and crowdsourced information to navigate fluctuating infrastructure.

# Case study - PetaJakarta.org

---

PetaJakarta is a web-based platform that runs using CogniCity, which allows data to be collected and disseminated by community members through their location enabled mobile devices. Its purpose is to harness the power of social media to gather, sort and display information about flooding for Jakarta's residents in real-time.

PetaJakarta.org was led by the SMART Infrastructure Facility, in collaboration with the Jakarta Emergency Management Agency (BPBD DKI Jakarta) and Twitter Inc. The project was operationally active from December 2014 to December 2016, with PetaJakarta 2.0 launched in December 2015.

During this time, the project enabled Jakarta's citizens to report the location of flood events using Twitter, thereby contributing to a publicly accessible real-time map of flood conditions viewable at PetaJakarta.org.

This data was used by BPBD DKI Jakarta to cross-validate formal reports of flooding from traditional data sources, supporting the creation of real-time information for flood assessment, response and management.

Through its integration in Jakarta's existing disaster risk management information ecosystem, the PetaJakarta.org project has proven the value and utility of social media as a mega-city methodology for crowdsourcing relevant situational information to aid in decision making and response coordination during extreme weather events.



For residents of Jakarta, PetaJakarta.org enabled autonomous users to make independent decisions on safety and navigation in response to the flood, helping to increase their resilience to flooding. Underpinned by CogniCity, this open source ethos and the transparency it facilitates was critical to the success of the Joint Pilot Study.

The project was acknowledged by the US Government when their Federal Register cited SMART's PetaJakarta.org project as an example of best practice for using crowdsourced information in an emergency situation.

---

## Our ICA-OSGeo Labs Membership

---

The SMART Infrastructure Facility has officially become a member of the ICA-OSGeo Labs network. The worldwide network of 85 ICA-OSGeo Labs exists to support and promote the application of open source geospatial data and development of open geo-data software.

ICA-OSGeo Lab status is the industry benchmark for institutions which are actively engaged in creation, use, and teaching around open source geospatial software and data.

**smart**  
infrastructure facility



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

**FOR MORE INFORMATION, PLEASE CONTACT:**

Director  
Professor Pascal Perez  
[pascal\\_perez@uow.edu.au](mailto:pascal_perez@uow.edu.au)  
+61 2 4298 1241

Chief Operating Officer  
Tania Brown  
[tania\\_brown@uow.edu.au](mailto:tania_brown@uow.edu.au)  
+61 2 4298 1431

[smart.uow.edu.au](http://smart.uow.edu.au)

Follow Us



[@smart\\_facility](#)



[@smarttv1](#)



Smart Infrastructure Facility, University Of Wollongong