



COVID19 & IOT: How Smart Cities solutions such as Pedestrian Counting can help communities respond and recover to the crisis

Catherine Caruana-McManus

Director Strategy & Sales

Meshed IoT Integrators

www.meshed.com.au

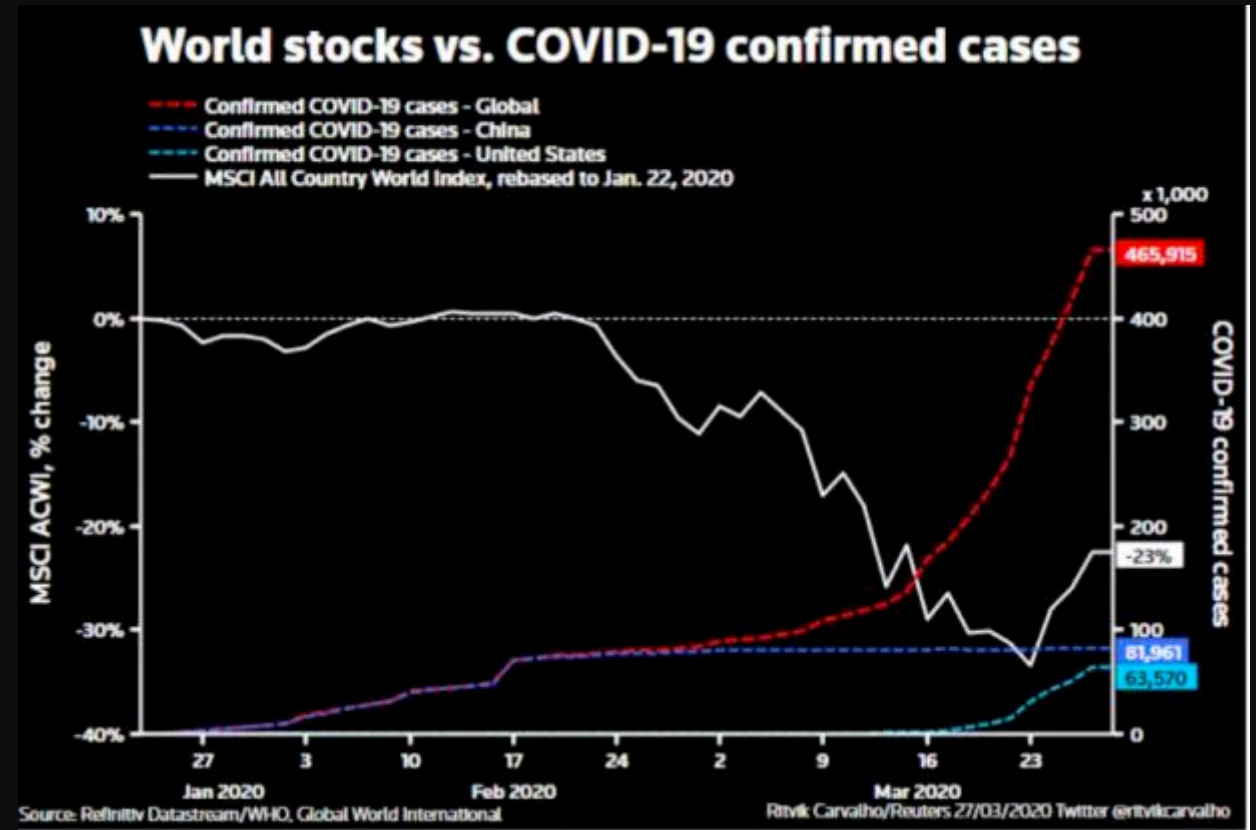
Friday, 10 April 2020

COVID-19 is a disease caused by a new form of coronavirus.

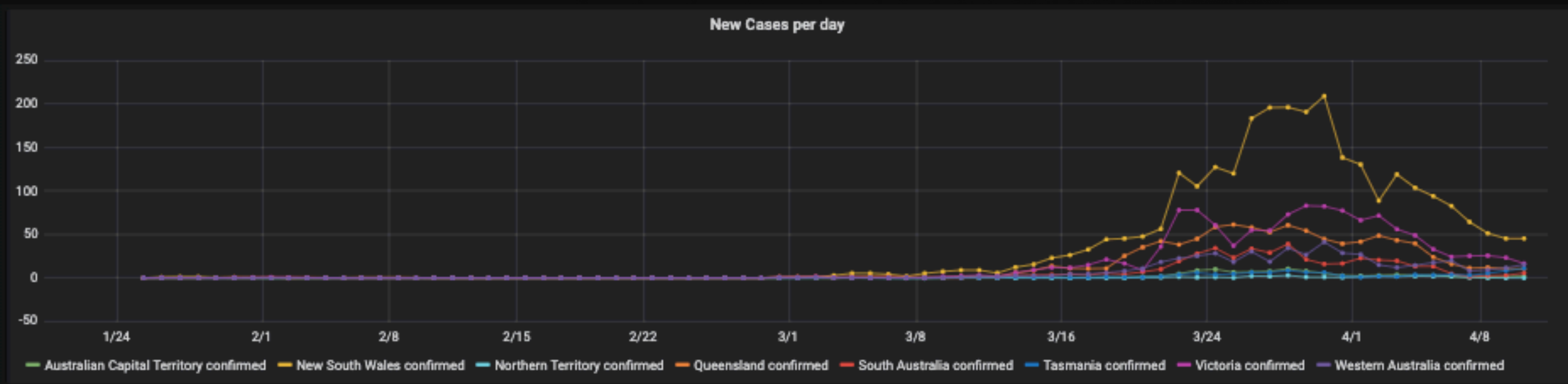
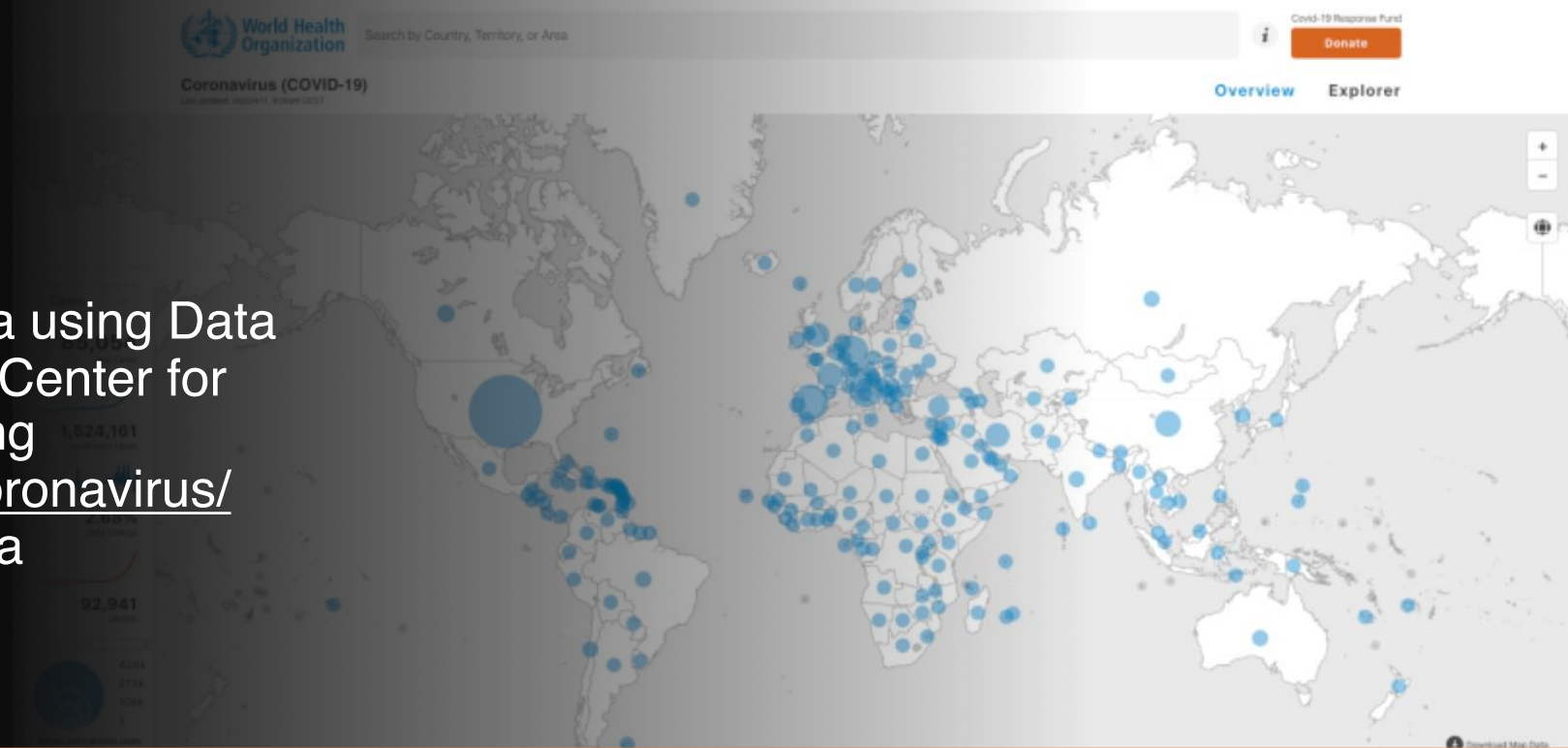
It was first reported in December 2019 in Wuhan City in China.

There have been over 100,000 deaths to date of Coronavirus.

The implications of the pandemic are unprecedented in modern times and are widespread across health, economic, social, environmental and political domains.



Australia COVID19 real-time data using Data from Johns Hopkins University's Center for Systems Science and Engineering
<https://www.worldometers.info/coronavirus/>
visualised using Meshed IoT Data Visualisation platform.



Australian Government Response to COVID19

- As there are no medicines or vaccines for COVID-19 at this time, Australia's recovery from the crisis is solely dependent upon public health interventions to control the disease.
- These fall into six areas:
 - identifying cases
 - isolating cases
 - tracing and quarantining contacts of cases
 - improving hygiene
 - restricting travel
 - social distancing



- **18th March – first social distancing restrictions come into place with limits on numbers of attendees at non-essential indoor and outdoor events**
- 22nd March Mandatory self isolation for all new arrivals into Australia including forced stays in hotels for 14 days.
- 27th March restrictions of movement regional locations comes into place
- 30th March National Cabinet is held. Tighter restrictions are put in place with legislation also being enacted in the States with regards to penalties for breaches of the social distancing laws.
-
- 7th April – Australian Government releases its modelling of the impact of COVID19
- <https://www.pm.gov.au/media/statement-update-coronavirus-measures>

- 
- Interoperable and standards based Smart Cities IoT technologies and data sharing models enable cross government and private sector collaboration to minimise death rates, manage public health, resource allocation, asset efficiencies and social hygiene effectiveness.
 - IoT networks, sensors and applications can greatly contribute to understanding not just global, state or jurisdictional effects but micro-level economic, mobility, social and environmental impacts of COVID19



Smart Cities IoT COVID19 Use Cases

Just in Time Resource Management

Medical Staff, Drugs Respiratory Ventilators, Masks, Transport

Critical Equipment Asset Monitoring

Refrigeration

Back-Up Generators

Washdown Units e.g SOAPY

In-Home/Remote Health Monitoring

Bio-Sensors

Telehealth

Drones & Surveillance

Delivery of critical supplies

Disinfecting public spaces

Temperature Checks (Testing Centres, Unemployment Queues, Airports, Voting Booths)

Surveillance of compliance to lockdowns

Digital Signage

Location of nearest testing facilities

Public Health Notices

Infection Hots Spots Warnings

Work From Home

Digital Connectivity & Online Collaboration Tools

Public Wi-Fi

Fast Broadband "Super Spots"

Public Access IoT Networks - The Things Network

Smart Citizen Apps

Location of testing facilities

What shops/services are opened

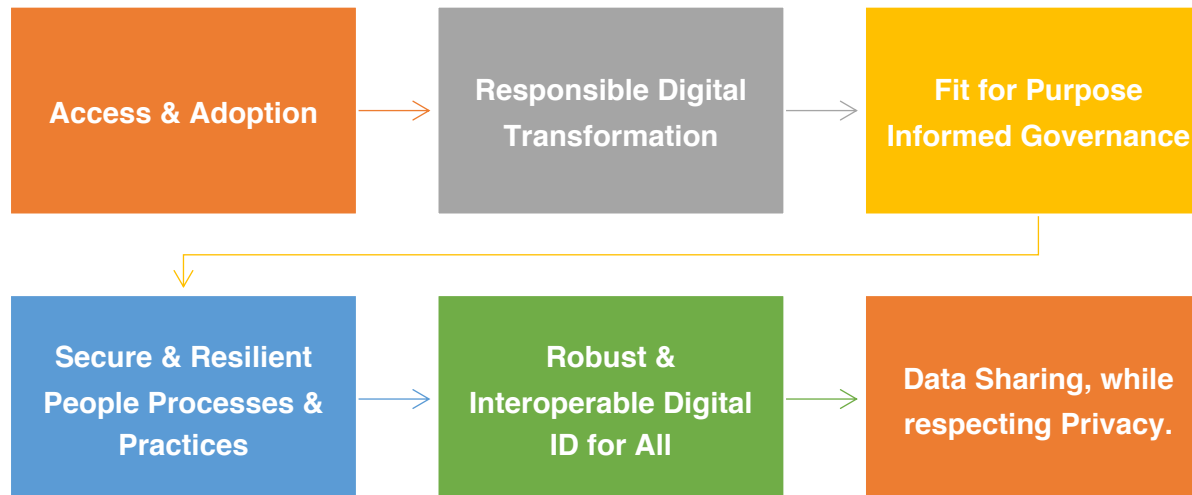
Lockdowns

Quarantining

IoT for Good!

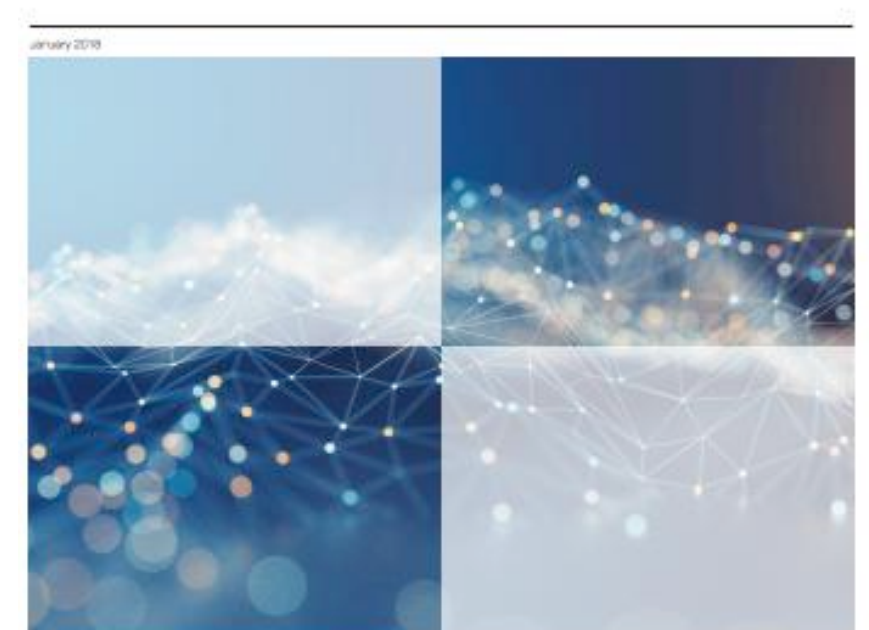


<https://sustainabledevelopment.un.org/sdg11>



Internet of Things Guidelines for Sustainability

IoT as an enabler for sustainable development is achieved when sustainability is incorporated at the design phase of the IoT projects.



IoT for Good

The UNDP COVID-19 Detect and Protect Challenge

The United Nations Development Programme and Hackster.io are joining forces with the world's brightest technology companies.

The Challenge is seeking hardware and software developers, product designers, scientists, hackers, makers, and innovators to come together to work for those who will be hardest hit by this pandemic.

<https://www.covid19detectprotect.org/>



IoT for Good. Public Access IoT Data Networks



The Things Network is the Worlds Largest Decentralised and Open Access IoT Network.

The Network uses the the global bi-directional connectivity standard LoRaWAN.

TTN is widely used for

- Smart Cities
- Smart Water management
- Mass Scale Environmental Monitoring
- Asset Management
- Innovation & research.



106141
MEMBERS

11059
GATEWAYS

149
COUNTRIES

Pedestrian Counting “Killer IoT App” for Smart Cities



Walkability & Access



Tourism



Major Events Planning



**Retailing & Economic
Vitality**



Resource Management



Urban Renewal



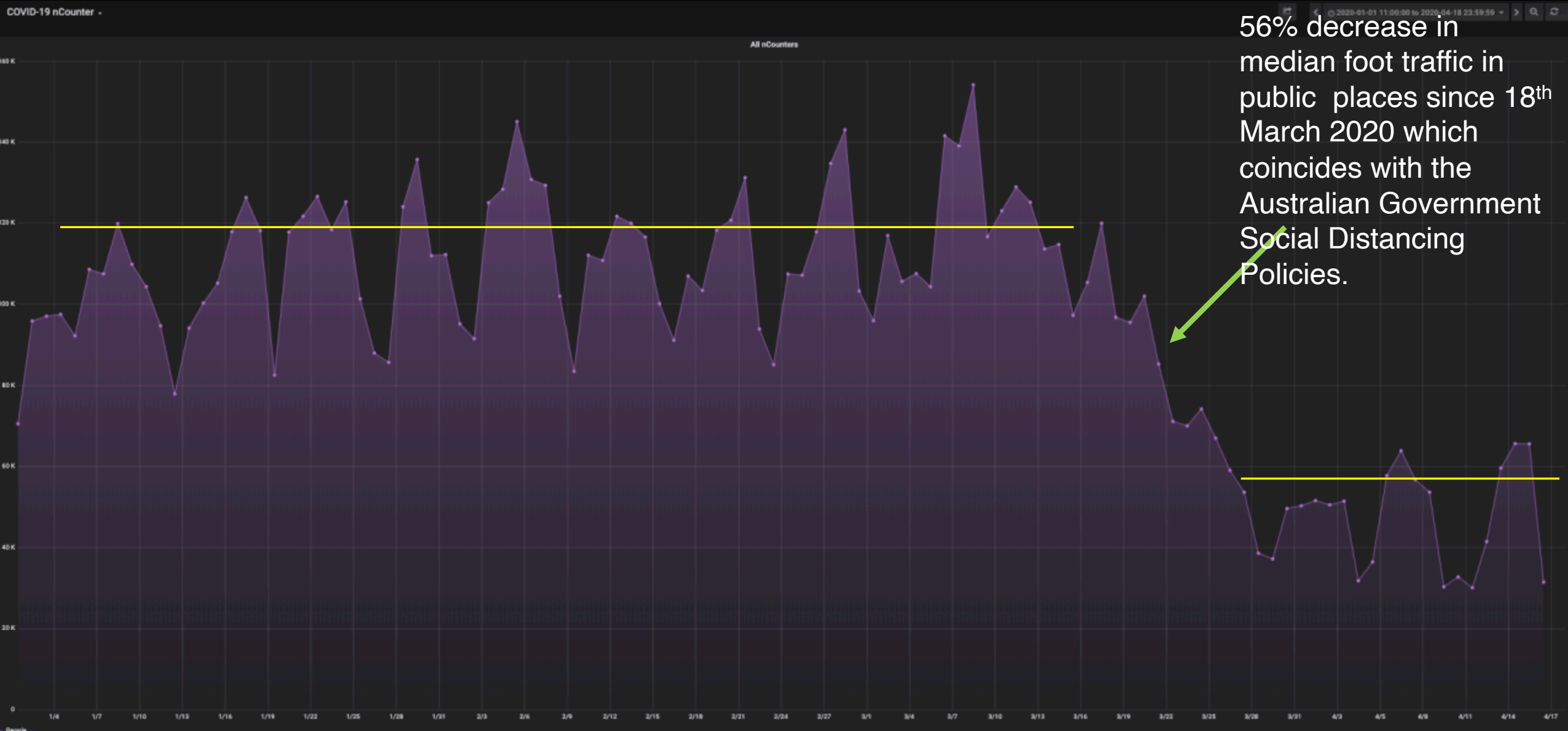
Meshed COVID19 Pedestrian Index

- The Index is tracking in near real-time the economic and social impact of social distancing in 5 States in Australia across 180 locations.
- The data is being collected using **Pedestrian Counting IoT Sensors** that have been placed by Councils in their public places i.e business districts, parks, skateparks, sporting facilities, walking trails, libraries, amphitheatres, Council offices
- Prior to COVID19 the data has been used by Councils to support their economic, social, recreational, environmental and land use planning imperatives.
- The Index has been tracking the impact and effectiveness of the Australian Federal and State Governments Social Distancing Policy and Associated Mandatory Quarantining Regulations which commenced around the 18th March.



nCounter COVID19 Index Month

Median of Daily Pedestrian Counts from 1st January to 17th April.





Low Cost Solution Pedestrian Solution that Counts smart devices in range (5 to 50 metres)

Data is transmitted over global low power long range radio frequency connectivity IoT protocol LoRaWAN, using The Things Network (thethingsnetwork.org)

Currently compatible with AU915, AS923 with US915 and EU 896 versions in train

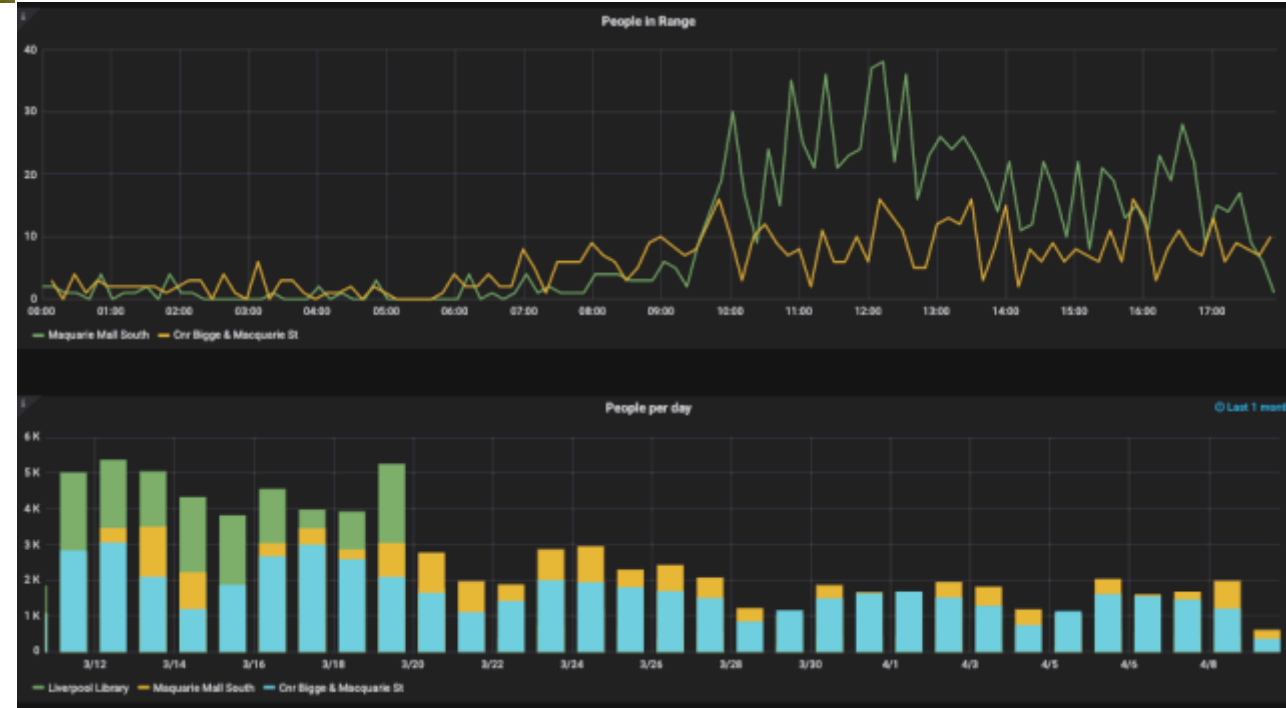
Provided as a service with a Data Visualisation Platform

Ability to seamlessly ingest data to customers' existing BI/GIS/SCADA/Asset Systems

Fully anonymized, no personal data is collected at any point.

Very Portable with Solar Power Option

Perfect for use in public places, including Councils offices, libraries, community facilities, playgrounds, parks, walking paths, bicycle trails, beach foreshores, marinas, events, festivals, sporting grounds, precincts, auditoriums, bus stops and many more!





COVID19 Impact & Recovery Research using Pedestrian & Mobility Data

The Aim of the Research is to:

- Understand the mobility, economic and social impacts of COVID19 on local communities
- Bring together a range of different data sourced across public and private sector to build a model to visualise the impact and plan for post/recovery
- During Crisis:
 - Assess the effectiveness of Government (Federal and State) Policies and Regulations with regards to social distancing and mandatory quarantining
 - Highlight which areas are most affected by the crisis in order to assist in recovery and targeted stimulus
- Post Crisis/Recovery
 - Inform Policy Makers as to the critical role that smart cities (technology and data) can play in building recovery
 - Monitor the effectiveness of Government economic stimulus policies