

MK:5G Connecting Communities

Opportunities Event



Funded by the SEMLEP and the Local Growth Fund



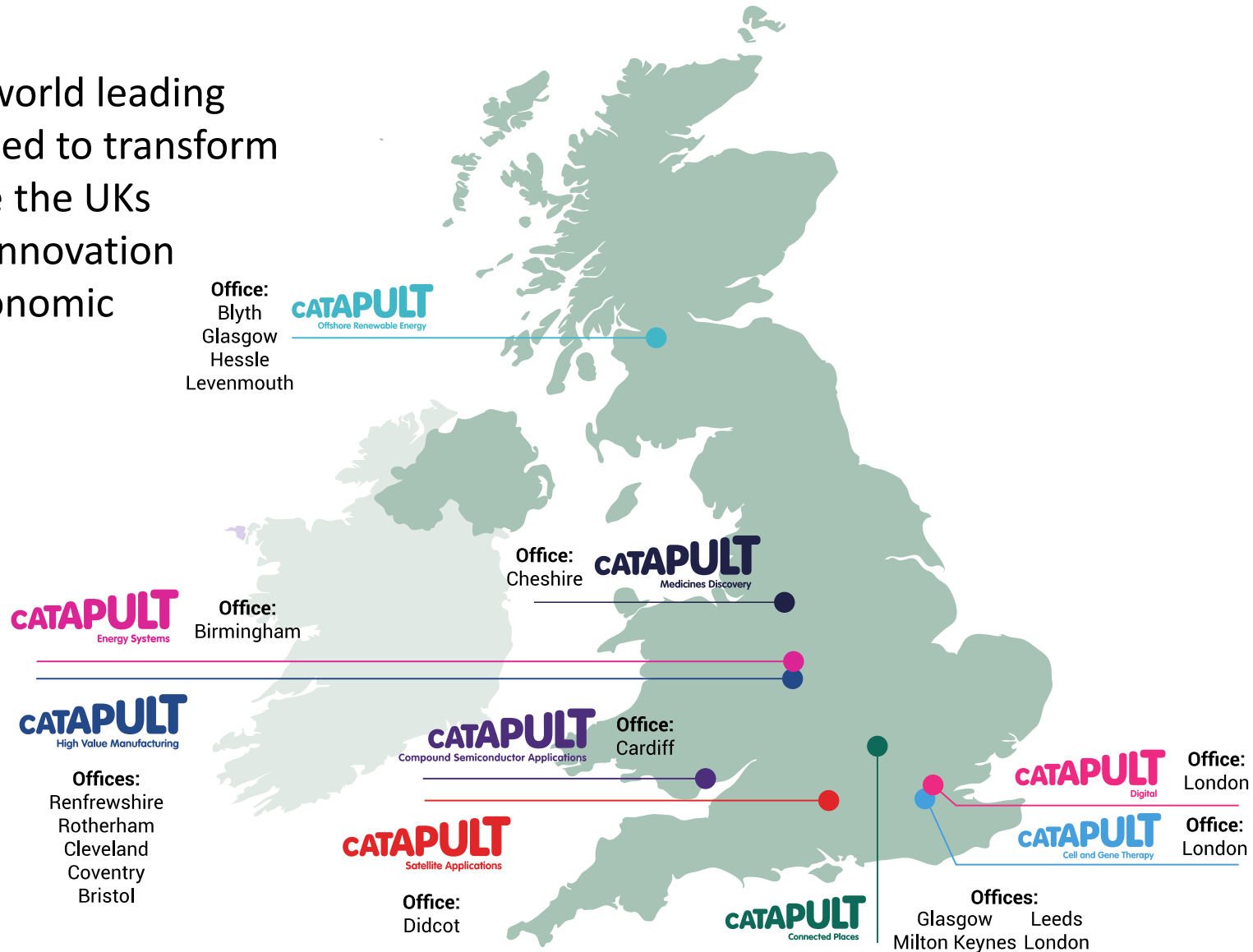
HM Government

Testbed Introductory Event

12th February 2020

Catapults – a force for innovation and growth

A network of world leading centres designed to transform and accelerate the UK's capability for innovation and future economic growth.



9

Innovation Centres
across the UK

Purpose of today

To give potential testbed users & collaborators an opportunity to learn about:

- *the capabilities of the MK5G testbed;*
- *the planned trials activities;*
- *to give an overview of the process to access the testbed facilities and;*
- *to allow for networking with consortium and potential collaborators.*

Agenda

Welcome and Introduction

Testbed Capabilities

- MK:5G Overview
- Testbed capabilities
- Data Exchange capabilities

Planned Trials

- WP1: Mobility
- WP2: Health
- WP3: Energy

How to get involved

CPC 5G Action Learning Network

Q&A

Networking Lunch



MK:5G – Connecting Communities – Introduction

Brian Matthews

Head of Transport innovation
Milton Keynes Council

The logo for MK:5G features the letters 'MK' in a stylized, brush-stroke font. The 'M' is light blue and the 'K' is green. To the right of 'MK' are two small blue dots, followed by the text ':5G' in a bold, green, sans-serif font.

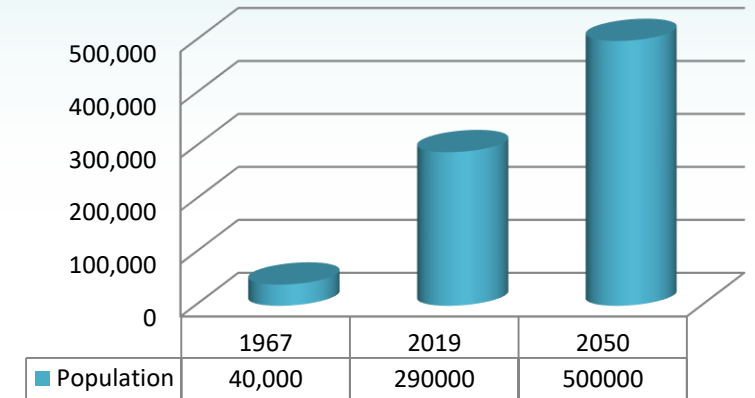
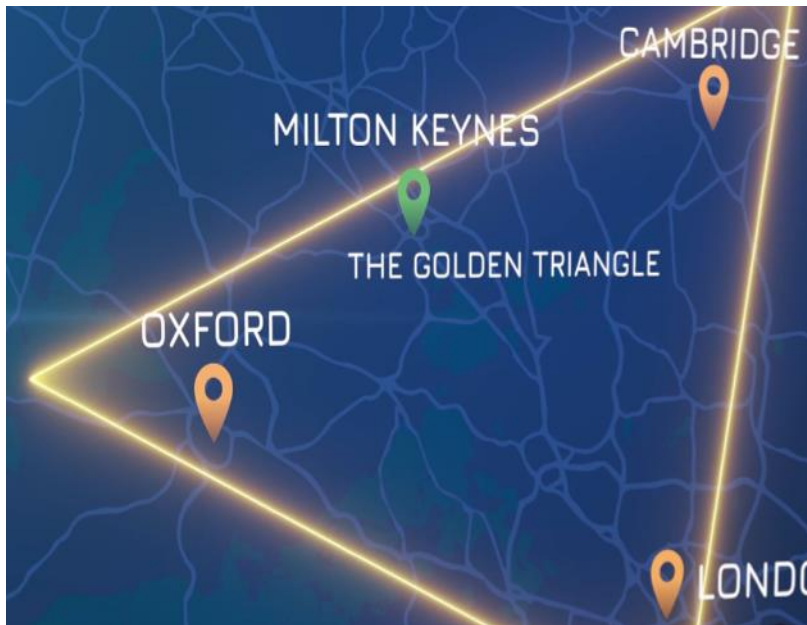
Project Background



- Projects will deliver high-value employment opportunities and further strengthen our area's business strengths, creativity and skills capabilities to compete on a world stage.
- We are particularly looking for projects that will support the Government's Grand Challenges on Clean Growth and the Future of Mobility.



Milton Keynes – Overview



Milton Keynes – London Euston	31 minutes by train
Birmingham New Street – Milton Keynes	50 minutes by train
Milton Keynes – Birmingham International Airport	38 minutes by train
Milton Keynes – Luton Airport	26 miles by road
Milton Keynes – Heathrow Airport	55 miles by road

Project Structure



The MK:5G project is an exciting new testbed in the [Milton Keynes area](#), including the deployment of dedicated 5G infrastructure and the creation of a data exchange facility. The 5G mobile network is designed exclusively for research and development purposes and will cover central MK including key sites (such as the Stadium, Bletchley & CMK rail stations, Hospital, Universities), key junctions on the M1 and a number of rural communities.

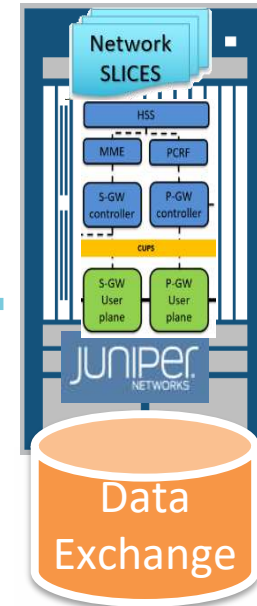
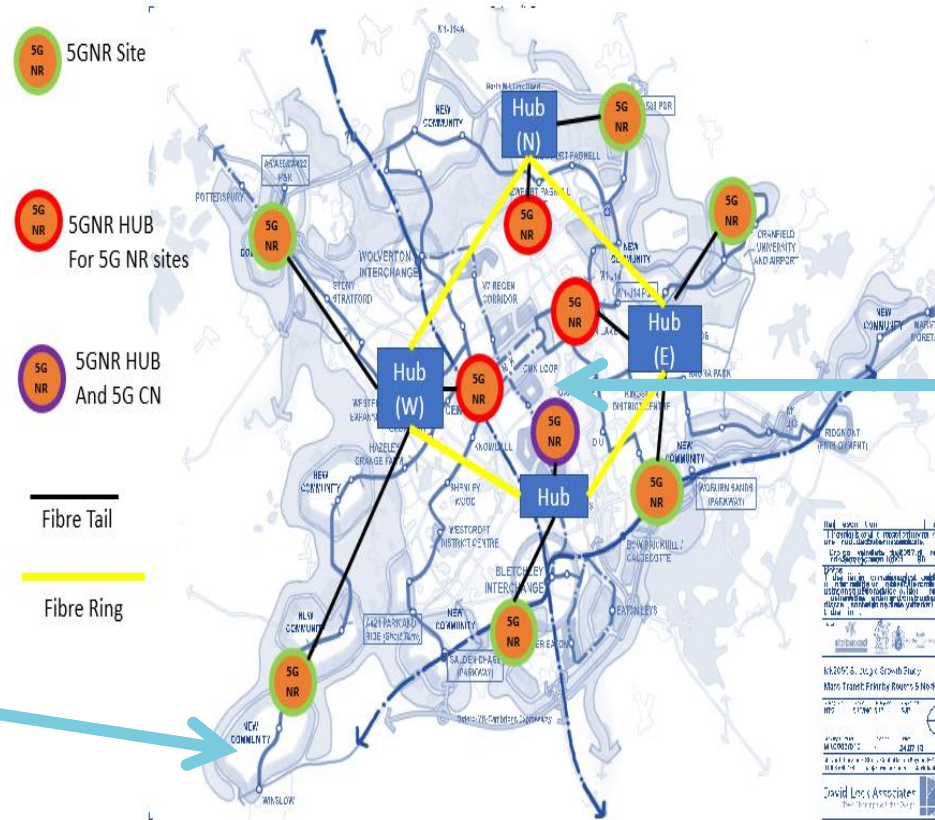
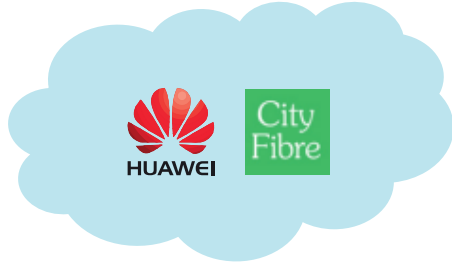
The testbed will focus on trialing applications across three core themes: Mobility, Health & Wellbeing, and Energy. Several trials are already planned across each theme and extensive datasets will be stored in the data exchange.

The project is led by Milton Keynes Council and is funded by the [South East Midlands Local Enterprise Partnership \(SEMLEP\)](#), and the consortium partners. Consortium partners include [BT](#), [Huawei](#), [CityFibre](#), [TechMahindra](#), [the Open University](#), [Satellite Applications Catapult](#) and the Connected Places Catapult, while many additional partners are being engaged to conduct trials across the three core themes. The Connected Places Catapult is acting as the business growth partner within the MK:5G consortium.

Funded by the SEMLEP and the Local Growth Fund



Project Overview



Project Structure

3 Work Streams

WS1 – 5G network (Sat Apps)

WS2 – Data Exchange (BT)

WS3 – Project Co-ordination and delivery (MKC)

Linked to funding criteria

Project Timelines

5 Work Packages

WS1 – Mobility use case (MKC)

WS2 – Health use case (Sat Apps)

WS3 – Energy use case (Tech M/SmartKub)

WS4 – Dissemination (OU)

WS5 – Business Engagement ©C)

Project Timelines

Milestones

Mobilisation and launch of project (late 2019)

Network planning and design (2019)

Business Engagement/ Launch (today)

Data Exchange hardware commissioned (April 2020)

Start of Construction (May 2020)

End of Construction (July 2020)

Testing /commissioning (Through autumn 2020)

Launch of capability – late 2020

Project funded until March 2021



MK:5G – Testbed Capabilities

Kieran Arnold

Director / General Manager Westcott 5G

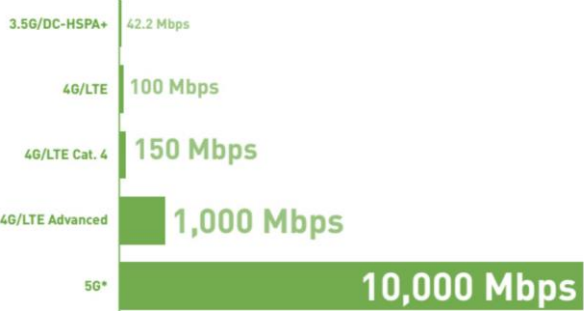
Satellite Applications Catapult

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What is 5G

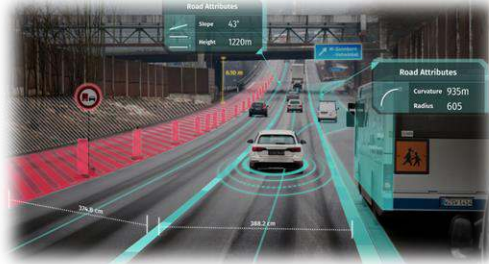


5G New Radio



High Speed

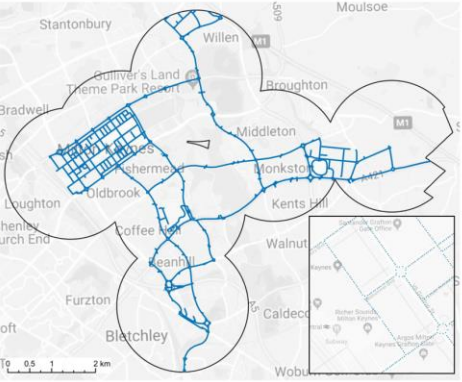
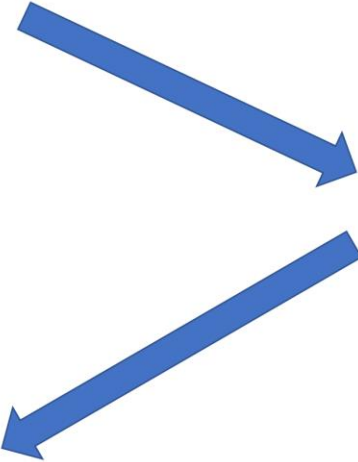
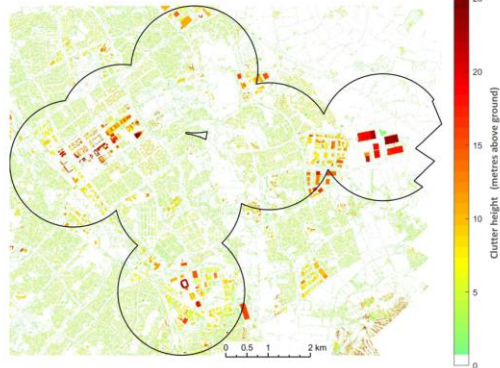
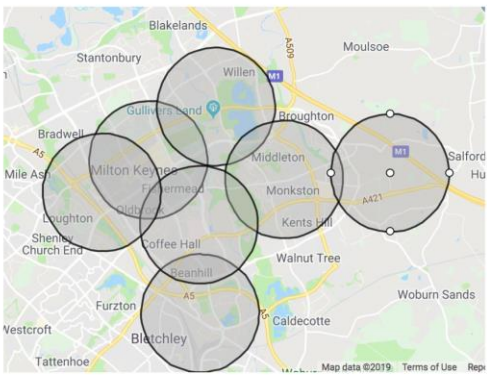
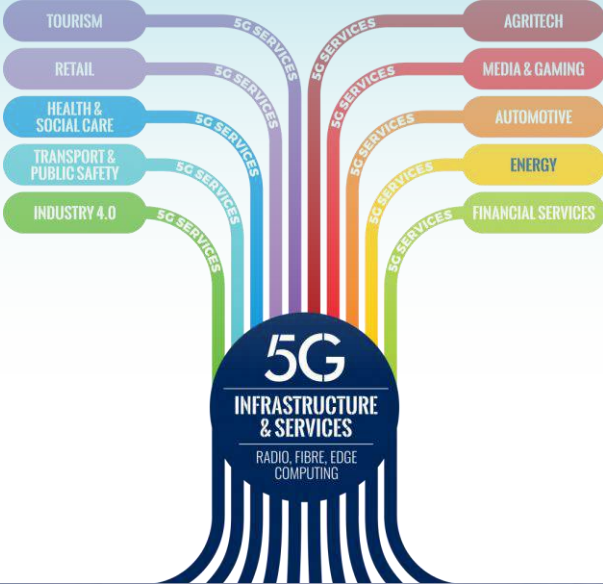
2G	3G	4G	5G
- 1991 -	- 1998 -	- 2008 -	- 2020 -
SMS	SMS, Internet	SMS, Internet	HD, 3D and ultra Video, SMS, Internet
0.1 MB/Second	0.1 - 8 MB/Second	Video, 15 MB/Second	Internet of things, 1 - 10 GB/Second



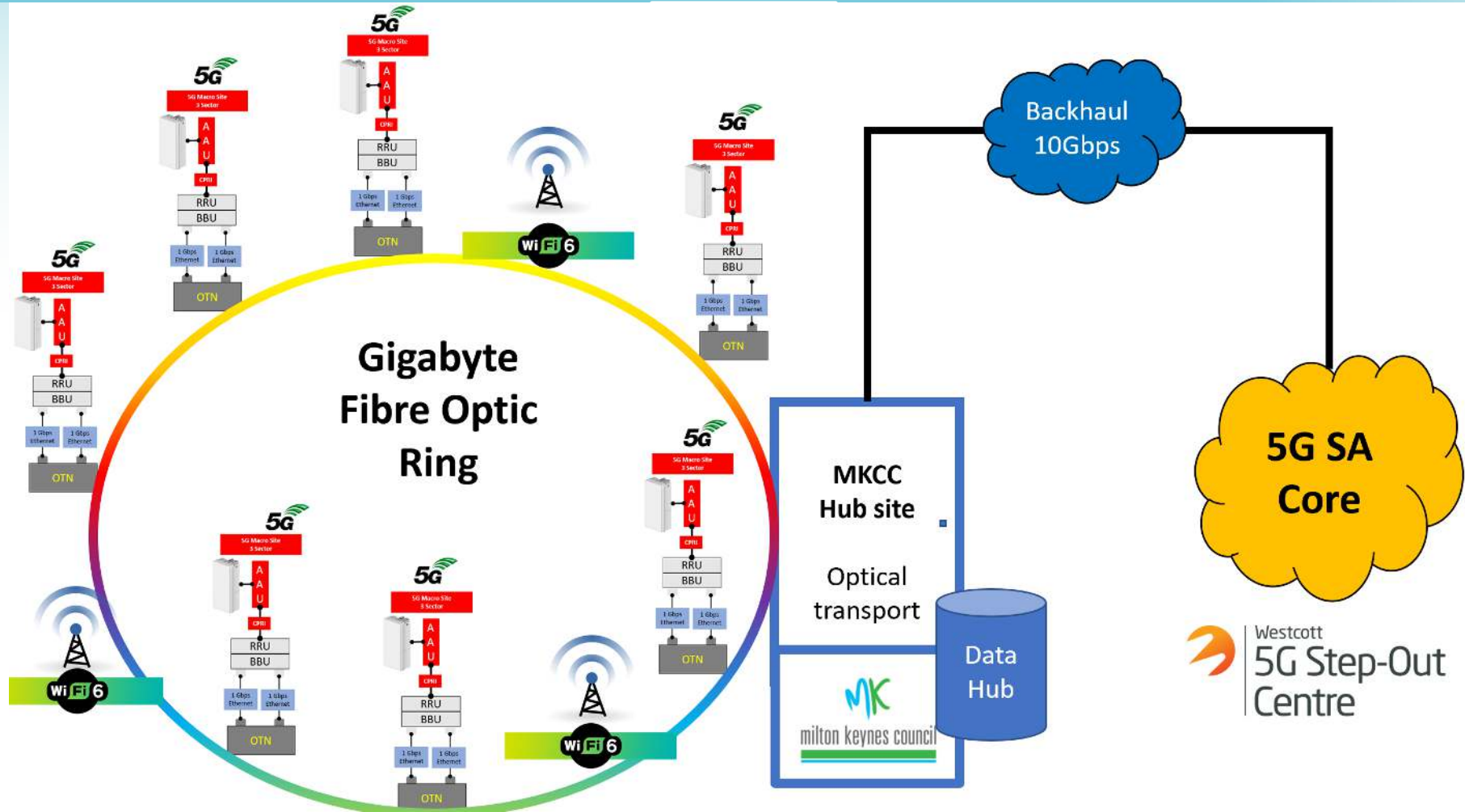
Things not people



MK:5G Overview



MK:5G Architecture

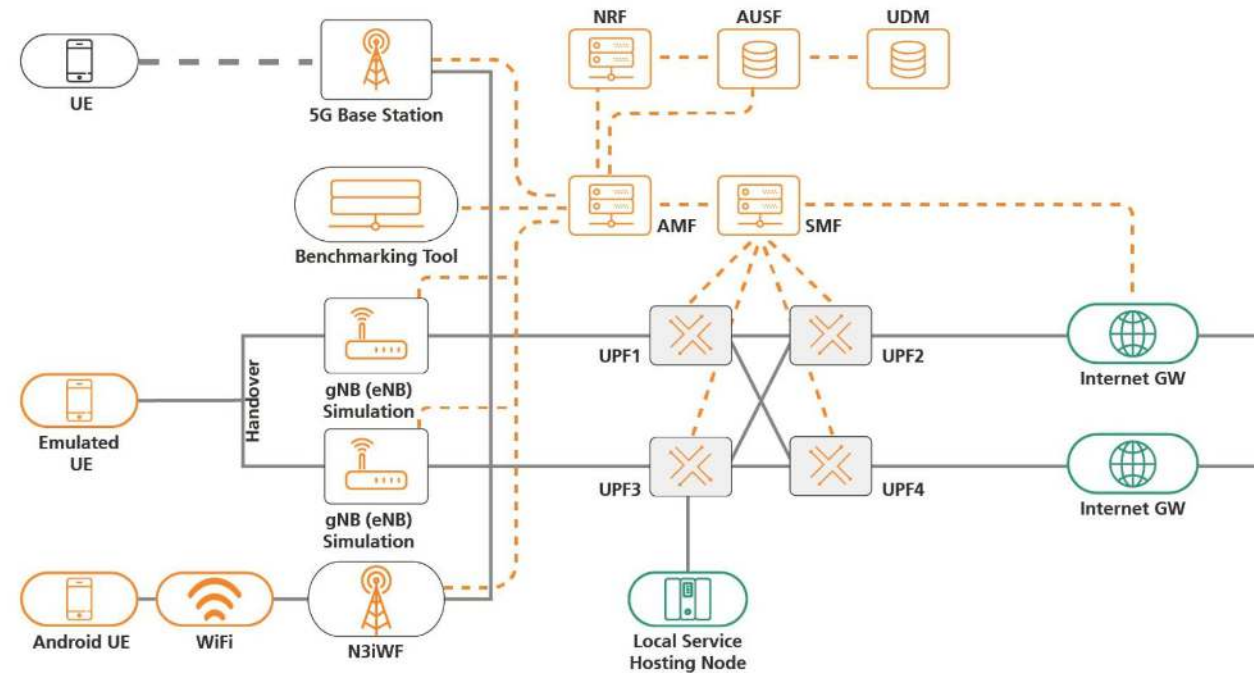


5G Step-Out Centre

The Westcott 5G SA Core Network

offers a unique 5G facility to test and develop new services and products by accessing the latest wireless applications service equipment and satellite data without the need to invest in expensive infrastructure.

This allows you to rapidly prototype and commission new services and applications under representative real-world conditions ahead of your market roll-out.



Standalone 5G: the facts

- Target 5G architecture option
- Simplified RAN and device architecture
- New cloud-native 5G Core
- Brings ultra-low latency
- The only option to provide same 5G coverage for low band as legacy system
- Supports advanced network-slicing functions
- Facilitates a wider range of use cases for new devices



POWERING SMART CITIES WITH 5G TECHNOLOGY



**Vision
Concept**



**Products
Services**



**Proof of concepts
Trials**



**Commercial
Deployments**

Westcott Innovation Centre

Disruptive Innovation Centre Space



MK:5G – Data Exchange Capabilities

Richard Wiseman

BT

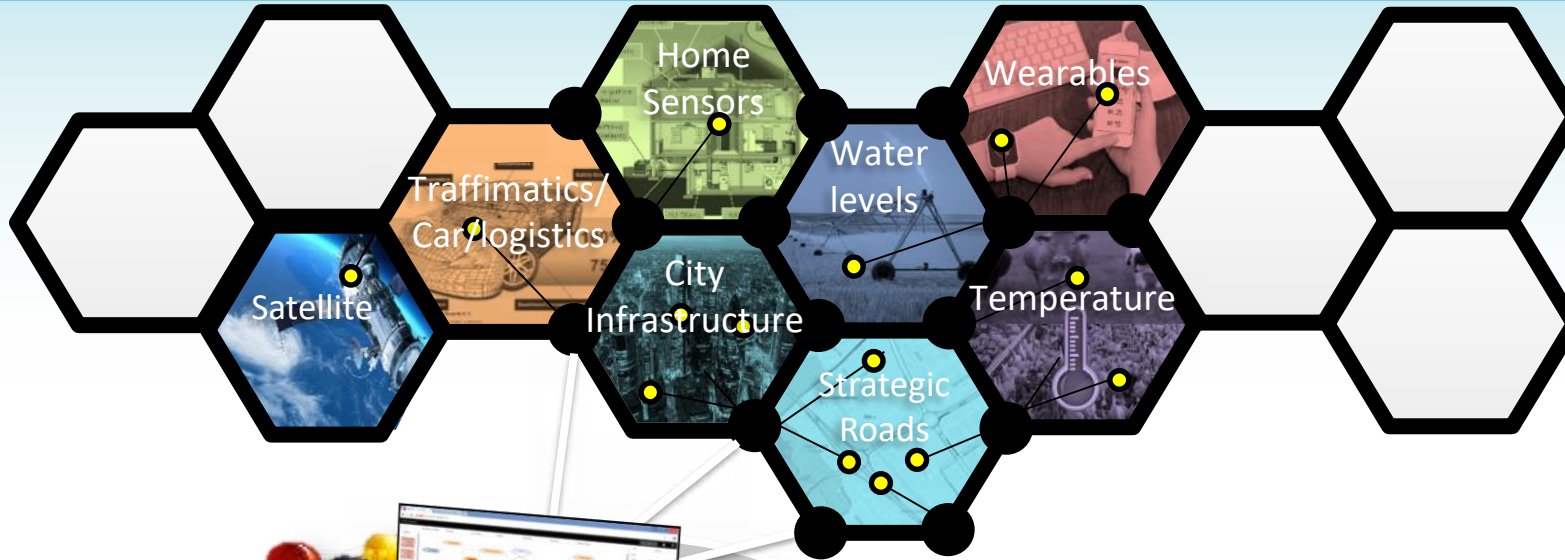
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MK:5G Data Exchange

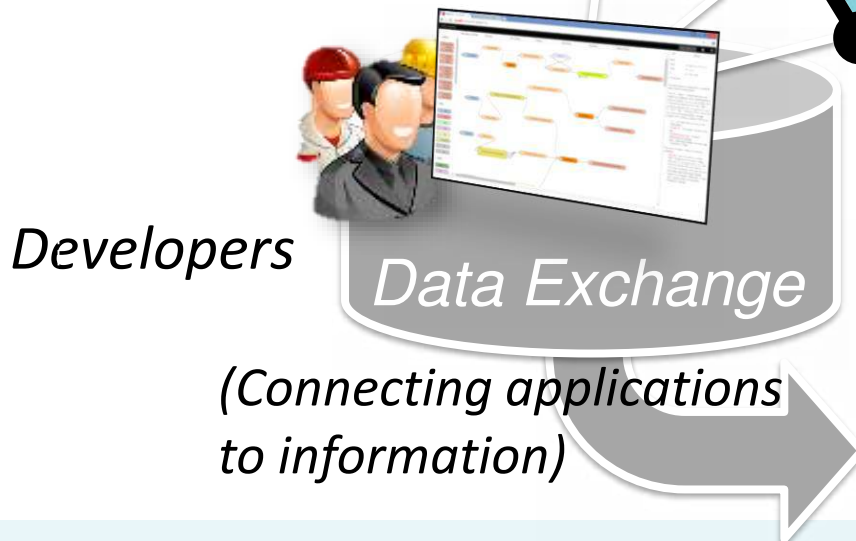
The MK:5G Data Exchange is the place for external and internal partners to provide and access all MK:5G data, offering economies of scale and lowering the barrier to participation.



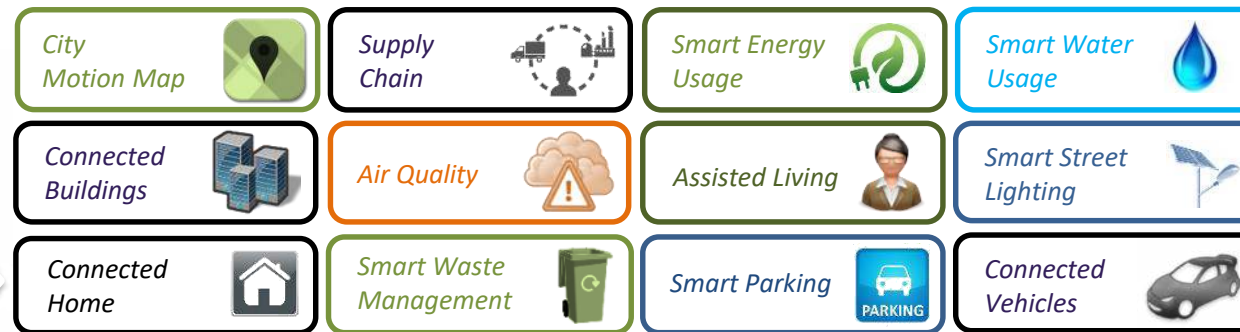
MK:5G Data Exchange



- MK:5G Data Exchange*
- *Economies of scale*
 - *Open ecosystem, avoiding vendor lock-in*
 - *Analytics*
 - *Data Quality Assurance*
 - *Fostering innovation*

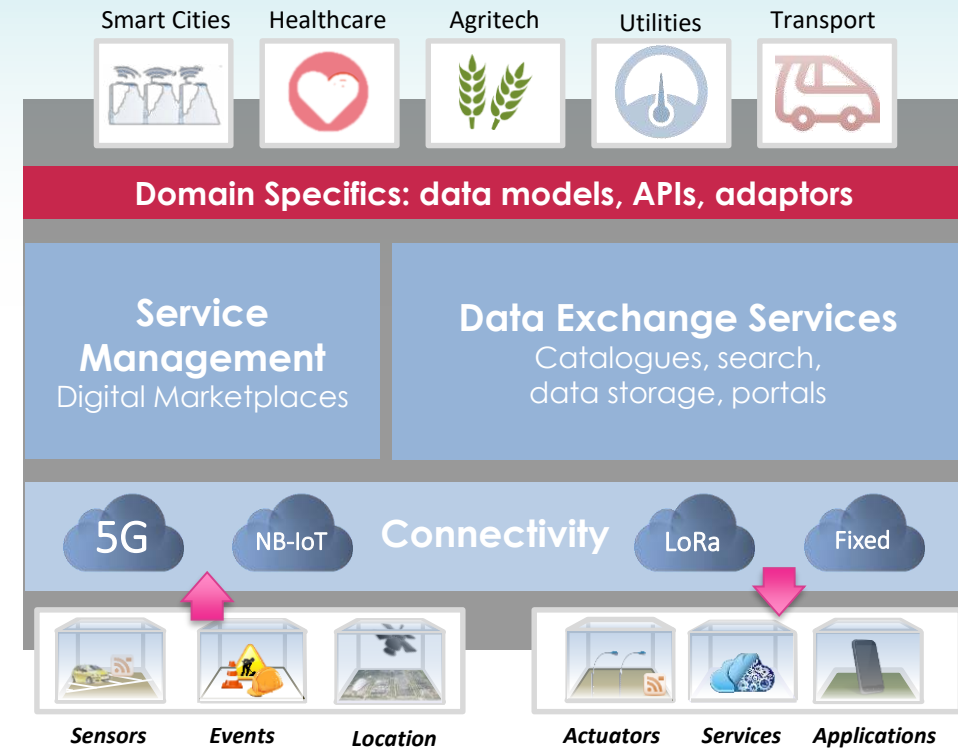
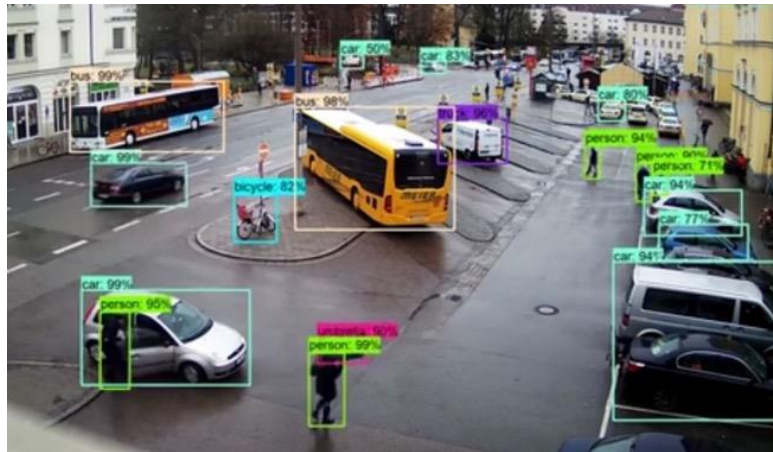


Applications



MK:5G Data Exchange – features

- Single centralised platform for MK:5G data.
- Builds on BT/OU MK Data Exchange, developed in MK:Smart
- Browsable, searchable catalogue of data feeds.
- Easy to find, subscribe to and use a data feed.
- Easy to register and provide a (public or private) data feed.
- Consistent approach to accessing/providing data:
 - ✓ Uniform API for both reading and writing data
 - ✓ Returns XML, JSON or CSV formatted data.
 - ✓ Built-in access control.
 - ✓ Data visualisation.
- Video storage and analytics capability.



Types and examples of data feeds

Sensors, e.g.

- Environmental (temperature, humidity, air quality)
- Traffic (parking, busyness, queue lengths)
- Smart Home

Events, e.g.

- Road accident
- Planned roadworks
- Football match schedule

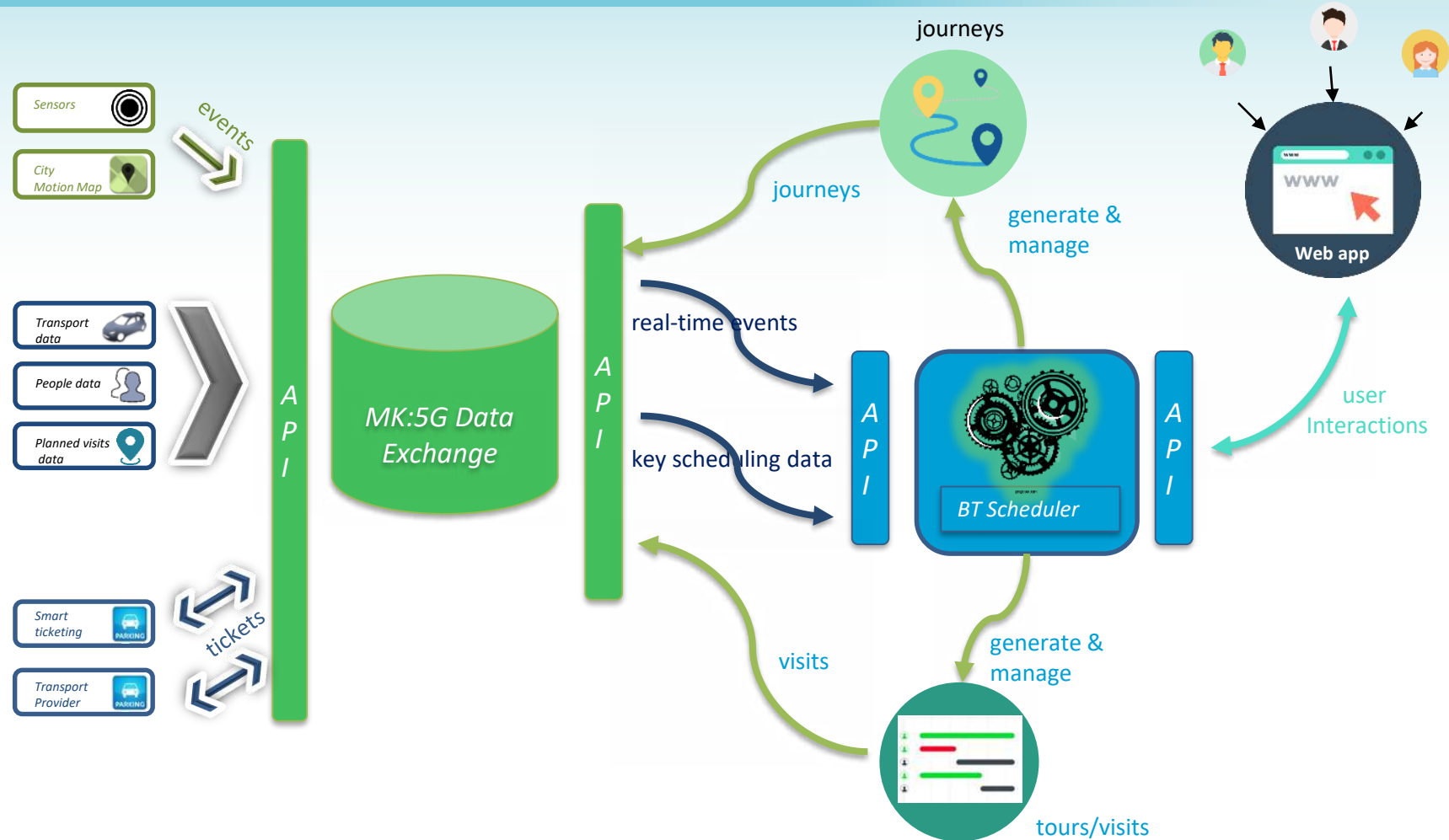
Location, e.g.

- Bus stops
- Lamp posts
- Cycle routes



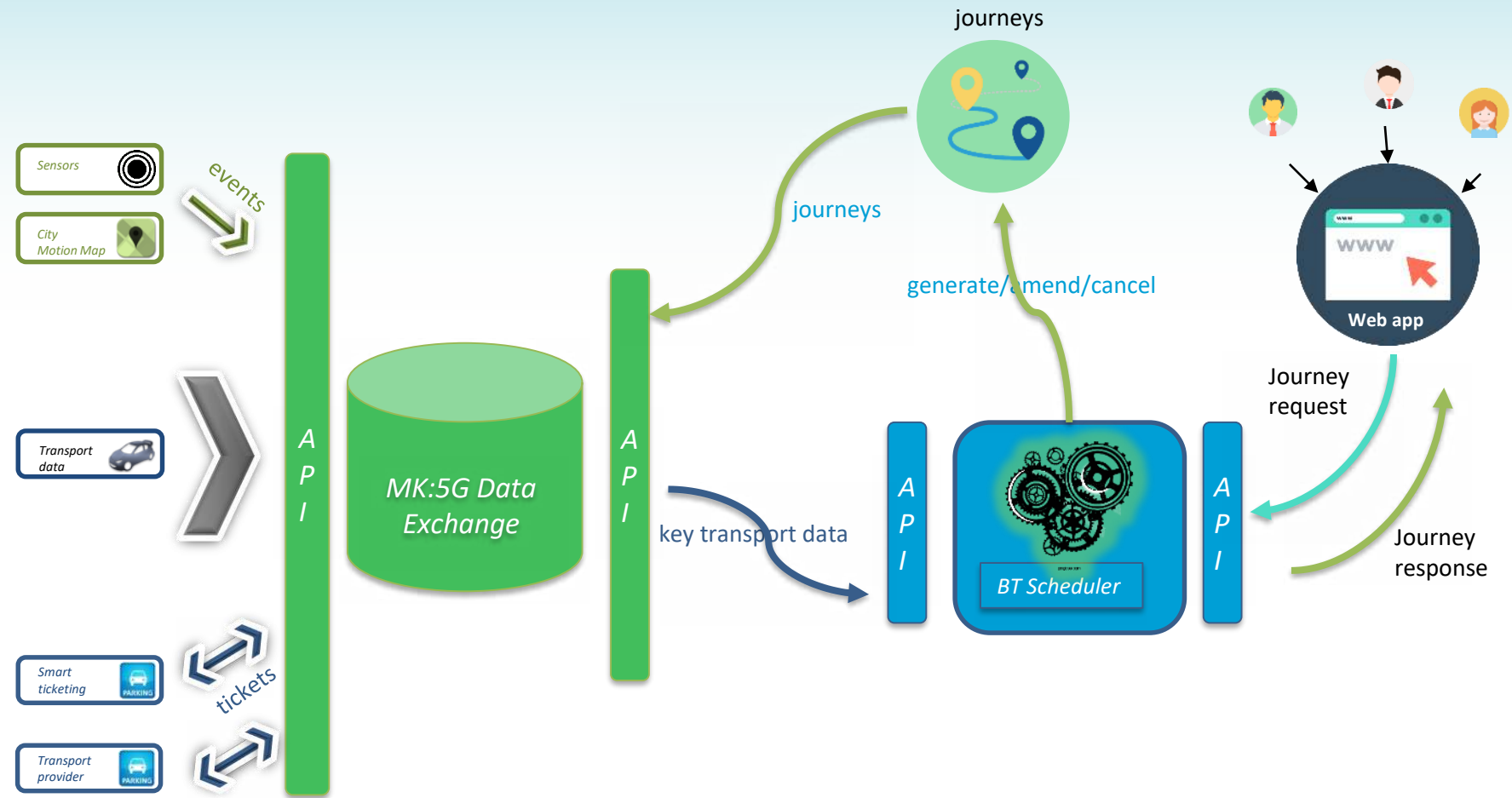
BT Scheduler - Overview

- Provide journey planner for end-user or group of end-users
- Provide schedule to make most use of company resources
- Make company resources available to others



BT Scheduler – On-boarding – Journey planner

- Transport companies expose data/services to plan and book journeys.
- BT Scheduler identifies the best combination to use.
- e.g. a citizen with limited mobility wants to go from home to the city centre. BT Scheduler suggests a taxi from home to city centre and an autonomous vehicle to reach the final destination.



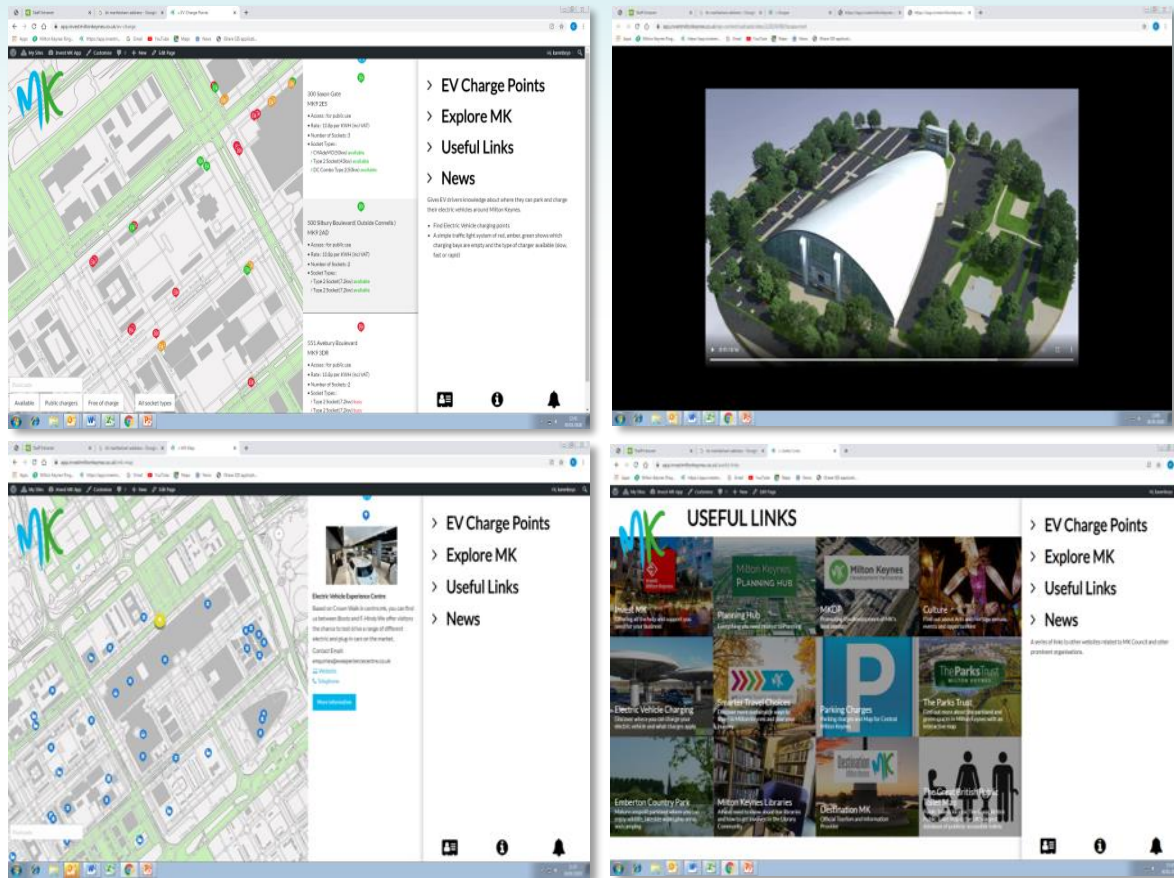
MK:5G – Mobility Use Case

Brian Matthews

Head of Transport Innovation
Milton Keynes Council

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MK:3D – Delivering Services



Features

Explore MK – Jump into the map and explore all the sites of MK with access to websites and contact details

EV Charge Points – Locate parking spaces and find availability to charge your electric vehicle

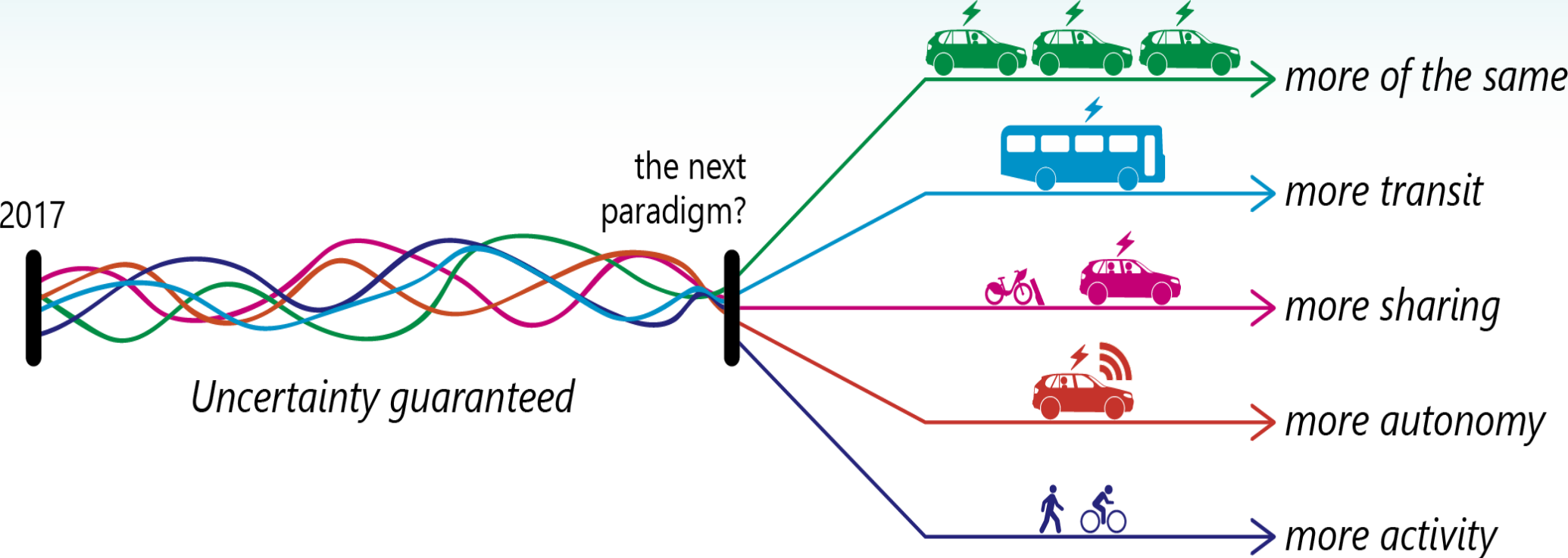
Useful Links – Direct access to useful websites for visitors and business users

News, Push Notifications – Instant information controlled by MKC

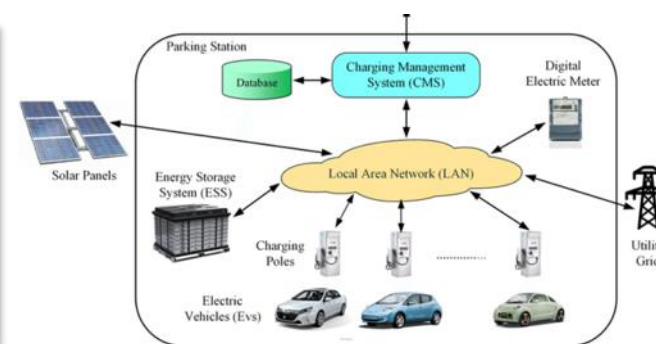
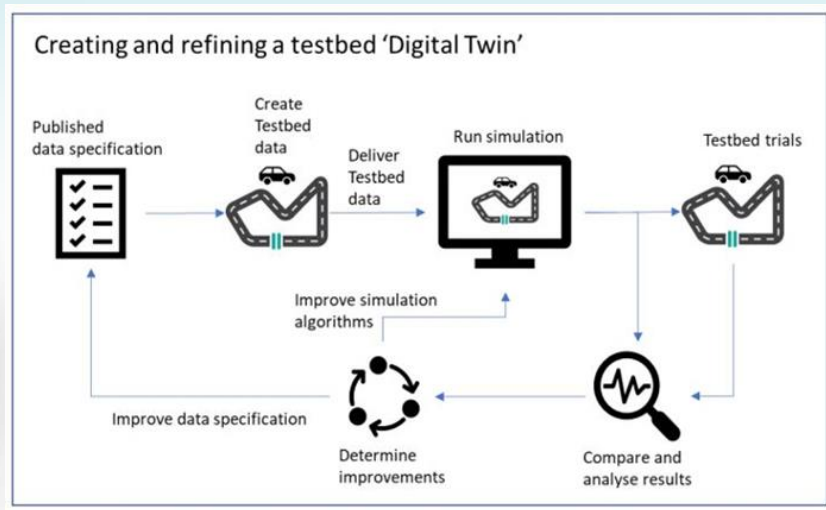
3D Models, Videos, Pictures – for showcasing the city's offerings

Web App - Available on PC, tablet and mobile phone

MK Sustainability Strategy



Transport Use Cases



MK:5G – Health Use Case

John Vesey

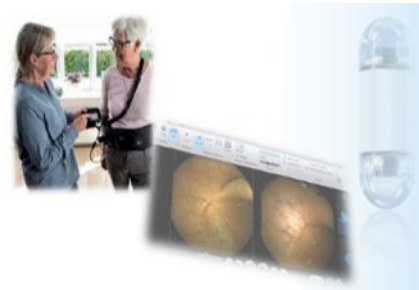
Satellite Applications Catapult

MK:5G

Work Package Overview

Health and Social Care

- Ambulance Connectivity
- Home Monitoring
- Early Cancer Diagnosis
- Tele-Medicine Delivery



MK:5G – Energy Use Case

Upendra Dharmadhikary
Tech Mahindra

David Morgan
SmartKlub

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CAPE

Community
Action Platform
for Energy

Vispi Sarkari : Tech Mahindra

David Morgan : SmartKlub

The Energy Problem



Consumers are more aware of ecological impact and are keen to reduce their carbon footprint.

Businesses are already setting carbon neutral and carbon positive targets and want to fund projects that can provide the immediate relief whilst they work towards their long term targets.

Government want to measure that thier policies and funding is aligned to support the initiatives with maximum ecological ROI.

Suppliers want to concentrate on building solutions at scale to support the green revolution.

The community today has the **WILL** to work towards greener future but the lack of required **KNOWLEDGE** and **MEANS** are the biggest barriers for mass adoption.

KNOWLEDGE

- What solutions are available.
- Which of the solutions are applicable to me
- Who "been there done that" can guide me.
- How much ecological and economical difference will I drive.

MEANS

- Who all can provide the solution
- How can I optimise my upfront spend
- What government aid can I get
- Can any one help if I cannot afford it.



Our vision



"An online platform to bring together local authorities, businesses, suppliers and citizens – with the right information and analytical capabilities – to empower them to identify and do community energy projects to improve their own situations"

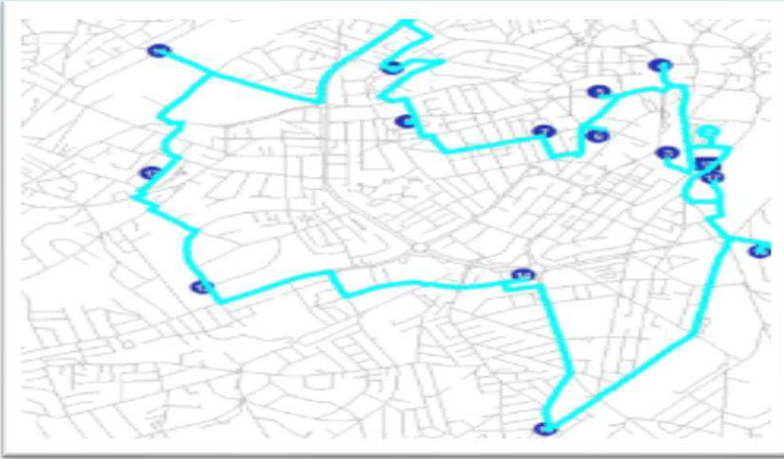




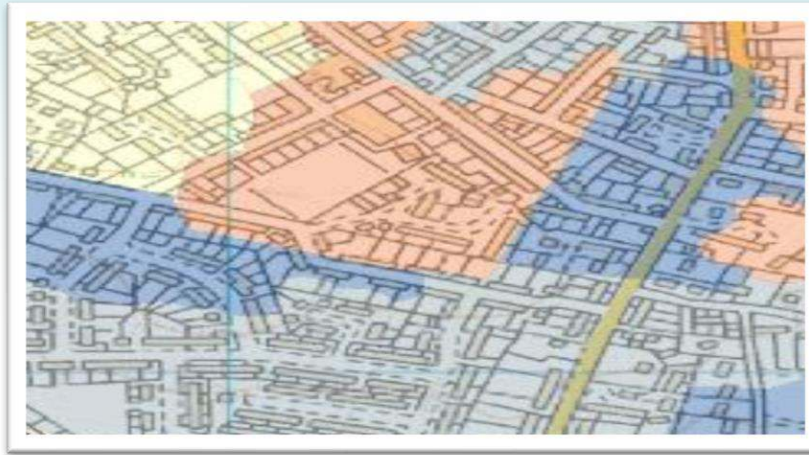
Empowering citizens with data



Infrastructure



Demographics



Potential Solar



Flooding



Property



Heat Loss



Empowering citizens to collaborate



CAPE | Projects in my neighborhood

SUBMIT IDEAS
REPORT ISSUES

DON'T WAIT. COMMUNICATE. MAKE YOUR EMERGENCY PLAN TODAY.

Lightbulb icon

📍 WATTS NC, Los Angeles

Emergency Preparedness

DISASTER PLAN

Lightbulb icon

📍 BEL AIR-BEVERLY CREST NC, Los Angeles

Emergency Preparedness

House with smiley face and leaves icon

Window icon

📍 BEL AIR-BEVERLY CREST NC, Los Angeles

Residential Weatherization

House with A+++ energy rating icon

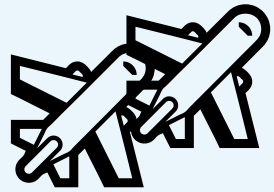
Window icon

📍 WATTS NC, Los Angeles

Residential Weatherization



Join Us to Create More Solutions



Technical Data Capture

Data Existing or New

- *Energy Usage
- *Geo Spatial
- *Portfolio Business/Buildings
- *Metering
- *Drone
- Etc.



Data Analysis

Discover New Value

- *New Use Cases
- *New Applications
- *New Insight
- *5G transformation
- Etc.



Bring Your Community and Business to Reduce Carbon & Save Money

- *SME
- *Businesses
- *Landlords
- *Car Fleets
- *Supplier Technology
- *Solar
- *Funding Bodies
- *Builders
- Etc.



Data Gathering Crowd & Aggregation

Crowd/Community Engagement Technology

- *Social Media
- *Smart 5G tagging
- *Onboarding
- *Digital Marketing
- Etc.



Platform Development

Mobile Multi Sensor

- *5G Assets (Smart Bench)
- *Phone Apps
- *Existing Sites
- *Metering
- Etc.



Awards and endorsements



Smart Cities UK 2017 Awards

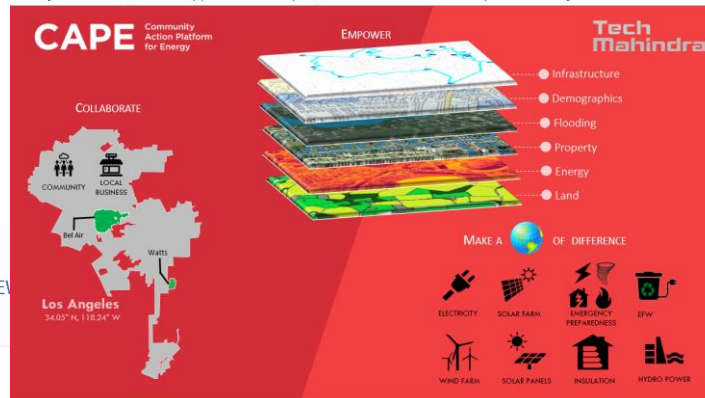
February 8, 2017



Housing - where the CAPE project was shown to improve the standard of living for homeowners and to support low cost living.

The CAPE project has delivered the UK's first community-based website, which puts the power of urban data analytics in the hands of Milton Keynes citizens to give them greater control over the energy they use.

CAPE is run by SmartKlub in partnership with Milton Keynes Council, Community Action: MK, Satellite Applications Catapult, Tech Mahindra and The Open University.



HOME SERVICES NEW

Tech Mahindra, City of Los Angeles and USC Team Up to Launch L.A.'s First-Ever Smart City Energy Initiative

Community Action Platform for Engagement ("CAPE") Pilot Premier in Los Angeles; Helps Community Groups Organize and Source Alternative Energy Solutions

businessGreen TECHNOLOGY AWARDS 2017

All the winners and highly commended entries from this year's BusinessGreen Technology

Social Impact Technology of the Year

Community Action MK/SmartKlub - CAPE Community Action Portal for Energy

The judges were won over by the CAPE project's innovative, integrated, and satellite-enabled approach to engaging households and small businesses, and helping them deliver essential energy efficiency gains

Statement by Patrick Allcorn, Head of Local Energy, BEIS

BEIS (former DECC) have been aware of the CAPE project for over a year.

Whilst it has been only developed in handful of areas so far, this pilot has demonstrated the potential of using and mapping different data sources to identify and prioritise investment and decision making in the energy sector at the local level, in line with wider government policy around devolution and local solutions.

From what has been achieved to date, there is certainly potential for it to play a role in supporting the energy delivery across the 3 main BEIS's energy related objectives whilst providing a tool that could stimulate investment and business growth at the local level.

We support further development of the CAPE project and believe that it has a potential to help deliver tailored local energy advice for Citizens, National and local Government and Businesses which would support energy security, affordability and carbon saving as well as inclusive business growth.

(Statement made for this application, June 21st 2017)

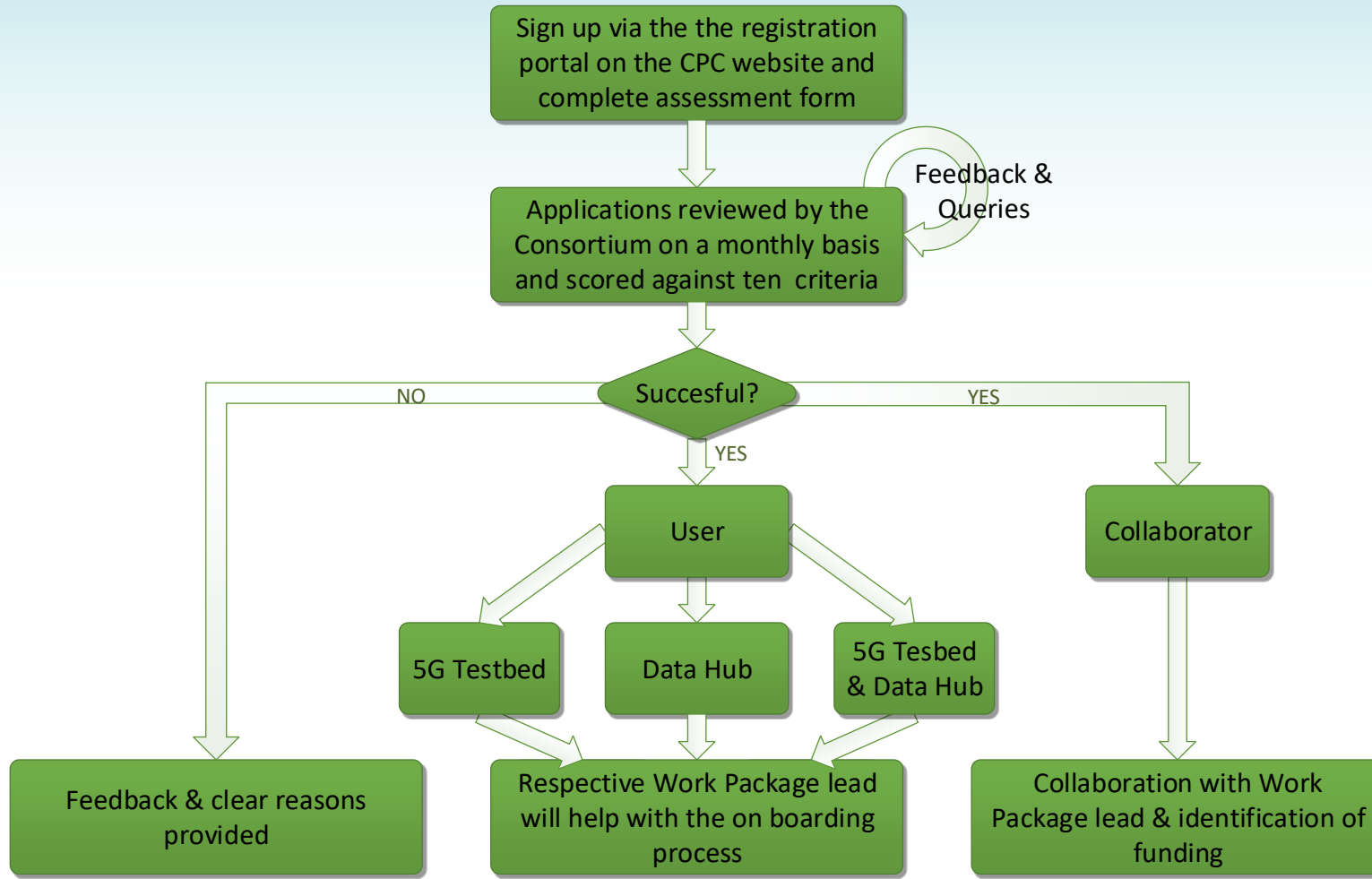
Patrick Allcorn
Head of Local Energy
Home and Local Energy | Business, Energy and Industrial Strategy Department



MK:5G – How to get involved

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Joining process



Register your interest:
<https://cp.catapult.org.uk/opportunities/mk5g-connecting-communities/>

Criteria

1

- Strategic advancement for MKC

2

- Strategic advancement for DCMS, central govt., SEMLEP

3

- Positive impact on existing deliverables

4

- Partner brand strength and value of alignment

5

- New vertical

6

- Innovation content

7

- Data exchange/gateway alignment (MK:3D app)

8

- MKC policy

9

- Measurable outcomes

10

- Commercial sustainability of the application or service

5G Action Learning Network

CATAPULT
Connected Places



5G Action Learning Network is supporting places to roll out advanced connectivity



- 5G is an opportunity for disruptive innovation across public infrastructure and services.
- Government policy and funding interventions are creating a step change in the rollout of digital connectivity in the UK.
- Local and Regional Authorities' have an increasing leverage in delivery through access to physical assets and stimulation of demand in delivery of public services.
- Connected Place Catapult is a neutral convener bringing together Local Authorities and supporting Regional agencies in a collaborative network to practically address shared barriers and opportunities.
- Resulting benefits of multiplied return on invested funds, acceleration of delivery, reduced funding and commercial risk, and greater leverage in market engagements.



Associate Partner
Connected Places and LEP
& SME Working Groups



Department for
Digital, Culture,
Media & Sport

Linked into 5G Testbeds & Trials
Programme, Barrier Busting
initiatives, and Next-Gen Mobile
Advisory Group



Collaboration
across Innovate UK
Catapult Network

There is a step change in the rollout of digital connectivity in the UK



Future Telecoms Infrastructure Review (FTIR)



Local Full Fibre Networks Challenge Fund (LFFN)

2

Supporting infrastructure models that **promote competition & investment in network densification & extension**

‘Neutral host’ or wholesale-only models



DCMS 5G Testbeds and Trials Programme

openreach

Delivering a more independent Openreach



New Electronic Communications Code (Communications Act 2003)

Mansoor Hanif, Ofcom CTO: *“5G is an opportunity for everyone and we’d like to encourage new entrants. We want to give low-cost access to local spectrum so that anyone who thinks they need 5G coverage on an industrial campus and feels it isn’t served by MNOs fast enough should be able to build their own network.”*

<https://www.lightreading.com/mobile/spectrum/uk-may-get-thousands-of-5g-new-entrants-under-proposed-shake-up-by-ofcom/d/d-id/752153>

Places have an increasing leverage in delivery of advanced connectivity

Advanced connectivity leading up to and including 5G networks is critical to achieving regional growth aspirations and positive transformation of local public services.

Given the policy and regulatory changes, local and regional authorities will play a key role in stimulating private sector investment in digital infrastructure:

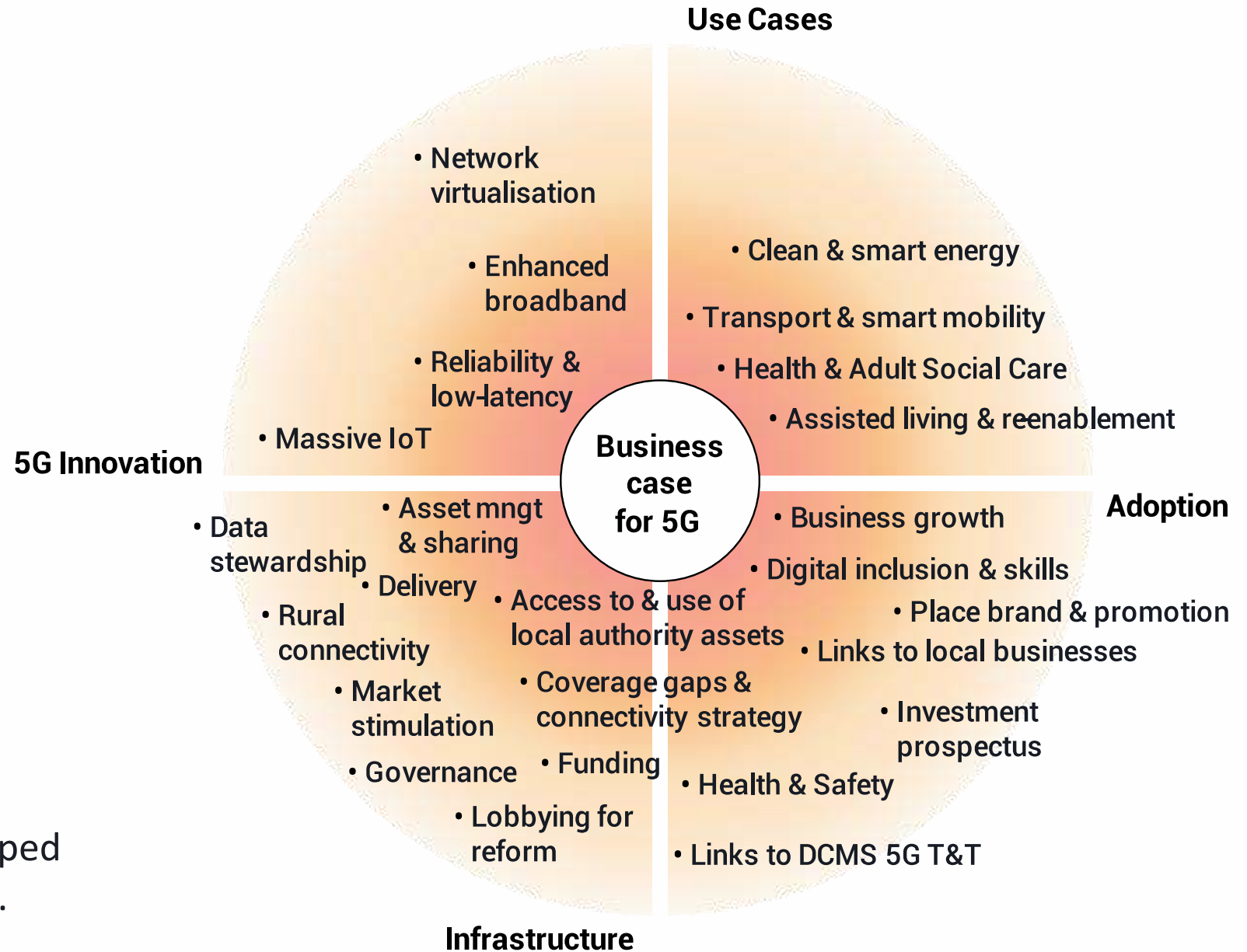
- Through community engagement to promote employment, wellbeing and environmental benefits presented by advanced digital infrastructure,
- By pro-actively managing physical assets in public ownership and by simplifying planning processes to allow access to private sector to deploy and operate networks,
- By driving future demand based on the impact of local economic development plans and industrial strategies,
- Through evaluation and structuring of alternative wholesale-only deployment models,
- With an option to draw in additional inward investment where needed.



Convergence to shared priorities

From conversations with local authorities, common themes (i.e. pressing problems) have emerged, particularly around economic growth, inclusion and skills agenda, and connectivity gaps.

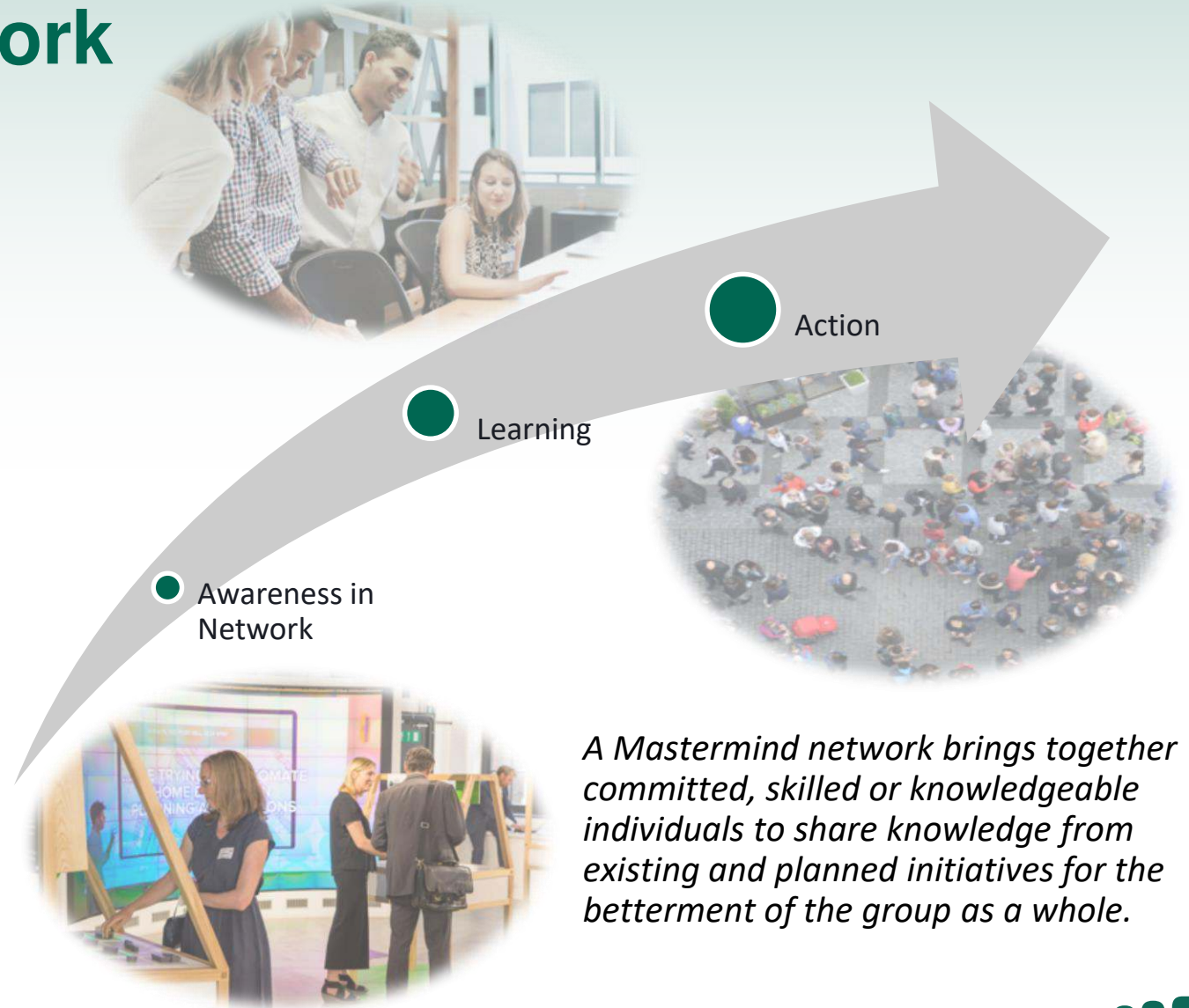
From the alignment of these conversations we have developed our initial programme of work.



5G Action Learning Network

Designed to develop in-house competency, fluency and confidence of its **Local Authority members and supporting Regional agencies** in commercialisation, placemaking and transformation of services to create an environment suitable for 5G 5-10 years in the future. It will build capability through application of in-flight work programmes.

The detail of the work programmes has been and will continue to be co-created with network's members.



A Mastermind network brings together committed, skilled or knowledgeable individuals to share knowledge from existing and planned initiatives for the betterment of the group as a whole.

Let's work together



Becki Clark

5G Action Learning Network

becki.clark@cp.catapult.org.uk



Dejan Bojic

5G Action Learning Network

dejan.bojic@cp.catapult.org.uk

Q&A



Thank you for attending

