# Intelligent Mobility Accelerator Cohort 6

## Application Support Webinar

Brought to you by
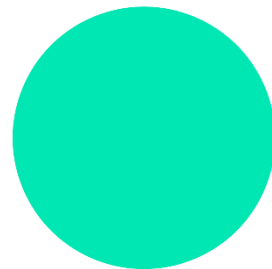
catAPULT
Connected Places

wayra

# Agenda

10:00 - 10:20 - Introduction to the Programme

10:20 - 10:40 – Introduction to the Partners

10:40 - 10:50 - Introduction to TransportAPI

10:50 - 11:00 - Application & Selection Support

11:00 - 11:30 - Q&A

# Introduction to Connected Places Catapult

CATAPULT
Connected Places

# About CPC

The Catapult Network brings together nine leading technology and innovation centres spanning over 40 locations across the UK. We are independent not-for-profit private organisations transforming the UK's capability for innovation in sectors of strength.

The Connected Places Catapult is one of the nine centres, leading in fields such as Mobility, Built Environment, Critical Infrastructure, Health & Wellbeing, Public Places and Decision Making.



○ Main Base
● Centre

| | | |
|---|---|---|
| ▌Cell and Gene Therapy | ▌Digital | ▌Medicines Discovery |
| ▌Connected Places | ▌Energy Systems | ▌Satellite Applications |
| ▌Compound Semiconductor Applications | ▌High Value Manufacturing | ▌Offshore Renewable Energy |

# Our Accelerator Programmes

To date, we will have delivered 13 cohorts across 7 programmes.

**SIMULATE Programme**
Amey, Staffordshire Council and Keele University
1 x Cohort, 10 SMEs, TRL 6+
Innovative testbed for live trials

**Advanced Construction Programme**
1 x Cohort, 10 SMEs, TRL 6+
Due to launch in Q3 2021

**High Speed 2 Programme**
HS2, Bruntwood SciTech
3 x Cohorts, 5 SMEs each, TRL6+

**Future of Air Mobility  Programme**
UKRI, CAA, Hyundai UAM, Heathrow Airport, AGS Airports, GKN, Cranfield University, Coventry University, Deloitte
1 x Cohort, 11 SMEs, TRL 6+

**Smart Cities Demonstrator**
Up Ventures, Media City (Peel Group) Salford Council and CBRE
1 x Cohort, 6 SMEs

**MK:5G Programme**
BT, Tech Mahindra, MK Council, City Fibre, Satellite Applications Catapult
1 x Cohort, 10 SMEs, TRL 6+

**Intelligent Mobility Programme**
 Wayra, Hyundai, Amey and Telefonica
5 x Cohorts, up to 10 SMEs each
First intelligent Mobility Accelerator Programme in the UK

| 4 Years | 100+ SMEs | 950+ Applications |

# How CPC Adds Value to Accelerator Programmes

**Technical and Market Expertise**

- Challenge discovery and mining
- Technology and market due diligence
- Technical support

**4,500+ SME Network and Experience**

- Scouting, scoping, recruiting
- Events
- Impact tracking

**Neutral Convening Power**

- Access to market actors
- Access to commercial partners
- Access to policy makers, e.g. ministerial roundtable
- Access to funding opportunities

# Introduction to Wayra

# Introduction to Wayra

# Wayra turns start-ups into scale ups

Founded in 2011, Wayra is Telefónica's Open Innovation Hub with presence in 10 countries.

Telefónica provides unprecedented access to business development opportunities with some of the world's largest companies. It has 346 million accesses around the world, which are all accessible to Wayra's start-ups.

# We are an open ecosystem

We accelerate Telefonica's business globally with local presence

**TECH PARTNERS**

GCHQ  aws  Google Cloud  Tsinghua University  HUAWEI

National Cyber Security Centre

**CORPORATE & GOVERNMENTS**

GO IGNITE  BID  BBVA

MSD  Bizkaia  JUNTA DE ANDALUCIA

**OUR FUNDS**

kibo  AXON  ACTIVE  alter

scale capital  INVEST TECH  Caixa Capital Risc

**Telefonica**

## Global BU'S & OB'S

## HUBS

**7 WAYRA HUBS OPERATING 10 COUNTRIES**

HYUNDAI  ferrovial  amey  National Cyber Security Centre

Haringey LONDON  West Midlands Combined Authority  NOVARTIS
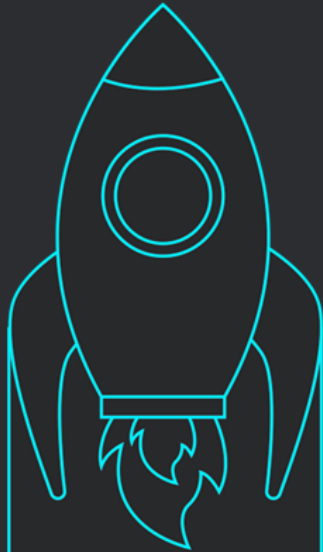
**+40 OPEN FUTURE_ HUBS**
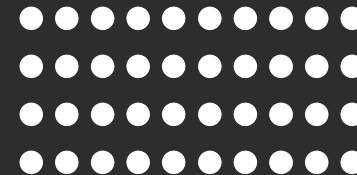
**2 SCOUTING OFFICES**

in Silicon Valley & Madrid*
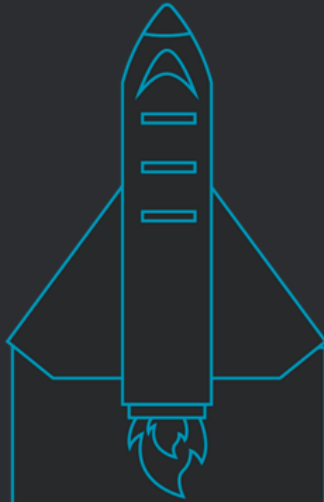
*With investment scope focused on Europe, USA, Israel & Latam

# Data Around
## Open Innovation

+850
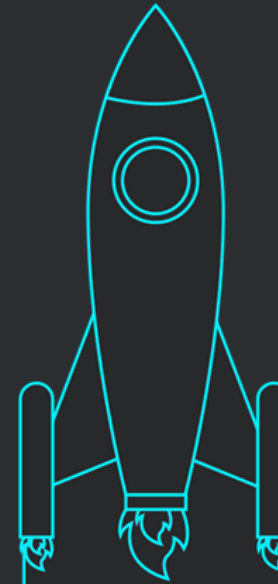INVESTED STARTUPS SINCE THE BEGINNING

+500
STARTUPS IN PORTFOLIO

+60
EXITS

139
STARTUPS WORKING WITH TELEFÓNICA

+25
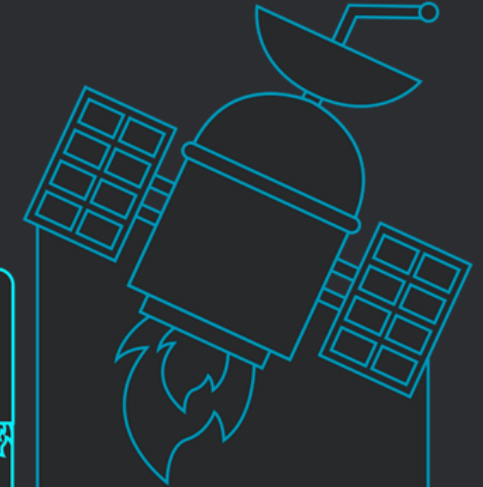STARTUPS VALUED OVER $50M

49M€
+120M€
INVESTED SINCE THE BEGINNING OF WAYRA & TELEFÓNICA INNOVATION VENTURES RESPECTIVELY

+490M€
+1.5 Bn€
INVESTED BY 3RD PARTIES SINCE THE BEGINNING OF WAYRA & TELEFÓNICA INNOVATION VENTURES, RESPECTIVELY

A Telefónica INITIATIVE

# › Wayra UK ‹

**300**
**Start-ups**
Accelerated

**200**
Wayra **Invested**

**$1bn**
**Portfolio value**

**149**
**Trials/ Contracts**
with Telefónica

**$20mn**
**Revenue** generated with
Telefónica

*"Our 194 start-ups such
as MobiluLabs, ChargedUp and Ori, have a combined
value of over $1.080bn and have had 149 trials with
Telefónica, generating $20m in revenue for our portfolio of
start-ups"*

VALERANN
MAKING ROADS SMART

SᴕF Sensing
Feeling

# › Success Stories ‹

**44**
start-ups and scale-ups

**32**
commercial trials

**$260M+**
million raised

**4**
Resell contracts with O2

CARFIT

VALERANN
MAKING ROADS SMART

cazana

ev. energy

Tomorrow's Journey

appyway

**Proof of concept and trials**

- Aim to get a PoC or trail in place with the partner or TEF

**Expansion opportunities**

- Identify commercial opportunities
- Identify opportunities of expansion

# Programme Structure



| Welcome Week & Demo Day | • OKR setting, meeting stakeholders<br>• End of cohort event, introduction to ecosystem |
| Business Coaching and 1:1 Mentoring | • Expert technical and commercial coaches in areas we defined important in the welcome week.<br>• Wayra alumni, portfolio, successful founders |
| Business Development | • Identify business opportunities with partners, and wider network (OEM, utility, fleet manager, council etc.). |
| Investor Network access | • Guidance and contacts from Investors in Residence<br>• Access to Wayra's network of institutional investors |
| Events and Wayra Perks | • Panels, Founder success stories, Peer-review sessions, Masterclasses, Mentor, Investor, Ecosystem events |

A *Telefónica* INITIATIVE

# Introduction to the IM Accelerator

**CATAPULT**
Connected Places

# About the Intelligent Mobility Accelerator

The Intelligent Mobility (IM) Accelerator is a partnership between Connected Places Catapult (CPC) and Wayra UK, part of Telefónica's Open Innovation Hub. The programme is in partnership with Department for Transport, Network Rail, Transport for London and Amey, and is designed to support and guide disruptive start-ups with high-growth potential into the UK transport industry, helping them grow into world-leading companies.

# The journey so far

**5** COHORTS

**550+** APPLICATIONS

**44** SMEs SELECTED

**£80** Million RAISED BY SMEs

**33** COMMERCIAL TRIALS

**£3.5** Million RAISED IN CR&D FUNDING

# Programme streams

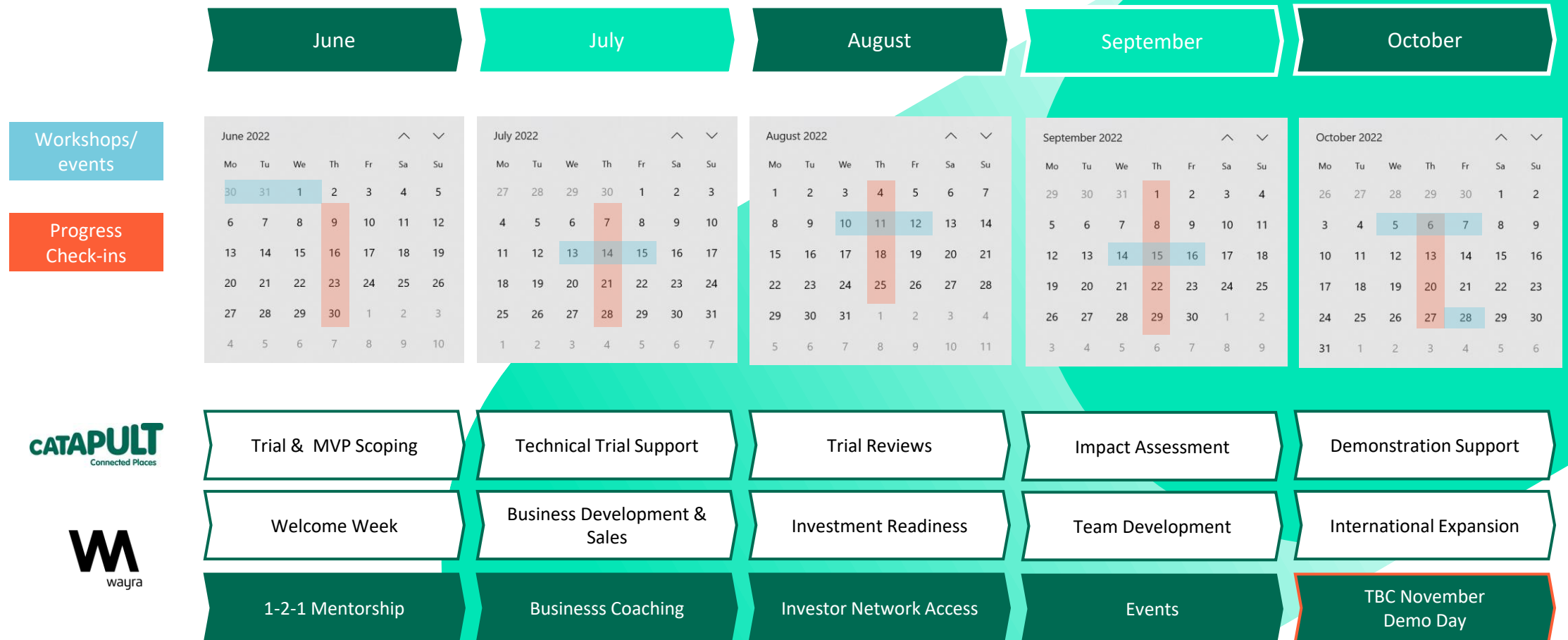| Technical | Commercial |
|-----------|------------|
| Connected Places Catapult provide SMEs with technical support on both their trials and overall technical development. | Wayra provide each SME with a bespoke commercial development support package. |
| *Accelerating* new products and services to market | *Accelerating* commercial growth and development |

# Programme structure *tbc*

| June | July | August | September | October |
|------|------|--------|-----------|---------|

| June 2022 | | | | | | |
|----|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| 30 | 31 | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| July 2022 | | | | | | |
|----|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| 27 | 28 | 29 | 30 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| August 2022 | | | | | | |
|----|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |

| September 2022 | | | | | | |
|----|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| 29 | 30 | 31 | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| October 2022 | | | | | | |
|----|----|----|----|----|----|----|
| Mo | Tu | We | Th | Fr | Sa | Su |
| 26 | 27 | 28 | 29 | 30 | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 1 | 2 | 3 | 4 | 5 | 6 |

**CATAPULT** Connected Places

**wayra**

| Trial & MVP Scoping | Technical Trial Support | Trial Reviews | Impact Assessment | Demonstration Support |
|---------------------|------------------------|---------------|-------------------|-----------------------|
| Welcome Week | Business Development & Sales | Investment Readiness | Team Development | International Expansion |
| 1-2-1 Mentorship | Businesss Coaching | Investor Network Access | Events | TBC November Demo Day |

# The Challenges



**CHALLENGE 1**

Decarbonising Mobility

What technologies or business models can support the industry in eliminating harmful pollutants, by accelerating the integration of sustainable transport systems and infrastructure, alongside influencing a modal shift towards more sustainable transport choices, e.g. encouraging active travel solutions?

**CHALLENGE 2**

Improving Experience

What technologies will enable transport stakeholders to understand the needs of its current and future users, and enable them to offer resilient, safe and accessible services in the future, e.g. to improve the safety of female users of public transport?

**CHALLENGE 3**

Connected Mobility

What disruptive technologies and mobility models will enable our rural areas, future towns and cities to become more connected whilst supporting socio-economic growth, e,g, supporting the future of freight?

# Challenge 1

## Decarbonising Mobility

What technologies or business models can support the industry in eliminating harmful pollutants, by accelerating the integration of sustainable transport systems and infrastructure, alongside influencing a modal shift towards more sustainable transport choices, e.g. encouraging active travel solutions?

EV & Charging Technology

Logistics & Supply Chain Decarbonisation

Accelerating Modal Shift

Achieving Net Zero

Sustainable Mobility Modes

## Challenge 2

### Improving Experience

What technologies will enable transport stakeholders to understand the needs of its current and future users, and enable them to offer resilient, safe and accessible services in the future, e.g. to improve the safety of female users of public transport?

Optimising Transport Networks

Understanding the User

Enhancing Road Safety

Improving Transport Accessibility

Covid Response and Recovery

Safety for vulnerable travellers

# Challenge 3

## Connected Mobility

What disruptive technologies and mobility models will enable our rural areas, future towns and cities to become more connected whilst supporting socio-economic growth, e,g, supporting the future of freight?

Rural and Urban Connectivity

Enhancing Road Safety

New Connected Mobility Models

Multimodal Connectivity

Autonomous Systems and Infrastructure

# Introduction to Partners

# Our Partners

**James Tickler**
Head of Innovation - Science
Innovation and Technology Division

**Benjamin Ford**
Research Technology & Innovation

**Jake Harrison**
Innovation Business Partner

Department for Transport

Network Rail

amey

# James Tichler
Head of Innovation -  Science Innovation and Technology Division

Department for Transport

cATAPULT
Connected Places

**Benjamin Ford**
Research Technology &
Innovation

Network Rail

cATAPULT
Connected Places

**NetworkRail**

"You cannot predict the future, but you can create it" (Drucker)

# MaaS / On Demand - Illustration

**Systems Operator** *Research Technology Innovation*

**Customers**
Needs, Preferences

**Customer MaaS Systems**
Whim, Citymapper etc
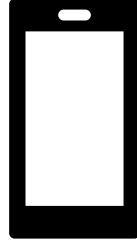
**Supplier MaaS Systems**
Intermodal journey capacity management
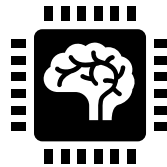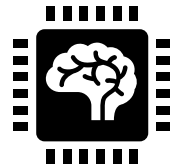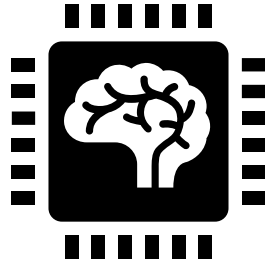
**Operator Optimisation**
Controls, Planning, Resourcing

**Mobility Butler™** is trying to get you home without missing your event "the big match" - your options:
- Watch it in "The Rocket" (Who might be there . . .
- Go with Avanti and watch en route (additional charge £2)
- Home in time to watch it (CROWDING)

Imagine the possibility…

**Customers**
Needs, Preferences

**Customer MaaS Systems**
Whim, Citymapper etc

**Supplier MaaS Systems**
Intermodal journey capacity management

**Operator Optimisation**
Controls, Planning, Resourcing

**Mobility Butler™** is trying to get you home without missing your event "the big match" - your options:

- Watch it in "The Rocket" (Who might be there . . .
- Go with Avanti and watch en route (additional charge £2)
- Home in time to watch it (CROWDING)

**UKMoving™** is managing crowding due to ongoing disruption, advising the folowing alternatives for this request
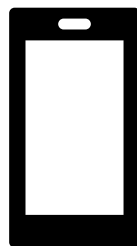
- Delay travel
- Route via Avanti West Coast

Advising passengers with minor to moderate additional needs to seek assistance...
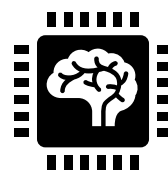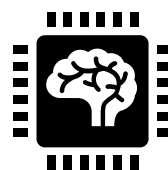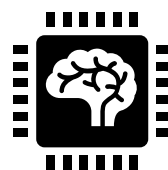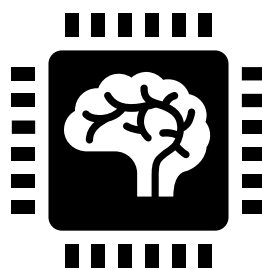
Imagine the possibility...

**Customers**
Needs, Preferences

**Customer MaaS Systems**
Whim, Citymapper etc

**Supplier MaaS Systems**
Intermodal journey capacity management

**Operator Optimisation**
Controls, Planning, Resourcing

**Mobility Butler™** is trying to get you home without missing your event "the big match" - your options:
- Watch it in "The Rocket" (Who might be there . . .
- Go with Avanti and watch en route (additional charge £2)
- Home in time to watch it (CROWDING)

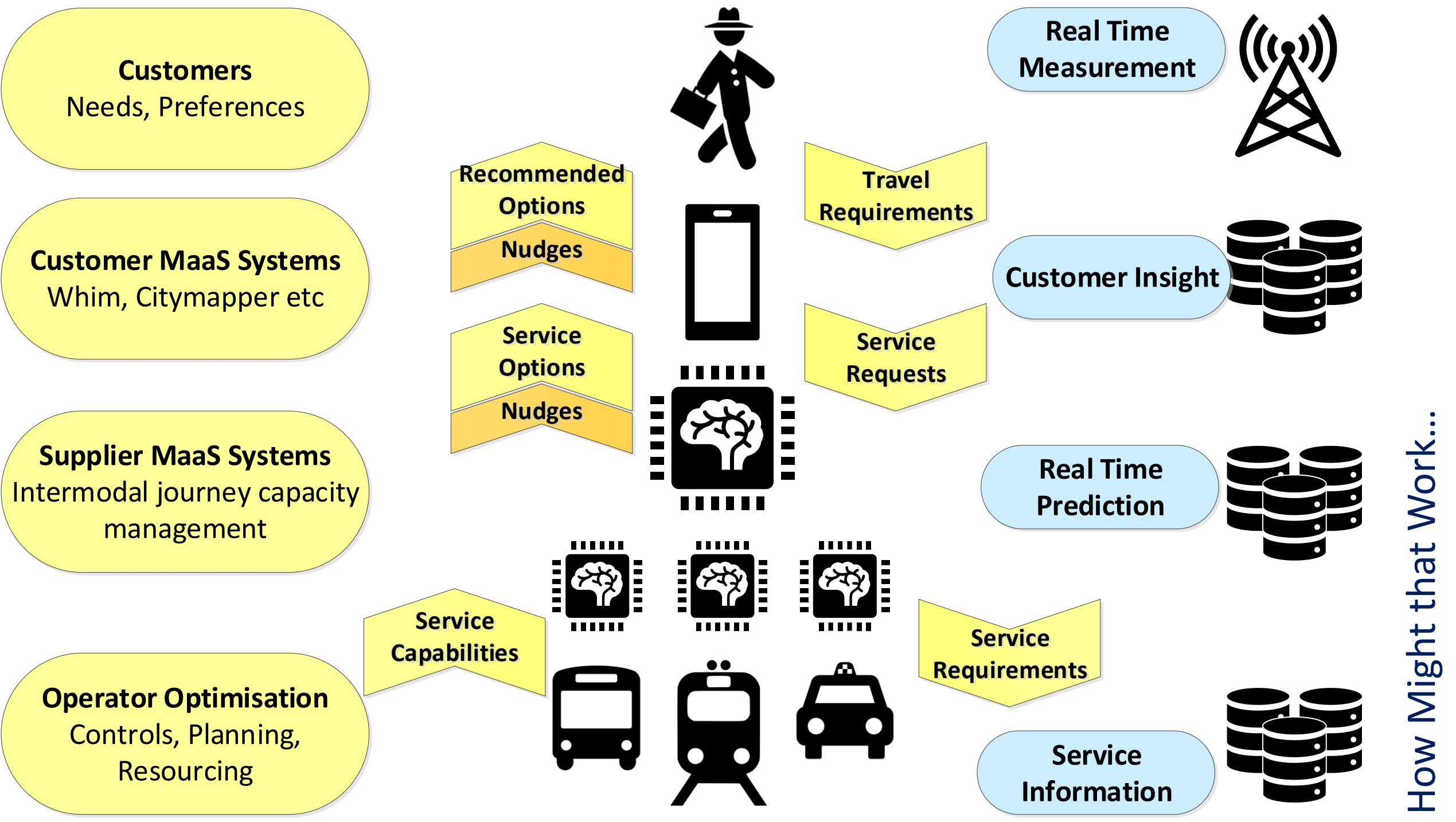**UKMoving™** is managing crowding due to ongoing disruption, advising the folowing alternatives for this request
- Delay travel
- Route via Avanti West Coast
Advising passengers with minor to moderate additional needs to seek assistance...

**RailBrain™** is adding capacity to mitigate ongoing disruption on M1. No further capacity growth is possible at this time
Service patterns are now as follows...

Imagine the possibility...

**Customers**
Needs, Preferences

**Customer MaaS Systems**
Whim, Citymapper etc

**Supplier MaaS Systems**
Intermodal journey capacity management

**Operator Optimisation**
Controls, Planning, Resourcing

Recommended Options

Nudges

Service Options

Nudges

Service Capabilities

Travel Requirements

Service Requests

Service Requirements

**Real Time Measurement**

**Customer Insight**

**Real Time Prediction**

**Service Information**

How Might that Work...

"A system is never the sum of its parts
it is the product of their interaction."
(R.L.Ackoff – father of operations research)

# MaaS / on demand - Challenges

**RTS route To MaaS/ on demand**

| | 2025 (CP7 Y2) | 2029 (CP7 End) | 2034 (CP8 End) | 2039 (CP9 End) |
|---|---|---|---|---|
| | **MaaS Connected Railway** | **MaaS Enabled Railway** | **Cybernetic Railway** | **Cybernetic Transit** |
| **Journey Planning & Ticketing** | Increased passenger confidence that they've got a valid ticket at the best value. First and last mile are better understood and catered for. 🔴 | GB Rail portal enables integrated purchase through and across municipal MaaS platforms and third party Mobility Apps 🔴 | Close integration with all significant mobility planning systems (app & web based). Embedded / evolved personal preferences facilitate planning | Buying door-to-door journeys, either in advance bookings mode or \|get up and go} is the norm, and rail always appears as an option when appropriate. |
| **Customer Information and Support** | inclusive real-time information on journeys (including alternatives when disruptions occur) 🔴 | Personalised information services including multi modal factors, with delivery inclusing via third party apps/MaaS platforms. 🔴 | Integration with personal / work profiles and social media help provide value adding advice on mobility options to support lifestyle / professional activities | The level of customised support, convenience and inclusivity delivered by rail improves the travel experience for all and rivals other modes. |
| **Payment & Clearing** | | Post journey price calculation and reconciliation in place for journeys starting and ending in municipal MaaS systems | Post journey reconciliation more widely distributed. Dynamic incentivising (partner vouchers, discounts etc) to help nudge traveller behavior | Post journey reconciliation available for almost all UK journeys |
| **Service Planning** | Train paths are added easily and reliably at short notice. Increased (predictable) quality of service during disturbances and faster recovery. | Real time demand data enables non timetable Capacity adjustments (e.g. train lengths) and a growing number timetable (VSTP) changes 🔴 | Timetable and non timetable adjustments proposed automatically based on real time demand data. And reconciled in near real time | Demand-based operations: planning and re-planning of trains to meet customer needs can be achieved and communicated in near realtime. |
| **Operational Delivery** | Data insight used to inform real-time decisions and to prevent disruption. | Complete real time situational awareness of train location (full length) and related signalling system state 🔴 | Virtual coupling and decoupling along with integrated traffic management begin to enable more complex and responsive services with features of PRT operation | Real-time optimisation...across the network...prevention and recovery from disruptions. Information to and from passengers used to manage capacity and optimise its use |
| | **Agreed 2025 Goals** | **Interpolating goals – under consultation** | | **Agreed 2040 Goals** |

# The three challenge areas

- Decarbonisation
  - Rail is low carbon, making it easy to choose and use helps decarbonise
  - New freight models are emerging (e.g. Orion)

**NetworkRail**

# The three challenge areas

- Experience
  - Integration across providers – proprietary bus ticketing formats
  - Complexity of rail ticketing – embedded in ticket sale rules
  - Information to travellers – on services, but moreover:
    - At station facilities, their location and condition
    - Relationship between transport access points at nodes
  - Inclusivity – equal access and usability for all
    - Through the whole "customer journey" (not just the physical journey)
    - Being and feeling secure, including in crowds

FUTURE VISION

# The three challenge areas

- Connection
  - Feed back and Feed forward
    - Nudging based on peoples intent
    - Nudging based on contextual data
  - Ending clock-face timetables
  - Integrating micromobility
  - Quick, Easy integration of new providers into MaaS ecosystems
  - Measuring the state of the system(s) – efficiently, low latency, high precision
  - Automation of service planning
  - Rapid optimisation of services during operation – faster recovery

"Learning is not compulsory... neither is survival." (Deming)

End

Systems Operator *Research Technology Innovation*

**Jake Harrison**

Innovation Business Partner

amey

caTAPULT
Connected Places

# Introduction to TransportAPI

CATAPULT
Connected Places

Jonathan Raper
Founder & CEO

transportapi

catAPULT
Connected Places

# Application and Selection Support

# How to apply

**Deadline: Friday 15th April**

**Eligibility Criteria:**

- **Preferably TRL 6+**
  - Validated prototype with market traction
- **Innovative solution** that addresses one or more of the **challenges**
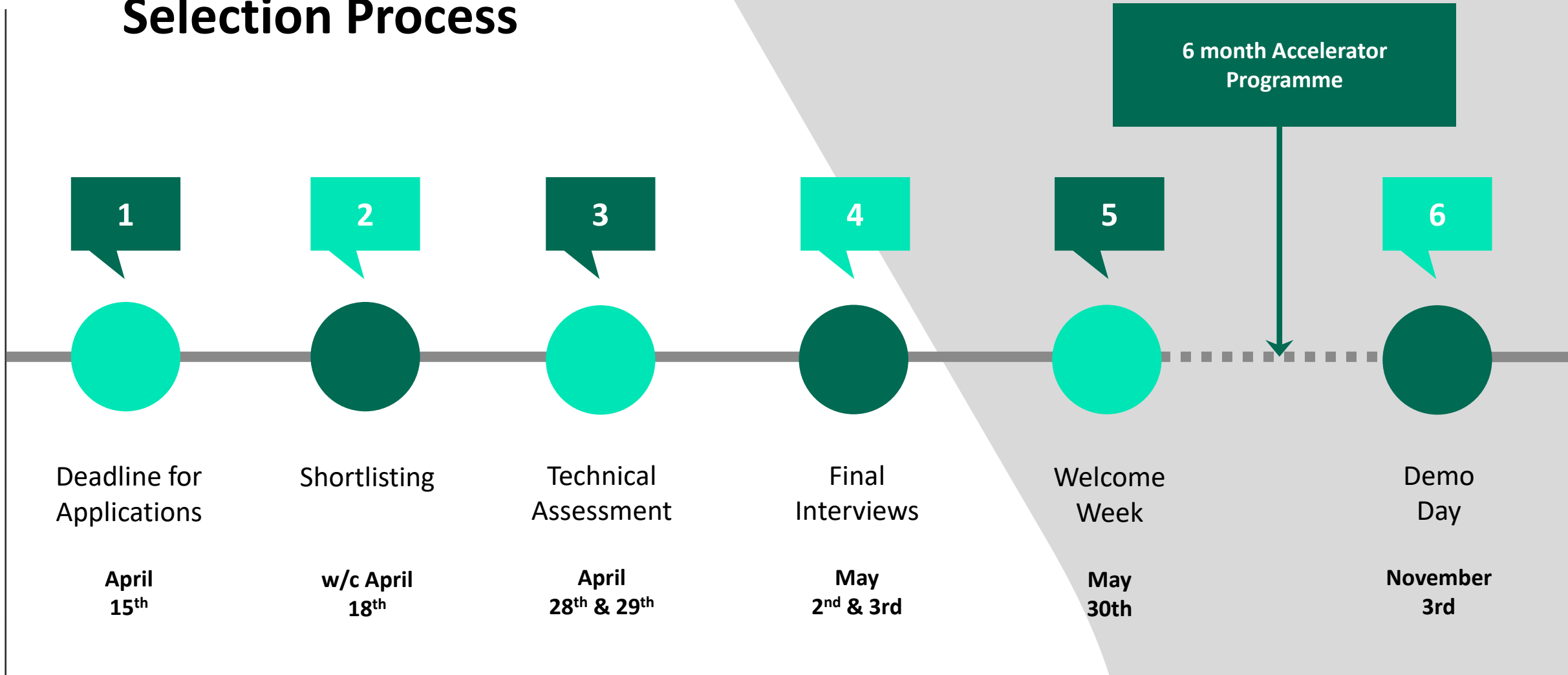- **Commitment & willingness to engage** with the programme

**To Apply**
Scan QR Code of visit

https://www.wayra.uk/programs/intelligent-mobility

# Technical Assessment Interview

Viability
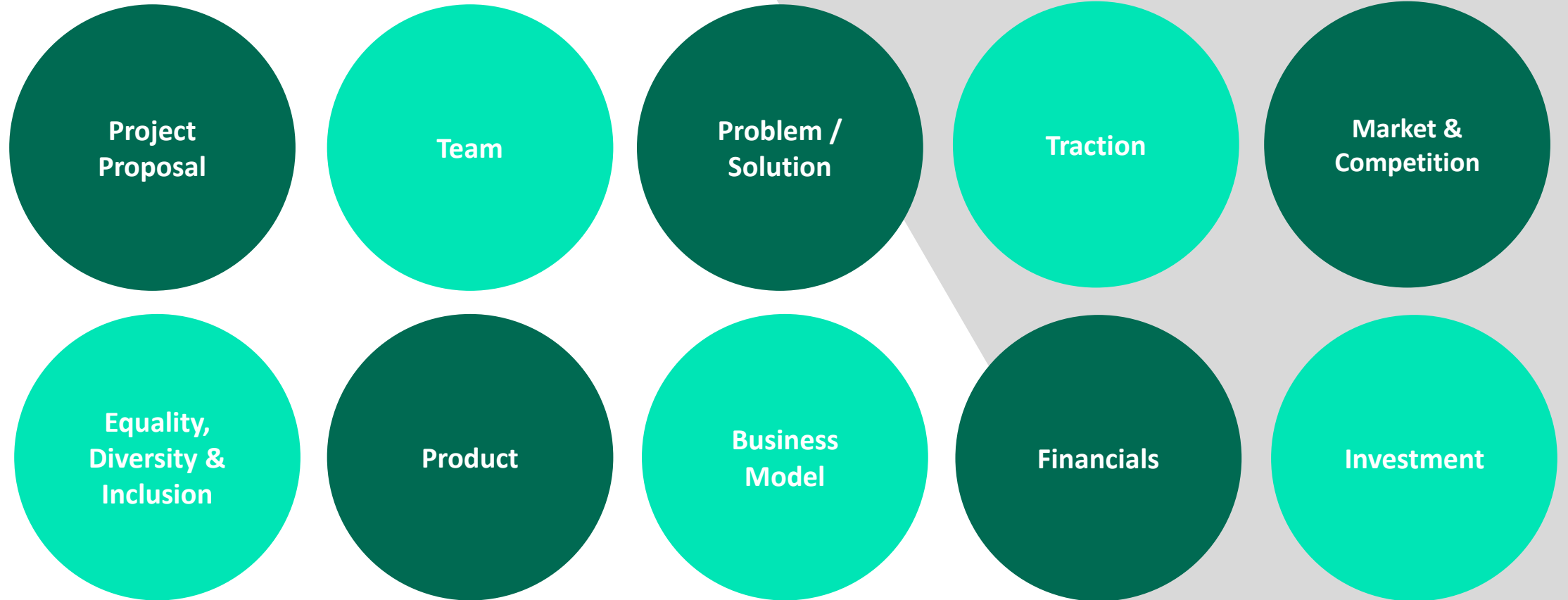
Feasibility

Scalability

Sustainability

# Final Interview

# Q&A

Please use the Q&A box to share your questions.

## Key Contacts

**Natasha Giroux- CPC Programme Manager**
Natasha.Giroux@cp.catapult.org.uk

**Hector Alemany Briz- Wayra Programme Manager**
hector.alemany.briz@wayra.org

CATAPULT Connected Places · wayra · amey · Department for Transport · Transport for London · Network Rail · Telefónica