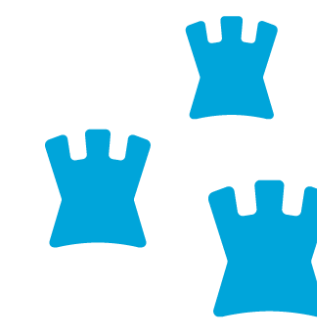




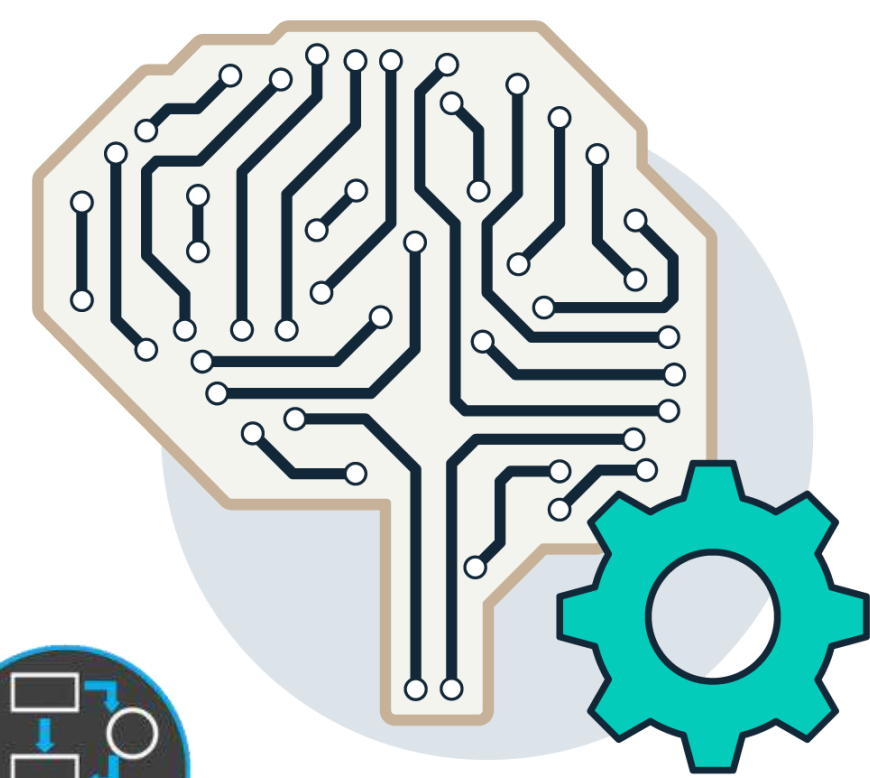
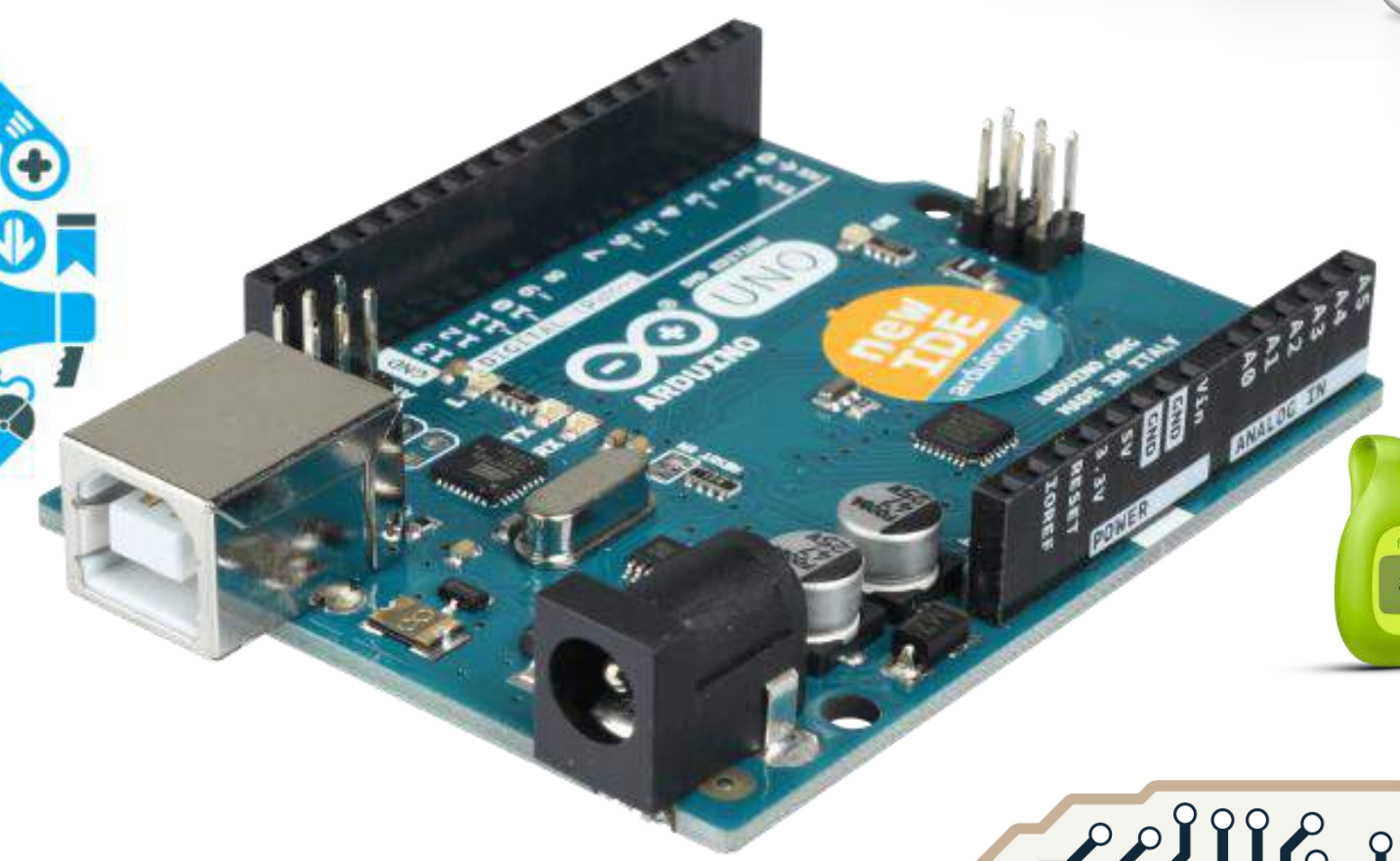
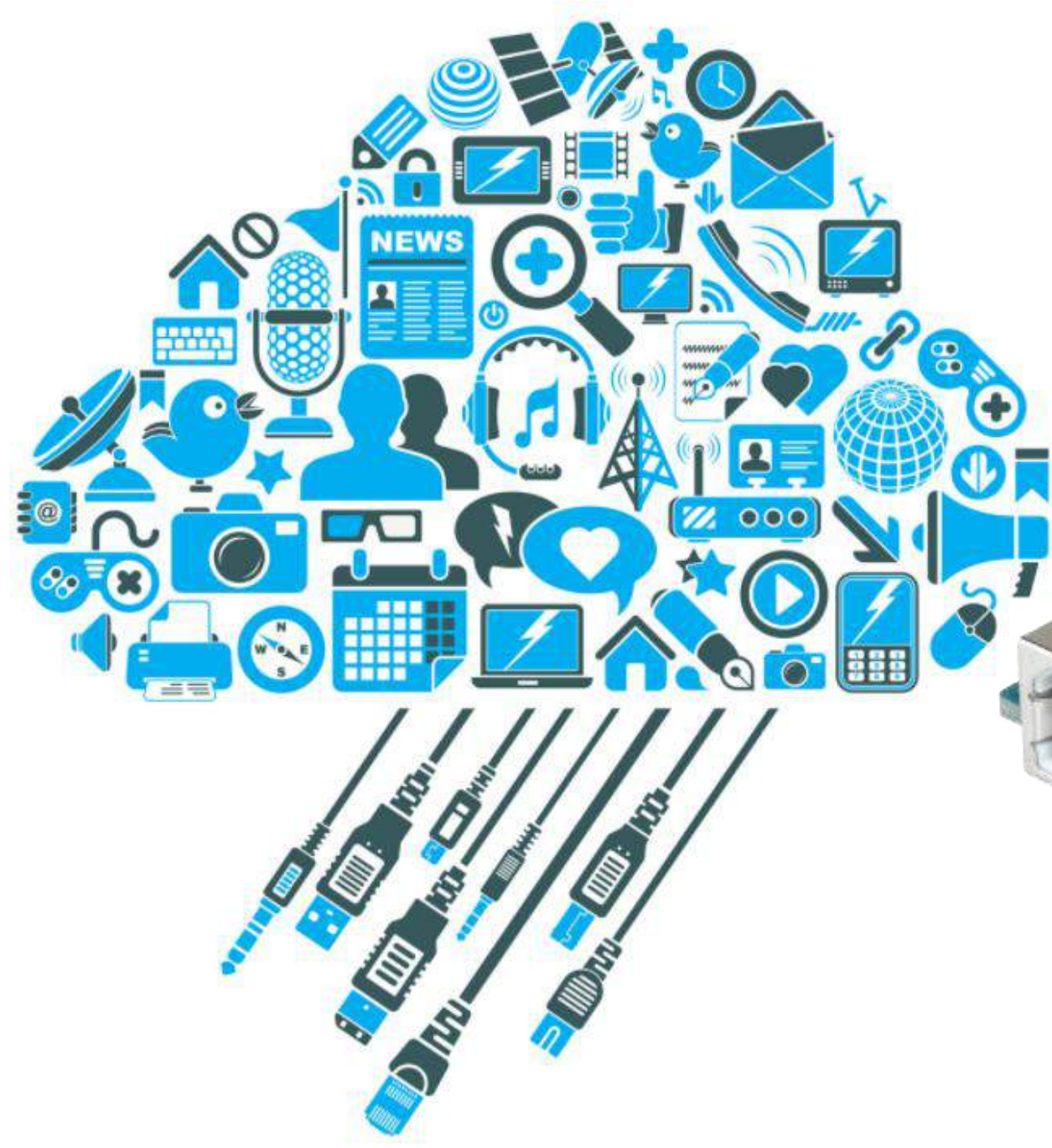
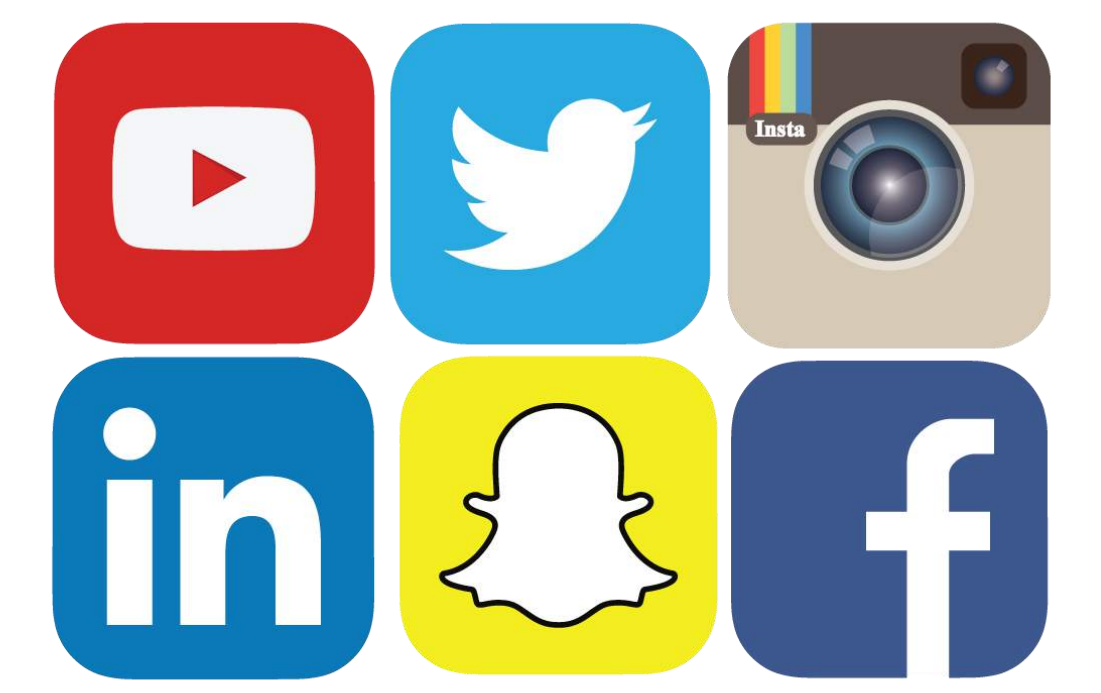
**Jamie
Cudden**

**Smart City
Programme
Manager**



Comhairle Cathrach
Bhaile Átha Cliath
Dublin City Council

BIG TECH TRENDS:

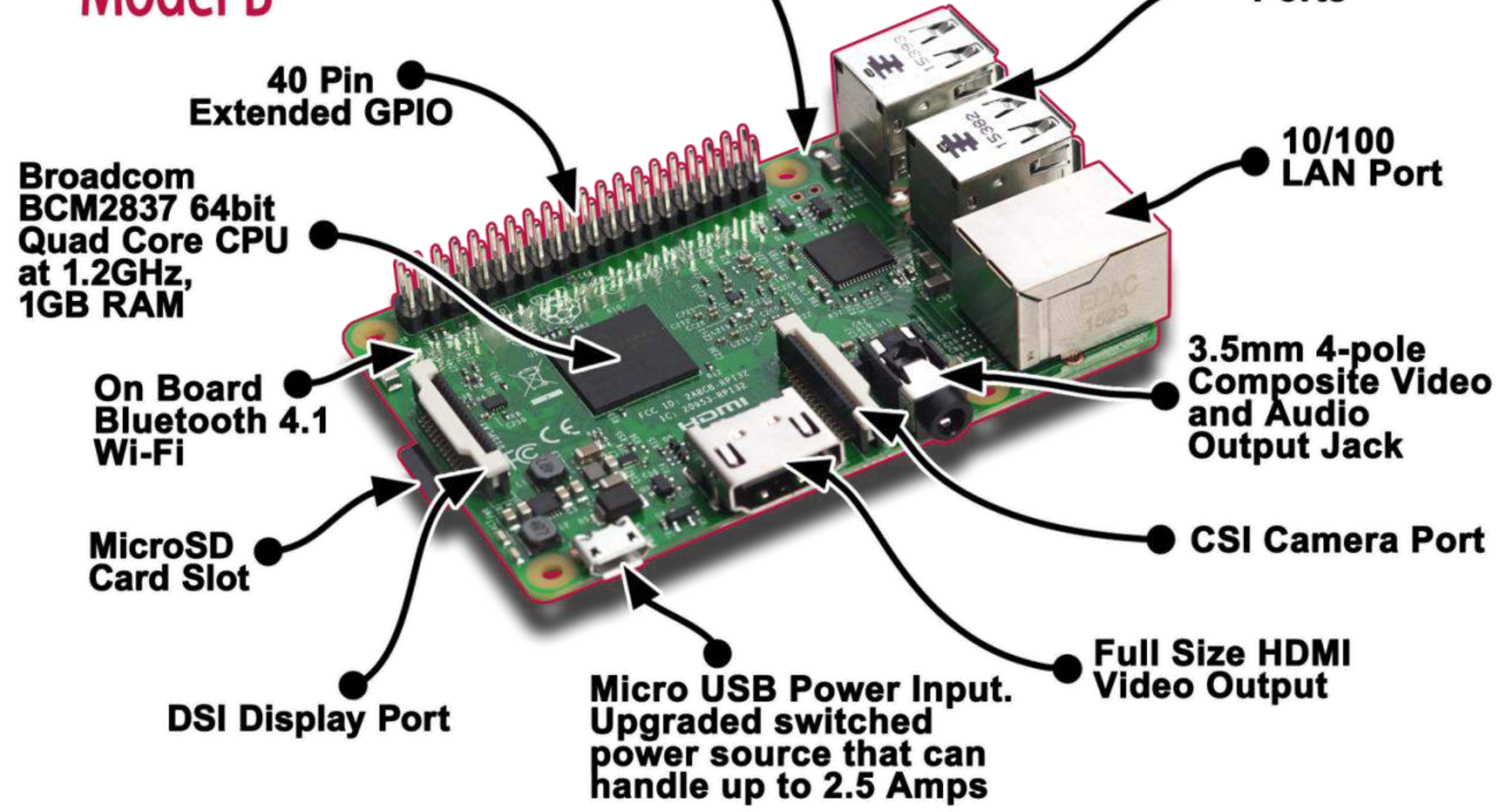


The sub-\$10 IoT

Raspberry Pi 3 Model B

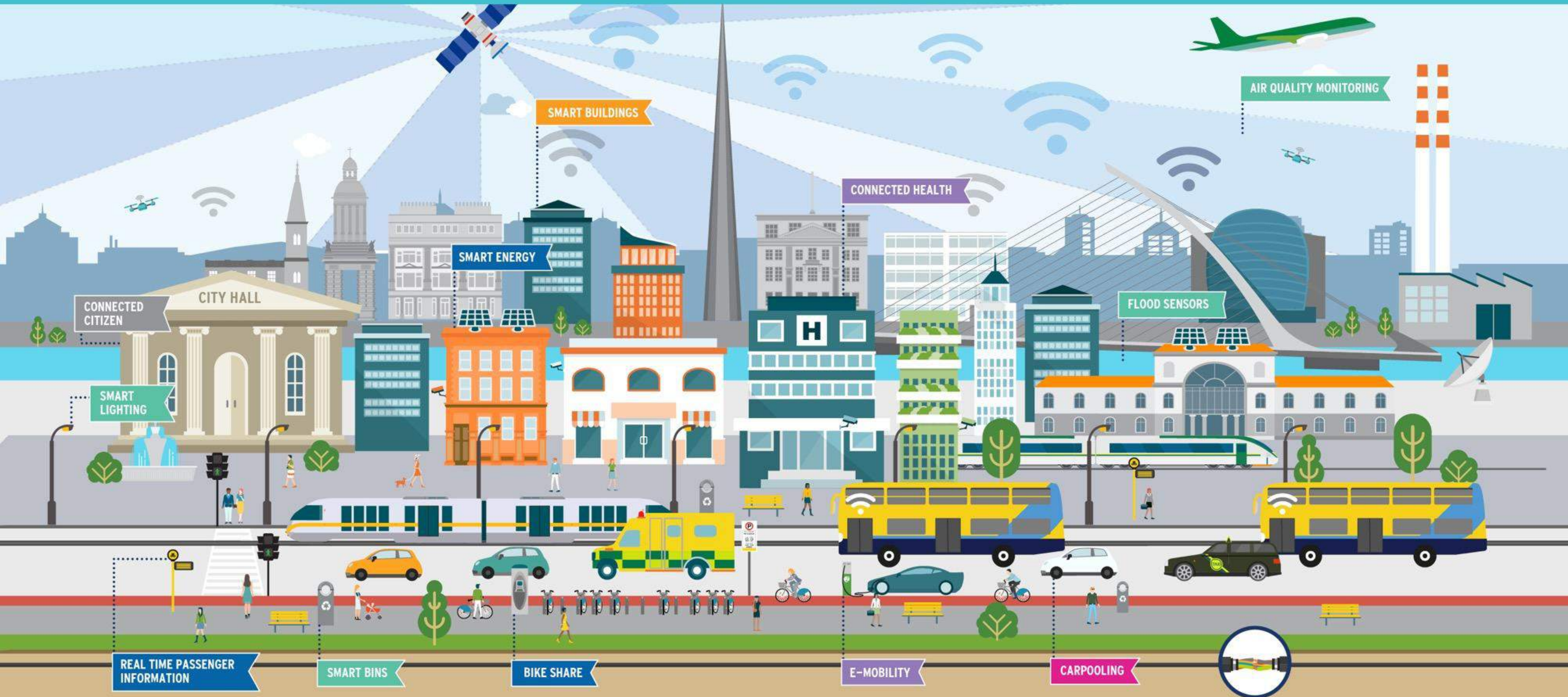
Dimensions
85.6mm x 56mm x 21mm

element14



▶ WHAT IS A SMART CITY?

REAL TIME – CONNECTED – DATA DRIVEN



KEY DRIVERS

1) To promote *Economic*
development

2) Deliver greater *Efficiencies*

3) Better *Engagement* with citizens

4) Make *Better Decisions*.....



“The Smart City Market will Top over \$2.4 trillion in 2025, Presenting Significant Opportunities for Solution Providers Operating within the Smart City Space” - Frost & Sullivan, 2018



WHY IS IT TAKING SO LONG?

An aerial night view of a city skyline, likely Dubai, with numerous skyscrapers and buildings illuminated with lights. The sky is dark with some clouds. The text is overlaid on this background.

INITIAL DRIVE WAS A VENDOR LED APPROACH

TECH LOOKING FOR A SOLUTION

**CITIES TAKING A MORE CO-ORDINATED PROBLEM BASED APPROACH
COLLABORATION MODELS ARE KEY**

CITY LEADERS ARE STEPPING UP.....

CROSS CUTTING SMART CITY UNIT

SMART CITY LEAD REPORTING DIRECTLY TO CEO

HELPING DUBLIN SCALE UP AND REALISE POTENTIAL

REGIONAL APPROACH

INTRODUCED A SMART CITY CAPITAL BUDGET

BIG CHALLENGES



BIG CHALLENGES



BIG CHALLENGES



BIG CHALLENGES



BIG CHALLENGES



BIG CHALLENGES



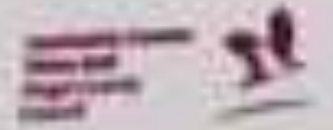
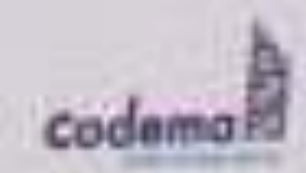
Think Energy

HOME ENERGY SAVING KIT
Take charge of your energy use today



THIS HOME ENERGY SAVING KIT INCLUDES

- 1 Fridge / Freezer Thermometer
- 1 Temperature & Humidity Meter
- 1 Radiator Key
- 1 Thermal Leak Detector
- 1 Plug-in Energy Monitor
- 1 Stopwatch



Think Energy Energy Energy Energy



**SMART
DUBLIN**

Collaboration model



Research Centres:



Higher Education:



State Agencies:

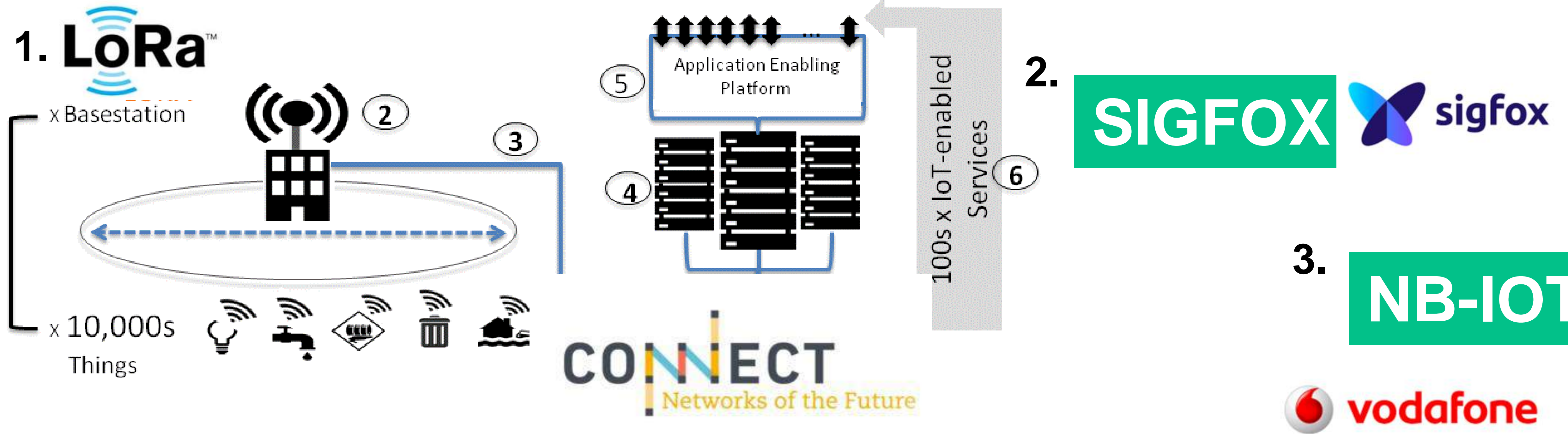


▶ DUBLIN AS A TESTBED

“ WE ARE BIG ENOUGH YET SMALL ENOUGH TO BE THE IDEAL LOCATION TO PILOT NEW CITY SERVICES & SOLUTIONS



DRIVING USE CASE INNOVATIONS IN LOW POWER COMMS



**Small messages, Low Power, Long battery life.
Suitable for Awkward spots, Low cost point**

LOW COST ENVIRONMENTAL MONITORING



Rainfall Sensor Project



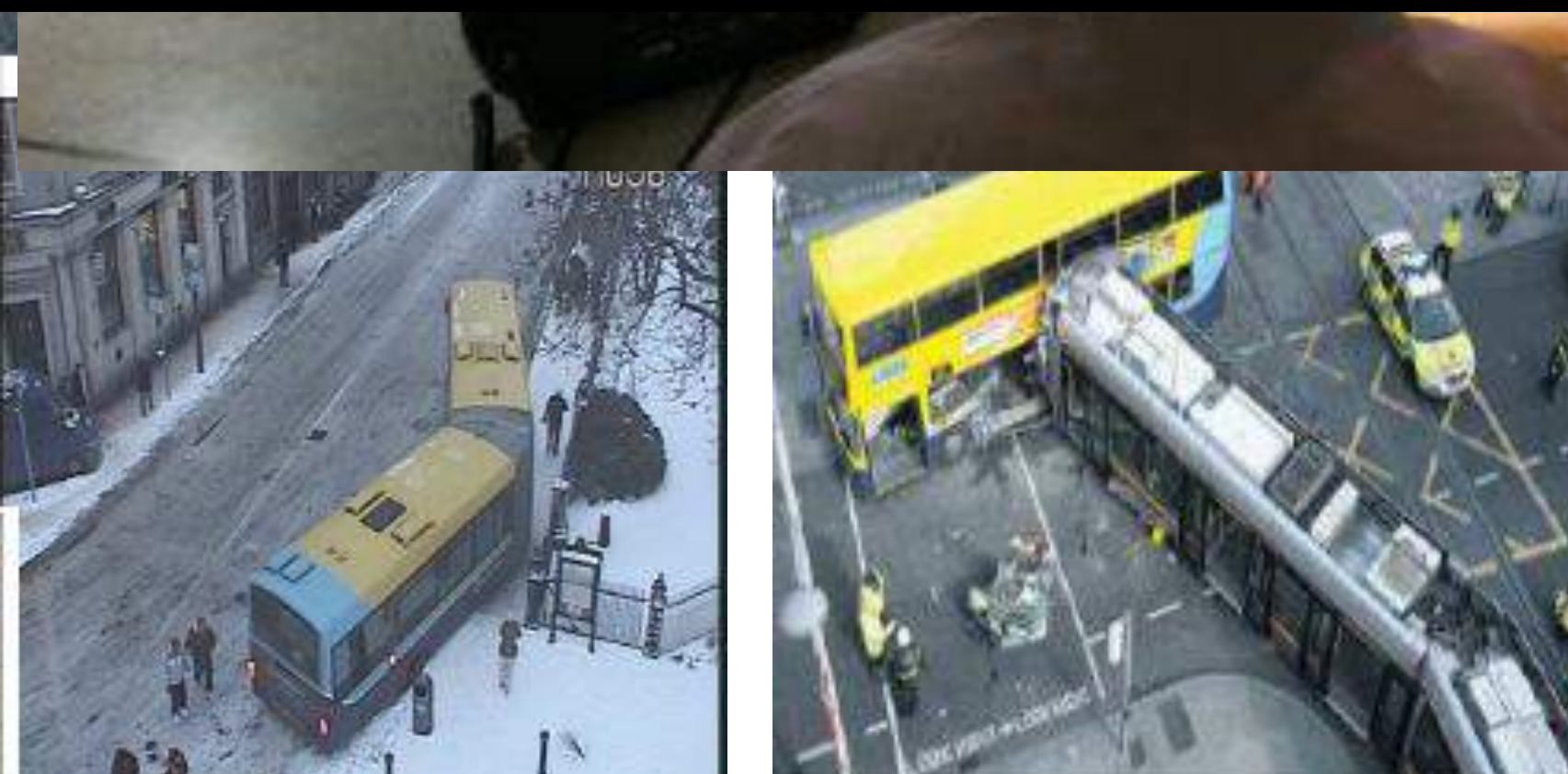
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Bhaile Átha Cliath
Dublin City Council



Experiment with hyper local and low cost sensing



Producing dynamic and real time data



Making Better Decisions.....predict, adapt, respond



Share a Tale of Procurement

W O R R O R
and WIN!





NEW WAYS OF SOURCING INNOVATION

Working in partnership with Enterprise Ireland through the Small Business Innovation Research (SBIR) programme to find solutions for:

- ▶ CYCLING
- ▶ FLOODING
- ▶ WAYFINDING
- ▶ ILLEGAL DUMPING



**SOURCING LOW COST
SCALEABLE SOLUTIONS
– CHALLENGE BASED**

€1M+
INNOVATION
FUNDING



273
EXPRESSIONS
OF INTEREST



63
APPLICATIONS



21+
INNOVATION
CONTRACTS



CYCLING

SEEKING **SMART**, LOW COST SOLUTIONS...



**CHALLENGE:
SCALE UP
CYCLING
IN DUBLIN**



**IMPROVE
SAFETY**



**REDUCE
BIKE THEFT**



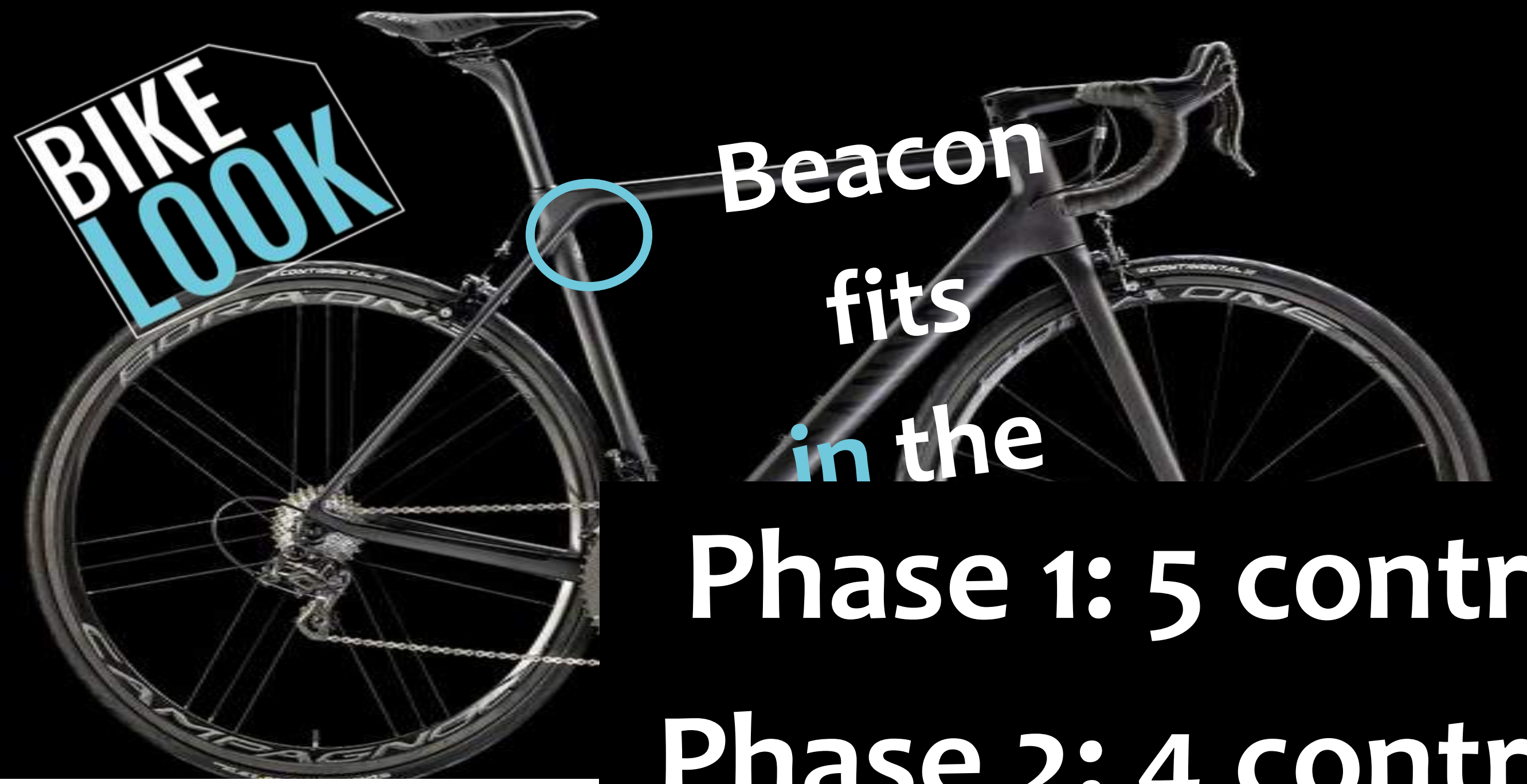
COLLECT BETTER DATA

APPLY HERE: WWW.SMARTDUBLIN.IE

€150,000 IN FUNDING
AVAILABLE



**BIKE
LOOK**



Beacon
fits
in the



Phase 1: 5 contracts @ 12,500
Phase 2: 4 contracts @ 25,000



CRASH ALERTS



INTELLIGENT SENSORS

SEE.SENSE®

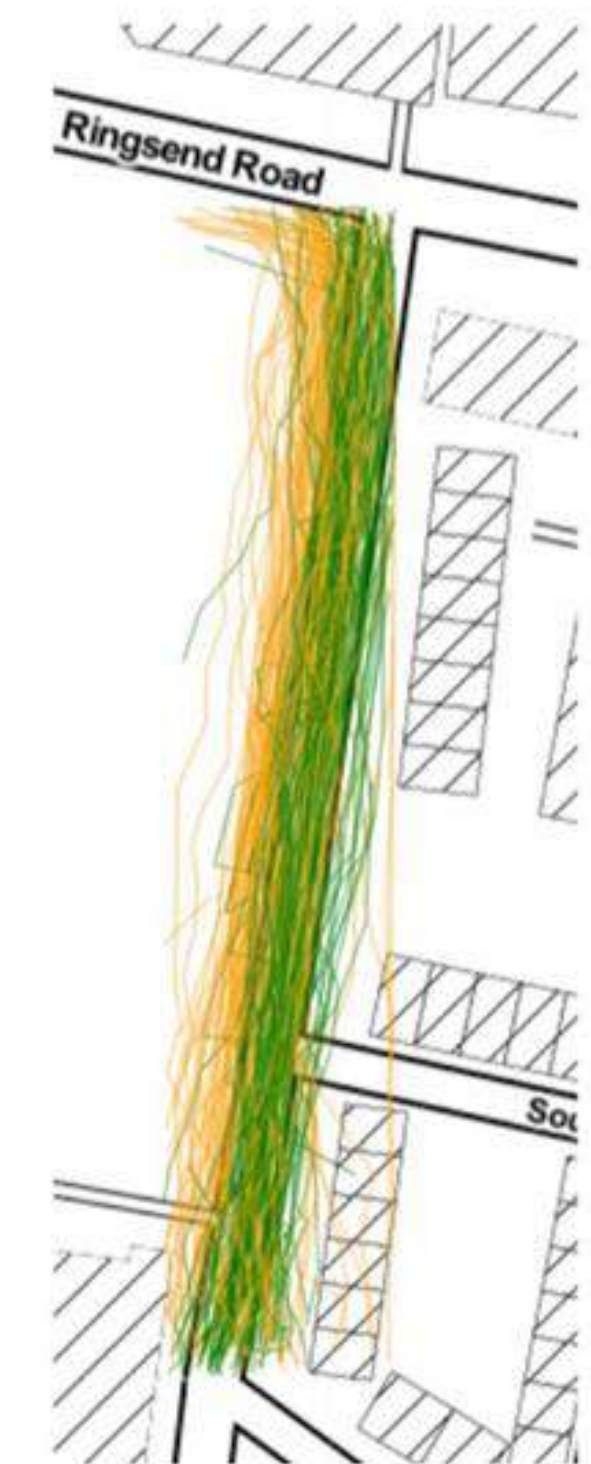


© See Sense 2016 (All rights reserved)

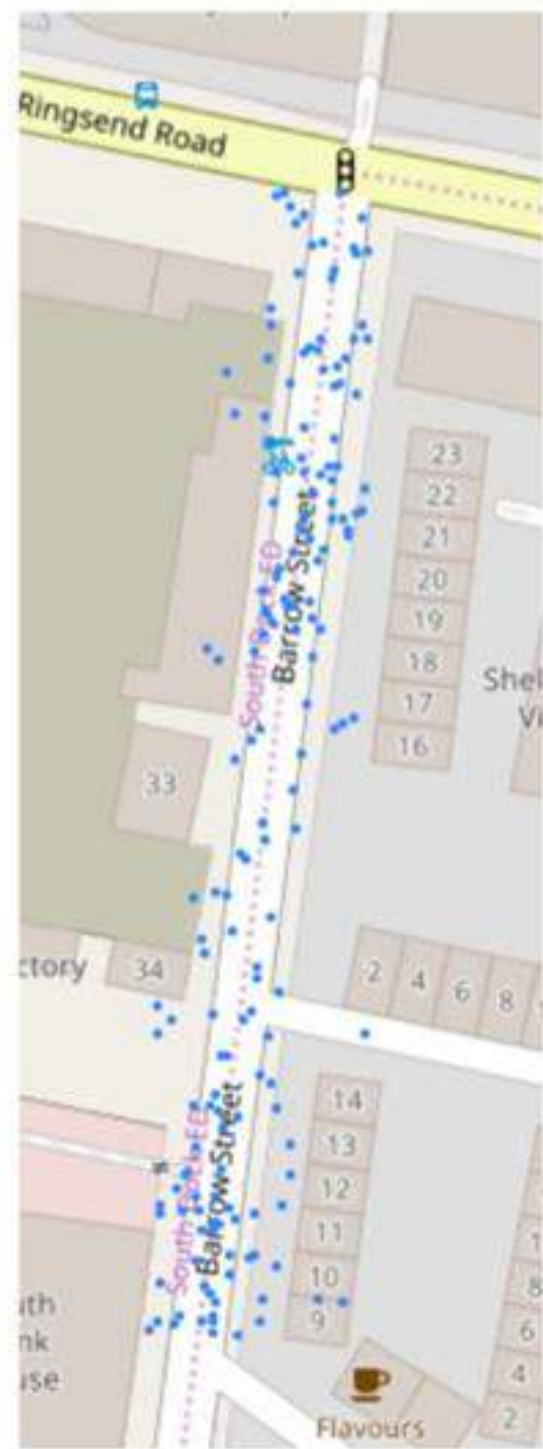
HEATMAP OF CENTRAL DUBLIN

Heatmap showing the most popular cycling routes in the city centre.

DIRECTIONALITY



SEE.SENSE ROAD SURFACE SCORE



GULLY MONITORING

SEEKING **SMART**, LOW COST SOLUTIONS...



**CHALLENGE:
REDUCING
FLOOD
RISK**



**SOLUTIONS SOUGHT:
DETECT OVERFLOWING
GULLIES IN HIGH RISK
FLOOD AREAS**



**WITH REAL TIME ALERTS
& PREDICTIVE ANALYTICS**



APPLY HERE: WWW.SMARTDUBLIN.IE

€200,000 IN FUNDING
AVAILABLE





**PILOTING MULTIPLE LOW POWER
SOLUTIONS**



SMART DOCKLANDS
A Smart Dublin District

Part of



Supported by



THE WORLD'S MOST CONNECTED BUSINESS & LIVING DISTRICT



44,000
Employed



26,000
Residents

9%

€3bn



Home to
over 500
businesses

Select a theme or a topic

or display

CITIES

COUNTRIES

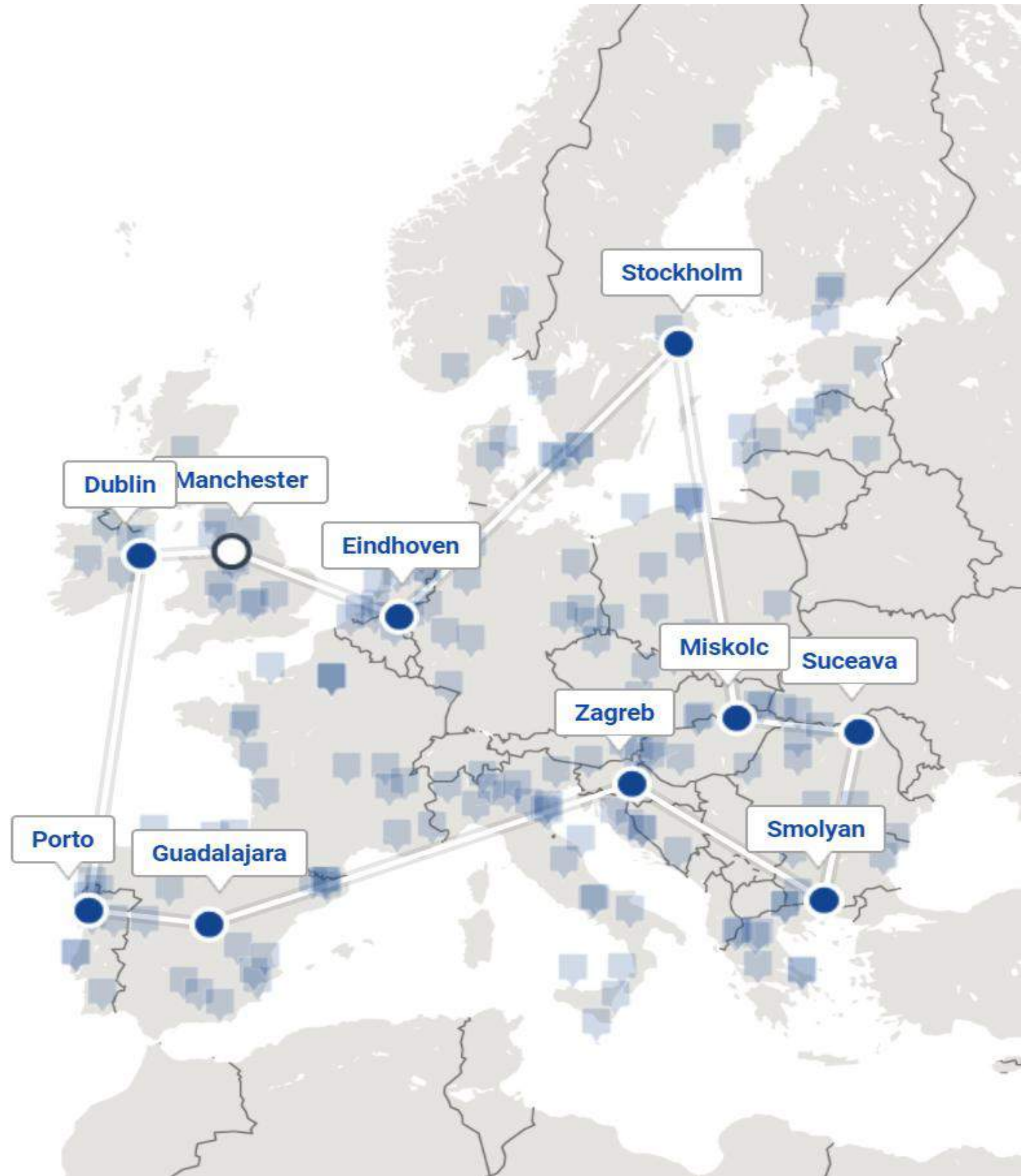


SmartImpact

Local Impacts from Smart City Planning

Lead Partner: Manchester - United Kingdom

Partners: Dublin (Ireland), Porto (Portugal), Guadalajara (Spain), Zagreb (Croatia), Smolyan (Bulgaria), Suceava (Romania), Miskolc (Hungary), Stockholm (Sweden), Eindhoven (Netherlands),



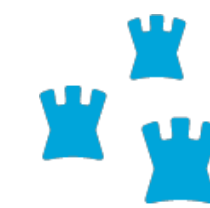
Smart Docklands Network

facebook®

Google


vodafone

Deloitte.



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Dublin City Council

 HUAWEI



 Microsoft

intel®

IBM

CONNECT
Networks of the Future

DELL™

ERICSSON 

 at&t

accenture
THE DOCK

STAKEHOLDER WORKSHOPS – USE CASE DEVELOPMENT

- 1 Infrastructure** DCC Internal Engineers, Novegen, Waterways Ireland, Nama
- 2 Hospitality & Tourism** 3Arena/Live Nation, CHQ, The Marker, NPAS, Grand Canal Hotel, The Gibson Hotel
- 3 Developers & Property** Iput, Hiberia Reit, Arup, Sisk, CBRE, WiredScore
- 4 Residents** St. Andrews, Irishtown & Ringsend, North Wall, East Wall, Grand Canal Dock

DENSE AIR

Mobile Networks Enhanced and Extended

Proven, Cost Effective
INDOOR
Network Penetration

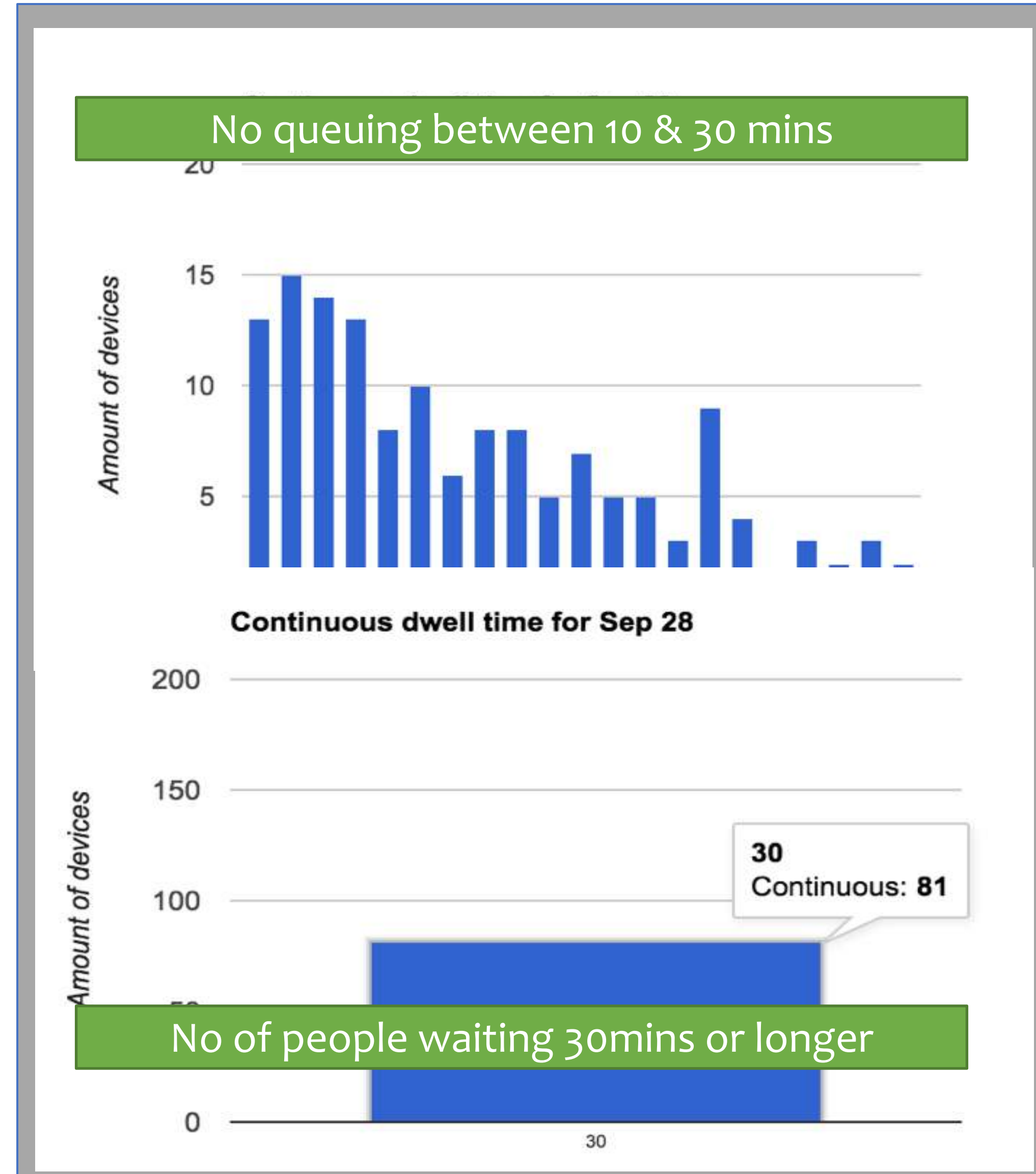
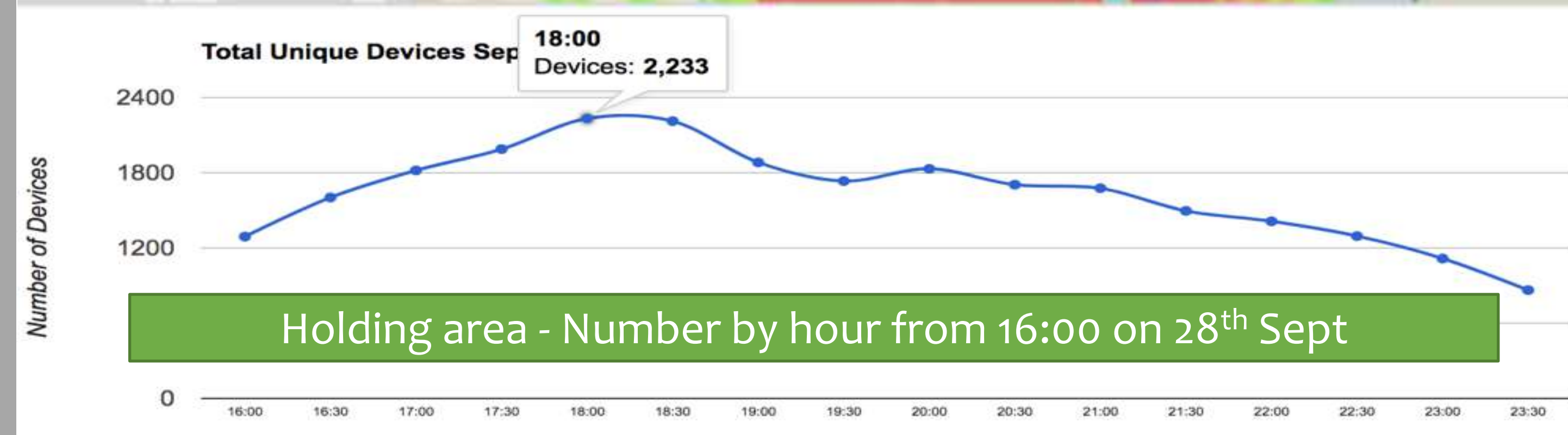
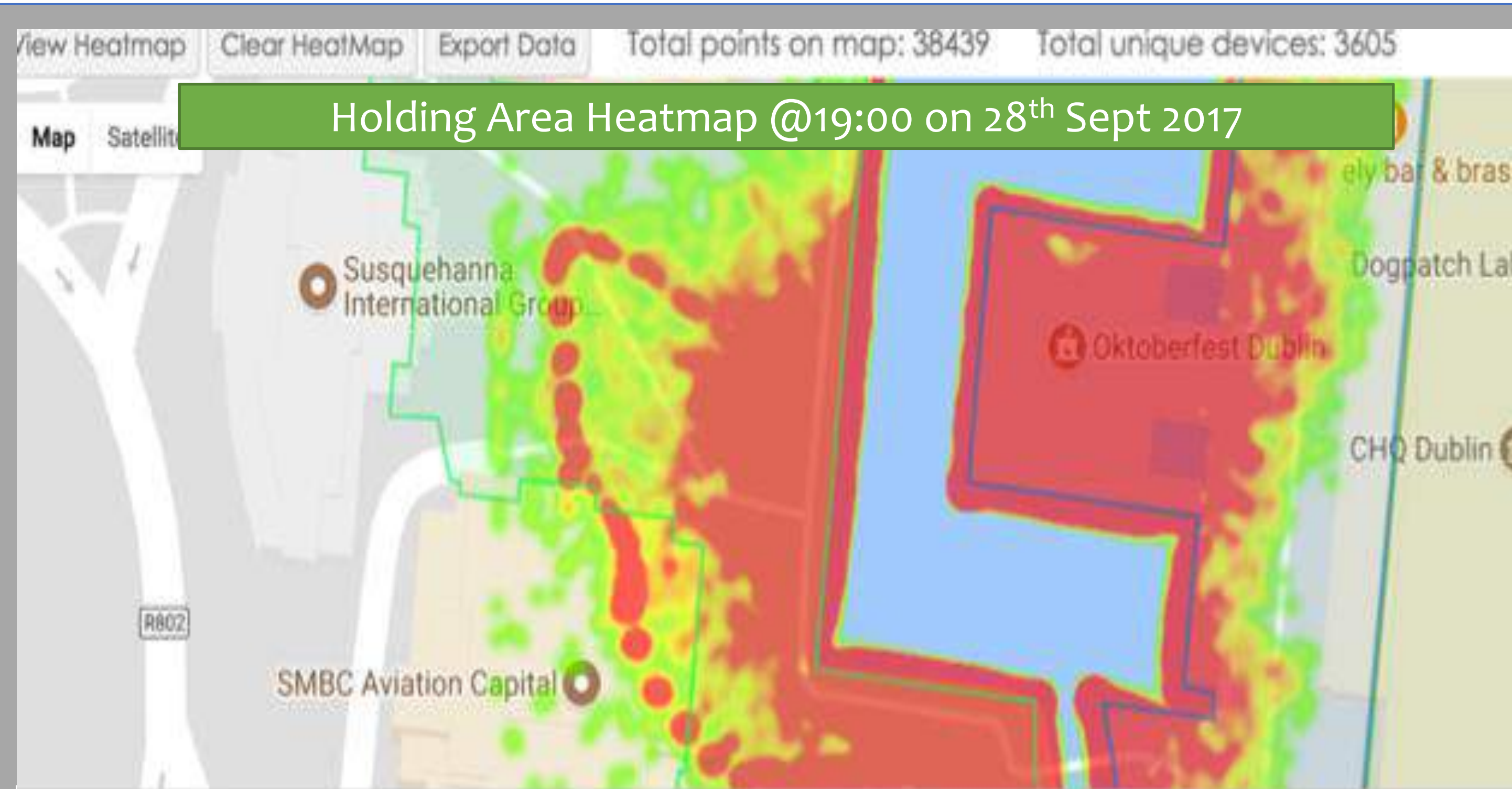
Extending Network reach to
RURAL
Areas

**DOCKLANDS PROOF OF CONCEPT TESTBED
PERVASIVE CONNECTIVITY ZONE**

Enabling High Performance
5G Connectivity in **URBAN**
Environments

A Neutral Host - Enhancing Multiple Carrier Connectivity
and Penetration through our **'MAGIC BOX'**
Solution

Analysis of queue times 28th September 2017



“The most connected building
in the world”

60,000
sq ft **BUILDING**

1 MILLION
DATA POINTS

generated every day

10,000+
SENSORS

intuitively control
movement, light,
temperature, CO2, UV,
room and power usage

3D VR/AR MODEL DOCKLANDS



<https://vimeo.com/255370118>



The world's most **connected**
business & living district

[Find Out More](#)

BEST PRACTICE MODEL

Technology and Entrepreneurship
Center at Harvard



Presented to

Dublin City Council and Partners



*In recognition for excellence and innovation in delivering
Smart Docklands District*

February 14th, 2018

*Paul B. Bottino
Executive Director*

*Dr. David S. Ricketts
Innovation Fellow*



REALISING THE SMART CITY OPPORTUNITY

CITIES ARE **STEPPING UP**

Most are at the start of this JOURNEY.

COLLABORATION MODEL AND LEADERSHIP IS KEY TO
SUCCESS

RAISE AWARENESS OF THE OPPORTUNITY AND BARRIERS /
RISKS

CITIES need better **PROCUREMENT** models

What's the BUSINESS model

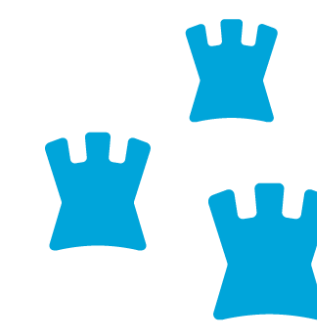
Understanding the risks and OPPORTUNITIES

Less about **TECH** more about **PEOPLE** and **CULTURE** and **CHANGE**



THANK YOU

Jamie Cudden



Comhairle Cathrach
Bhaile Átha Cliath
Dublin City Council