

Built infrastructure makes our world go around, but how can we **optimise** it?

Data Bites talk @ City, University of London
Guy Vu & Will Needham (05-Dec-2018)



Agenda

1. **Introductions**
2. **About Mott MacDonald**
3. **What is Smart Infrastructure?**
4. **Our products**
5. **Our data science consultancy projects**
6. **Open positions in the team**
7. **Q & A**

Presenters



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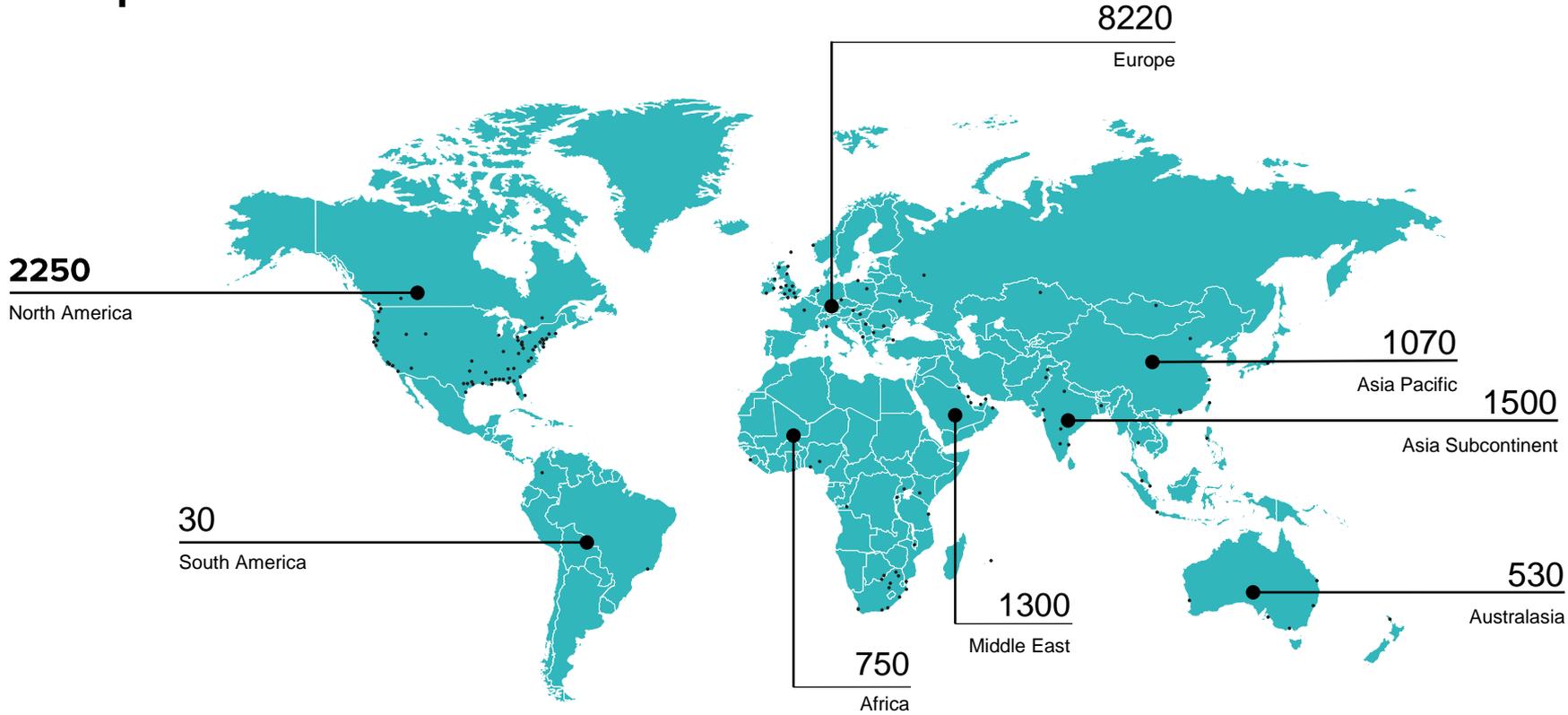


Quy Vu

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Principal offices and staff



We work in
160
countries

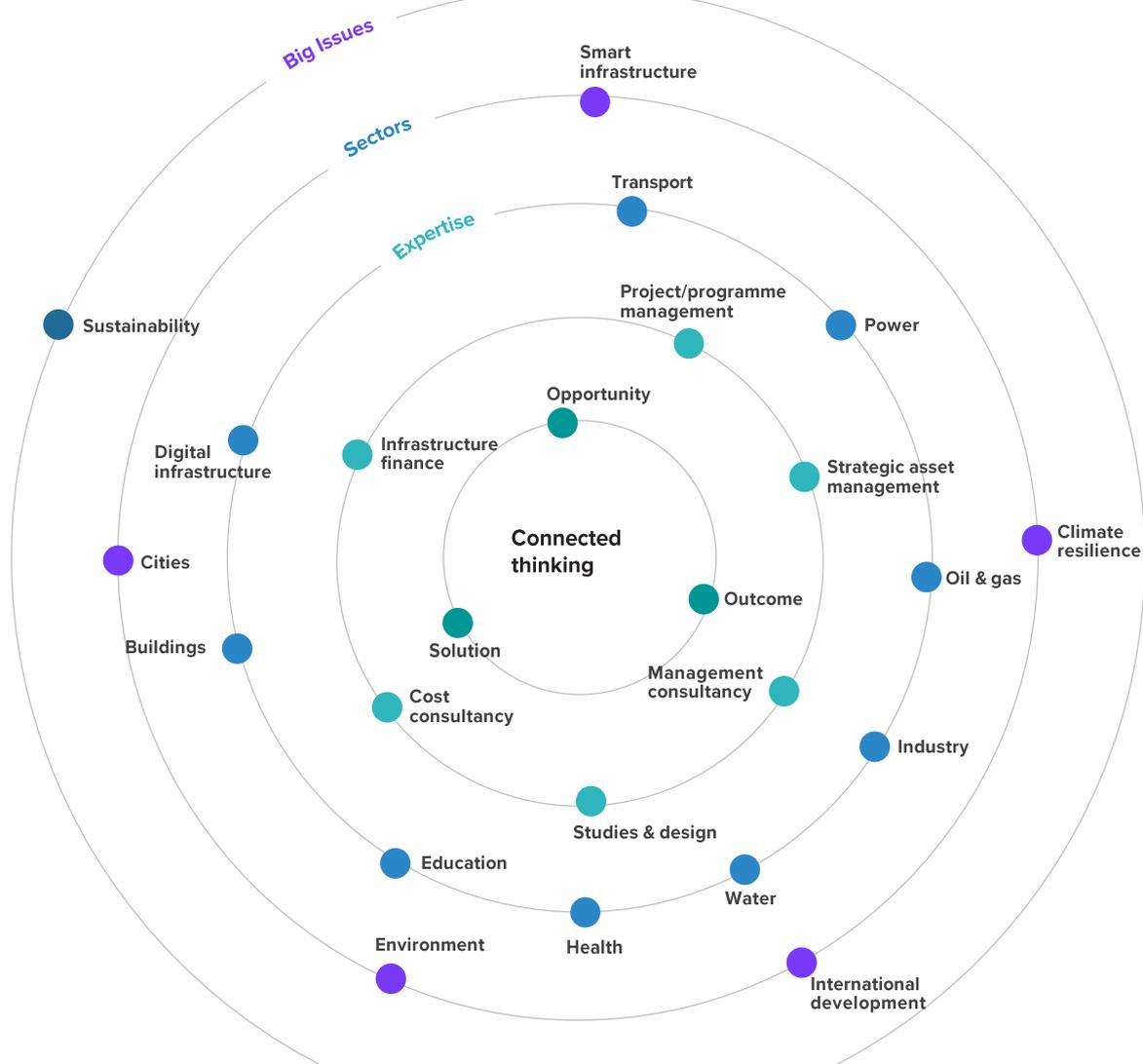
170
permanent
offices in over
50 countries

16K
staff

\$2
billion
turnover

Over
150
years'
heritage

Areas of expertise



What is Smart Infrastructure?



SMART
INFRASTRUCTURE

Smart Infrastructure enhances the physical world with digital insights. It improves efficiency, helps you make better decisions and pinpoints errors before they happen. It's always on and always learning. The more data it receives, the more opportunity it reveals.

We are facing two seismic shifts

Physical constraints

- Climate change
- Resource limitation
- Population concentration
- Investment constraints

Digital abundance

“By 2020 there will be 7 times more IoT devices than people”

Cisco

Smart Infrastructure

is where these two worlds collide: Domain expertise + Digital Expertise

Making it happen

Information
Advisory

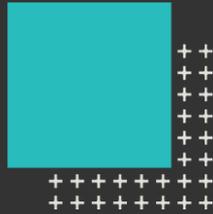


Asset
Performance
Optimisation

Technology
Solutions



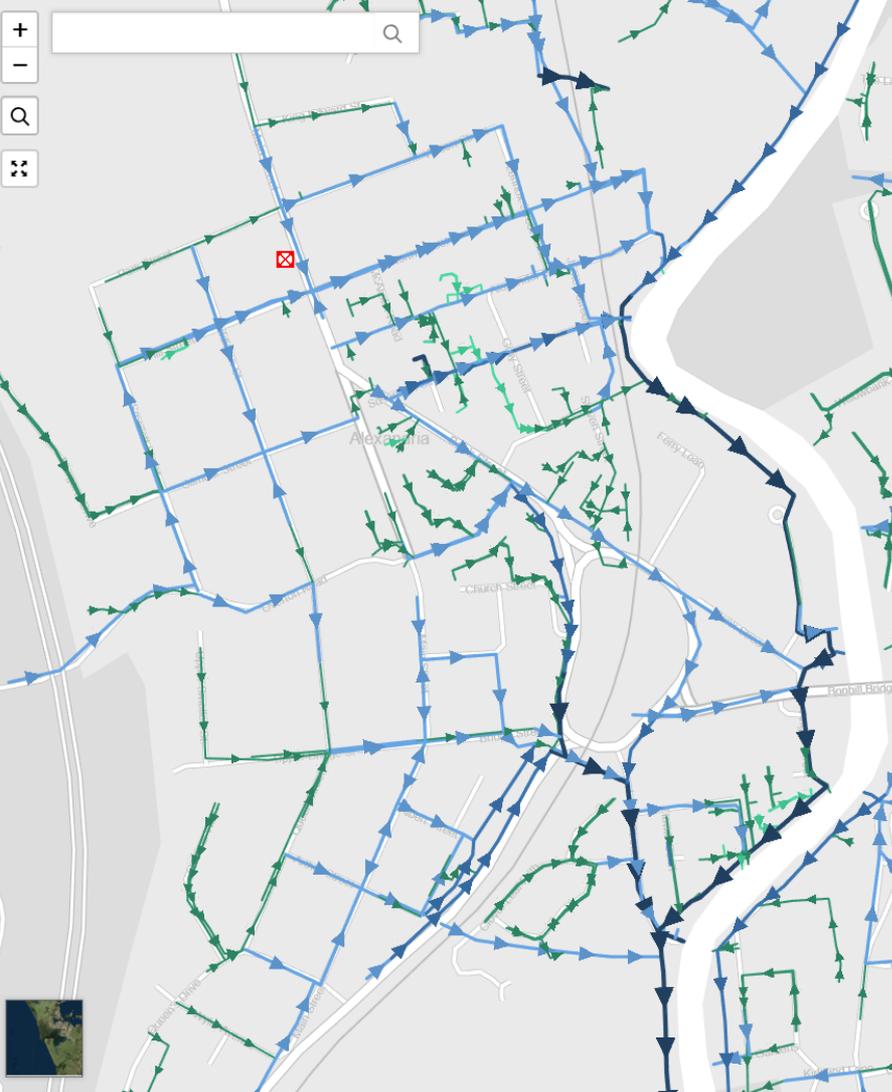
Asset performance optimisation



**Data science
consultancy**



**Product/
platform**



Moata

See the unseen

Data from and about assets is growing at an exponential rate. How can we use data to achieve efficiency and realise the hidden values?

Act with conviction

Moata - our cloud-based analytics and visualisation service - provides real-time insight into asset performance to enable predictive maintenance and better decision making.

It's about turning data into information and enable stakeholders to act with conviction.

Impact progress

Here's one example ...

An aerial photograph of a beach with turquoise water and a teal text overlay. The text is white and reads: "How can we create the most liveable city on the planet?".

How can we create the most liveable city on the planet?

SafeSwim powered by Moata

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MACDONALD

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SMART
INFRASTRUCTURE

SafeSwim (<https://safeswim.org.nz/>)

See the unseen

After heavy rain in Auckland, sewage networks can overflow and pollute the city's harbours.

What if we could make sure people always knew the best place to go for a swim?

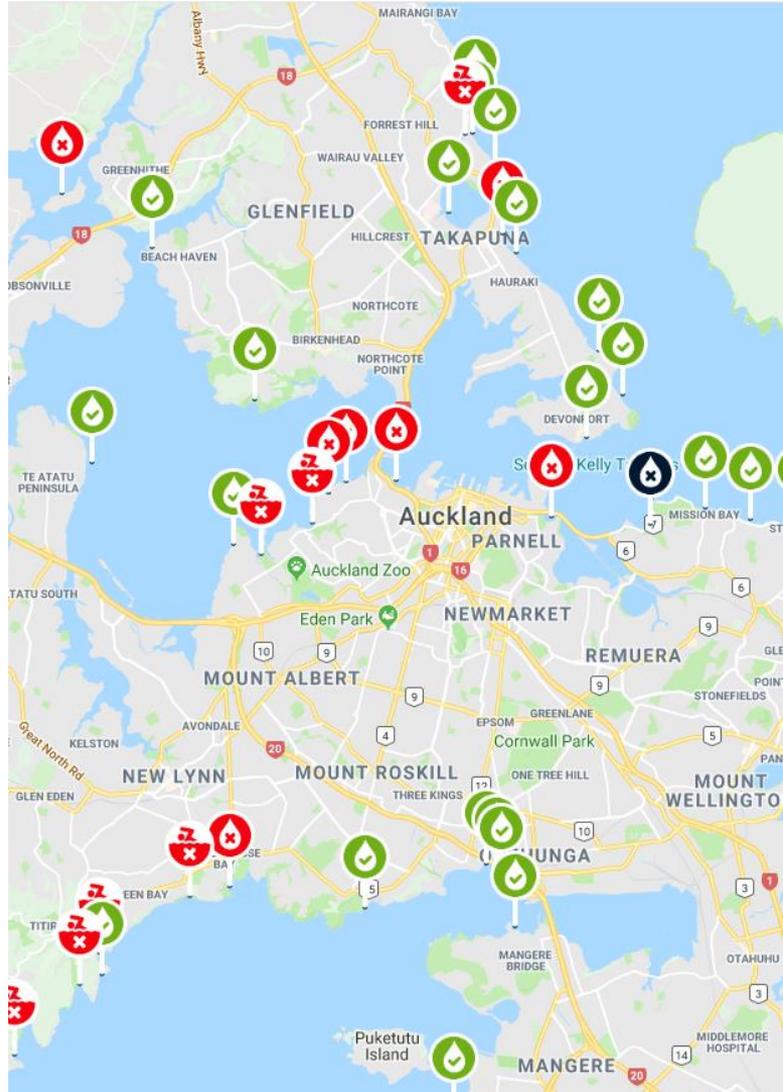
Act with conviction

Moata, Mott MacDonald's data analytics and visualisation productised service, showed 10 data streams, giving us 1bn data points, letting us show the public water quality across 84 different beaches in real time.

Impact progress

SafeSwim online application, was delivered as Moata's public facing interface, helping 350,000 people enjoy Auckland's waters all year round.

We took Auckland a step closer to its vision to be the world's most liveable city.



actif

TAKE CONTROL OF
YOUR ENVIRONMENT

Listen to your
Environment

Understand your
Productivity

Maximise
your Revenue



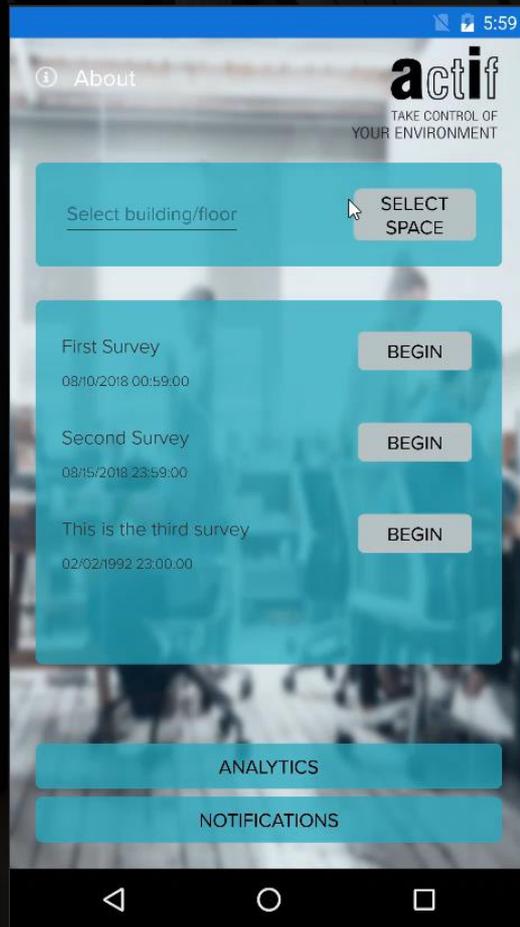
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ADWEC

See the unseen

ADWEC was looking for a clearer picture of their customers to improve revenue and client retention.

The key challenge was the vast quantity of datasets (from 25,000 energy meters), each with a catalogue of data quality issues.

Act with conviction

We developed a methodology of programming and statistical methods to uncover a variety of previously unseen data quality issues and insights, and strategically rectifying each one.

From the robust, cleaned datasets, we have

- Developed 6 distinct customer profiles
- Forecasted the electricity consumption pattern for every household

Impact progress

We estimate that our client will achieve a 10% efficiency gain in short-term energy production.

Our work will also bring clarity to future infrastructure investment decisions for Abu Dhabi.



US WATER COMPANY

US Water Company

See the unseen

The water supplier experiences more than 400 pipe failures each year which cause tremendous disruption and costs.

With more and more pipes added through urbanization, the network has become even more vulnerable to pipe failures.

Act with conviction

By analyzing pipe characteristics, temperature, high-resolution water pressure data and previous pipe failures, we modelled the mechanisms leading to pipe failures.

This allows us to predict the network's health from 2019 - 2022

Impact progress

Knowing which parts of the network are most vulnerable to pipe failures, the water supplier can formulate an efficient asset renewal strategy.

We estimate this strategy can help save millions of dollar in terms of reparation costs.

Open positions

Senior
.NET
Developer

Data
Science
Intern
(Summer 2019)

Graduate
Data
Scientist
(Sept 2019)

<https://www.smartinfrastructure.com/join-us>

Contact



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Thank you



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