UK Government

Ministry of Housing and Urban Affairs
Government of India

Smart City

India- UK Webinar :

Technologies and Strategies for COVID-19 Recovery

6th August & 13th August, 2020

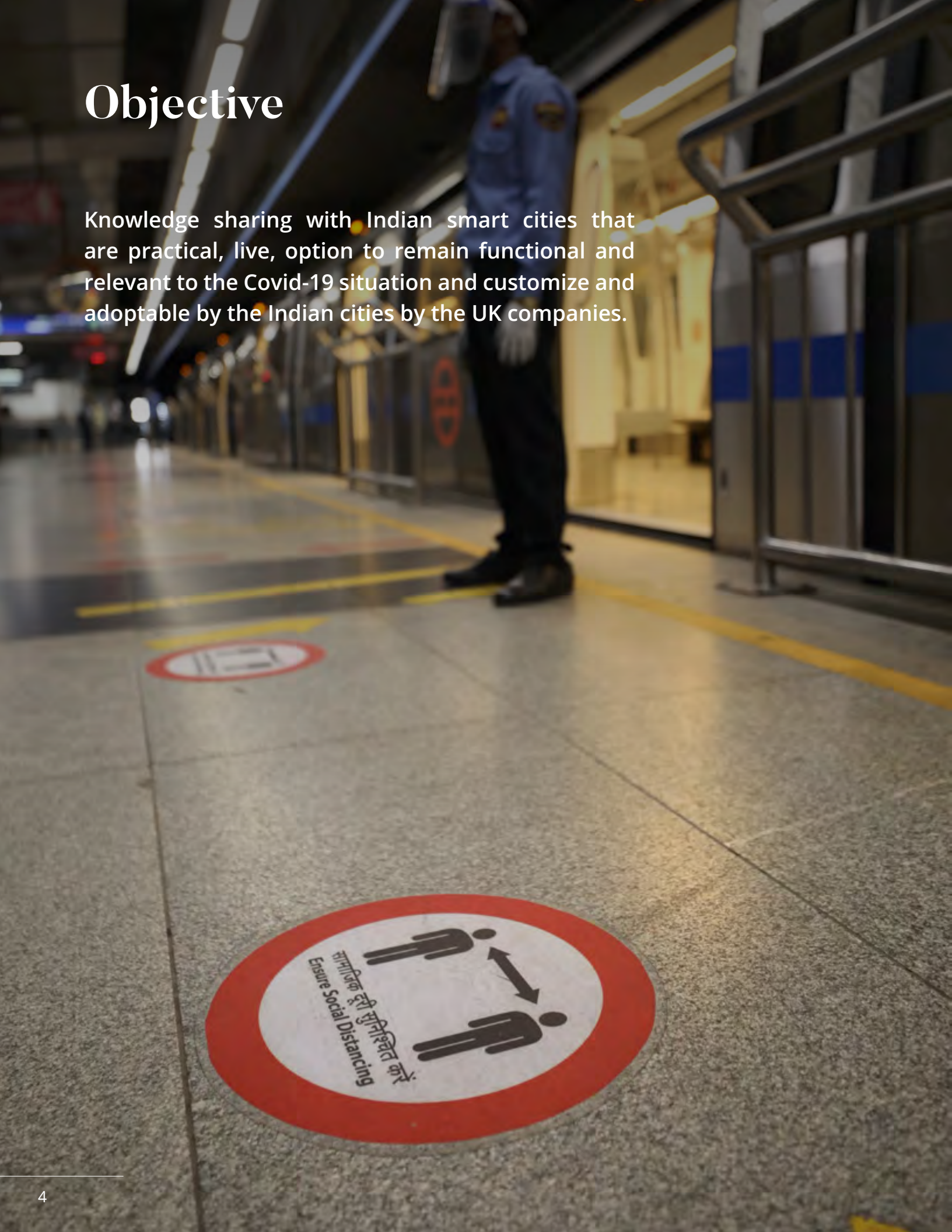
Under DFID supported Technical Assistance to Smart Cities

Background

Knowledge sharing with Indian smart cities that are practical, live, option to remain functional and relevant to the Covid-19 situation and customize and adoptable by the Indian cities by the UK companies. Covid-19 has presented the toughest challenge to the modern nations. The Urban province has been the greater recipient of the cause and is perhaps battling the toughest crisis. Every nation has adopted strategy at their end and took initiatives to help cities overcome this challenge. A number of these initiatives have made a marked difference in the way cities have responded to the crisis at hand and will continue to influence the post-pandemic urban planning and life in cities. A lot of the learnings and initiatives are now being scaled to other cities and towns through knowledge transfer and innovation. In continuation to their contribution in Urban development in India, the UK Government through the Department for International Trade proposed to partner with Smart Cities Mission, Ministry of Housing and Urban Affairs through two knowledge-sharing sessions with the UK companies and experts to present innovative solutions for managing the pandemic at city level.

Objective

Knowledge sharing with Indian smart cities that are practical, live, option to remain functional and relevant to the Covid-19 situation and customize and adoptable by the Indian cities by the UK companies.



Knowledge Sharing Session

TASC team in coordination with Department for International Trade and Smart Cities Mission, Ministry of Housing and Urban Affairs conducted the two knowledge sharing session on August 06, 2020 and August 13, 2020 inviting 100 Smart Cities to learn, customize and adopt solution not only to manage and contain COVID but also how to plan and implement the urban infrastructure and facilities in pandemic crisis. The topic covered in the knowledge sharing sessions were as below :

01 UK's strategy for Covid Management and path to recovery

02 Illustrate mobility behaviour and Tracking transport using AI

03 Data generation and analysis, spatial analytics

04 Camera sensors, contact tracing, Social distancing monitoring tools

05 Strengthening and supporting healthcare infrastructure, Supply chain management, Data management and outbreak tracking, Transport and pedestrian planning

06 Pandemic modelling

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INDIA–UK WEBINAR SERIES

TECHNOLOGIES AND STRATEGIES FOR COVID-19 RECOVERY

6th August 2020

Getting people moving

- Transport for London
- Steer Davis Gleave
- Movement strategies
- Hadean
- Mott MacDonald

13th August 2020

Safe Public Spaces

- Connected Places Catapult
- Space Syntax
- Vivacity Labs Ltd.
- Seesense

India time: 3PM to 4PM
UK time: 10:30AM to 11:30 AM

Block you calendar

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स्वच्छ भारत
एक कदम स्वच्छता की ओर

INDIA–UK WEBINAR 1

TECHNOLOGIES AND STRATEGIES FOR COVID-19 RECOVERY

Getting people moving

Ben Plowden
Transport for London
TfL's COVID-19 Restart and Recovery Programme

Luke Miller
Steer Group
UK's Cities: Strategies on their path to recovery

Aidan Mcinerney, **Movement Strategies**
Application of cellular, smart cameras and BLE to enable COVID-19 lockdown and reopening plans

Michael Gunadi and Mimi Keshani, **Hadean**
Spatial simulation for pandemic modelling

Dr Vikas Aggarwal and Dr Anthony Huszar, **Mott MacDonald**
Infrastructure Epidemiology

Agenda:

Welcome Address by British High Commission

Setting the Agenda by JS & MD, Smart Cities Mission

Presentations
- Transport for London
- Steer Group
- Movement Strategies
- Hadean
- Mott MacDonald

Open House (with Smart Cities, SPV MD/CEOs, PMCs) (20 min)

6 August, 3PM - 4PM

Registration link:
https://tinyurl.com/y28y8vr3

Experience and Learnings

Session 1

01 **Topic:** London's response to COVID-19: Presented by Ben Plowden of Transport for London

Discussion:

- Planning for alternate mean and making provision for alternate movement – like creating more space for cycle / walkers
- Aim to reassurance the public transport system is clean, safe, orderly and reliable and can support London's recovery from the direct impacts of COVID-19
- Discussion with stakeholders – govt for funding with focus on supporting recovery for both transport the wider economy

Learnings:

- London was hit hard by the pandemic like other metropolitan cities
- Social distancing dramatically reduced the capacity of the public transport
- Keeping people safely (Employee and customer) separated and reassuring customer was key priorities
- Extensive communication campaign using press, posters, signages and
- Hospital graded cleaning regime and PPE kit to staff

02 **Topic:** UK's Strategies on their path to recovery: Presented by Luke Miller of Steer Group

Discussion:

- How the UK is looking to kick-start its economy and what it means for transport
- Launching green investment package to create jobs and decarbonise parts of economy
- Programmes to boost green recovery through promotion of non-motorised transport (NMT) and creation of new infrastructure and provision for NMT
- Boosting sustainable mode of transport while maintain social distance

Learnings:

- Innovative investment fund to support businesses to focus on emerging needs of society and industries
- Infrastructures planning in social distancing time – saving time and money
- Scheme to protect jobs by giving confidence to businesses – boosting local economy

03 Topic: Technologies and Strategies for Covid-19 recovery: Presentation by Aidan Mcinerney , Head of Data Science at Movement Strategies

Discussion:

- Insights to understand population mobility in response to public guidance
- Support contact tracing efforts within work settings
- Monitoring of adherence to social distancing guidelines

Learnings:

- Use of Technology and devices like cellular, smart cameras and BLE to aid local and national decision makers in the development of policies, strategies and action plans relating to COVID-19 lockdown and reopening plans.

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04 Topic: Aether Engine for Pandemic Modelling – combating covid-19 with spatial simulation: Presented by Michael Gunadi and Mimi Keshani from Hadean

Discussion:

- Technology stack, enabling anyone to easily build cloud-native applications with unparalleled performance, reliability, and scale
- Macro scale epidemiology and pandemic modelling
- Biomolecular modelling for drug discovery & clinical intervention

Learnings:

- Technologies are used not only for containment and management of virus but also for
    - Clinical management
    - Government policy making
    - Smart cities and Urban design
    - Transport and infrastructure

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05 Topic: Infrastructure Epidemiology: Presented by Dr Vikas Aggarwal and Dr Anthony Huszar from Mott Macdonald

Discussion:

- Epidemiology help asset owners and operators restore services and build confidence for a pandemic-resilient future
- Evidence based guidance for infrastructure and service providers to manage the risks

Learnings:

- Use of epidemiology principles for infection prevention and control practices to infrastructure planning, design and processes
- With changes and introduction to new technologies to strengthen risk management and contingency planning.

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INDIA–UK WEBINAR 2

TECHNOLOGIES AND STRATEGIES FOR COVID-19 RECOVERY

Safe Public Spaces

Dr Amy Hochadel
Connected Places Catapult
Smart Resilient Cities in a COVID world

Max Martinez
Space Syntax
Data-rich, human focused approach to city planning

Peter Mildon
Vivacity Labs
Revolutionizing Transport with AI

Irene McAleese
See.Sense
Crowdsourced cycling data

Agenda:

Welcome Address by British High Commission

Setting the Agenda by JS & MD, Smart Cities Mission

Discussion topic

- *Smart Resilient Cities in a COVID world*
- *Data-rich, human focused approach to city planning*
- *Revolutionizing Transport with AI*
- *Crowd Sourced cycling data*

Open House (with Smart Cities, SPV MD/CEOs, PMCs) (20 min)

13 August
3PM - 4PM

Registration link:
https://tinyurl.com/y5krhtdy

Session 2

01 Topic: Smart Resilient Cities in a COVID world: Presentation by Dr Amy Hochadel from Connected Places Catapult

Discussion:

- Shift in thinking from Smart cities to connected places
- Digitisation and increased willingness to share data for greater good
- Innovations, testing digital methods and cultivating a dynamic and integrated innovation ecosystem exhibited a higher level of resilience during the crisis.

Learnings:

- Digitalisation is 'make-or-break' for cities in the new COVID world.
- Digitalisation will be the foundation for city services that will determine if a city economy and the related public health can bounce back and be relevant in a COVID world.

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02 Topic: Thriving life, Connecting people: Presented by Max Martinez from Space Syntax Limited

Discussion:

- Data-rich, human focused approach to city planning
- Integrated Urban Model - interlinked data layers describing urban form and/or function.

Learnings:

- Space Syntax approach is built on a data rich, human centred approach that can quantify the impact that urban layout, land use and transport have on the social, economic and environmental performance of cities

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03 Topic: Revolutionising Transport Infrastructure with AI: Presented by Peter Mildon from Vivacity Labs

Discussion:

- Use of AI to understand road transport, manage and control road transport
- Generation of data through sensors and third party devices and classification and insight generation

Learnings:

- AI can be effectively use to generate insight and management of road traffic operation and traffic control

04 **Topic:** Ride Insight: Presented by Irene McAleese from See. Sense

Discussion:

- Benefits of Cycling: Health, Environment and Economic
- Principles of cycle network based on safety, directness, coherence, attractiveness and comfort
- Use of technology like advanced sensor technology and AI to give the devices situational awareness and improve the cycling experiences, and unique sensor data needed by cities

Learnings:

- See.Sense technology produce intelligent and connected bike lights and GPS theft trackers that contain patented sensor technology to generate never before seen data insights on cyclists safety, and overall experience of the rider including the road surface, swerving, braking, collisions, and real-time journey monitoring that allows citizen engagement.
- Anonymised data is used by cities to plan safer and better cycling networks.

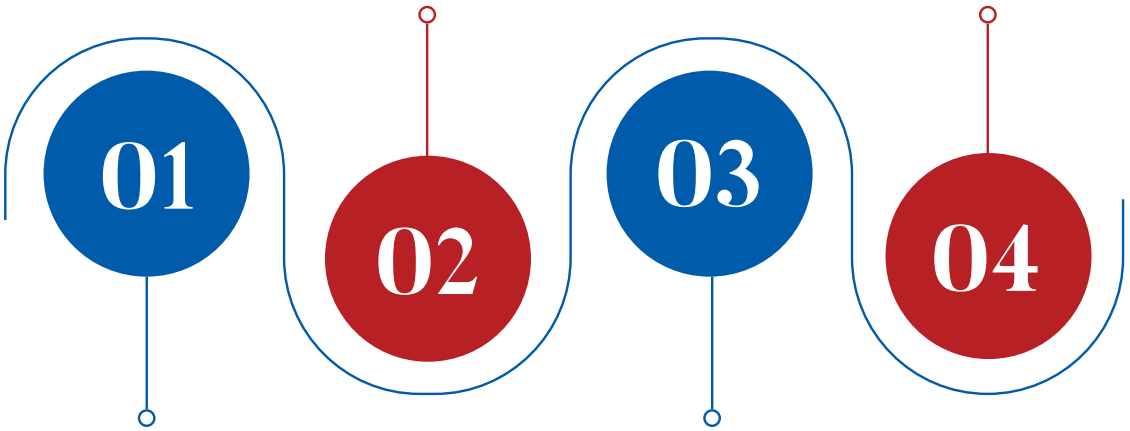
Takeaways for participants and opportunity areas

MoHUA

It may play as facilitator bringing innovation, technology and knowledge transfer from UK to benefit Indian Smart Cities

BHC

It may act is coordinator between UK companies and MoHUA to facilitate collaboration for Technology and Knowledge transfer



Smart Cities

May use the opportunity to interact with UK companies for technology and Knowledge transfer

UK Companies and Institutions

May use the platform to explore opportunities for business with Indian Smart Cities

The India Cycles4Change Challenge is an initiative of the Smart Cities Mission, Ministry of Housing and Urban Affairs, Government of India to inspire and support Indian cities to quickly implement cycling-friendly initiatives in response to COVID-19. The Challenge aims to help cities connect with their citizens as well as experts to develop a unified vision and initiatives to promote cycling

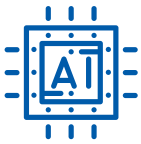
The technical assistance will be provided to a limited no of cities selected through the challenge process, though the challenge has sensitise 100 smart cities. This provides an ideal platform and opportunity for UK companies to collaborate with cities help them achieved the objectives.

The Streets for People Challenge is an initiative of the Smart Cities Mission, Ministry of Housing and Urban Affairs (MoHUA), Government of India, to inspire cities to create walking-friendly streets through quick measures, in response to COVID-19. The Challenge will support cities across the country to develop a unified vision of Streets for People in consultation with stakeholders and citizens.

The Challenge aims to create flagship walking initiatives in cities, which focus on placemaking and livability. The knowledge partner will guide though workshops and resource material, the cities would required a technical partner in implementing the objectives of the challenge. This provides an ideal platform and opportunity for UK companies to collaborate with cities help them achieved the objectives.

Action initiated post knowledge sessions

Team Stride from Data Analytics and Management Unit, MoHUA reached out to



Viva City Lab on AI-related transport strategies to engage on safe and equitable non-motorised transport and intends to create a baseline for NMT infrastructure that the ULBs/Smart Cities may follow to create NMT-friendly cities

Space Syntax on data-rich, human-focused approach to city planning

See.Sense on methods of aggregating crowdsourced cycling data. The dialogue with See Sense has progressed and expected an outcome in due course.

Experts Profile:

Knowledge sharing session - 1

Expert	About	Topic Coverage
 **Ben Plowden** Transport for London benplowden@tfl.gov.uk **Topic:** Transport for London's COVID-19 Restart and Recovery Programme	Ben Plowden is a senior director in TfL, where he has worked since 2002. He has held roles in transport strategy and planning, communications and capital project delivery. He is currently acting as Coordination Director for COVID-19 Restart and Recovery programme.	The presentation summarises how TfL has responded to the CV-19 crisis, with the initial focus on restoring transport services and now moving to supporting the recovery of the London economy.
 **Luke Miller** Steer Group Luke.Miller@steergroup.com **Topic:** UK's Strategies on their path to recovery	Luke is the head of UK Advisory division in London. He is a highly experienced transport planner with experience of over 30 years in rail and transit projects across Europe and Mexico. Luke is also the programme director at Steer for the Future Cities Programme in Mexico being led by the FCO, UK.	The presentation discussed the strategies and incentives undertaken by the UK on their path to recovery post Covid-19 pandemic, which can be relevant for Indian cities.
 **Aidan Mcinerney** Head of Data Science, Movement Strategies amcinerney@movementstrategies.com **Topic:** The application of cellular, smart cameras and BLE to aid local and national decision makers in the development of policies, strategies and action plans relating to COVID-19 lockdown and reopening plans.	Aidan leads the development and implementation of data science techniques on a wide range of use cases: from harnessing cellular data to build transport demand matrices for transport authorities, providing industry-first retailer insights of visitor experience using Wi-Fi, to the tracking of professional footballers using intelligent	The presentation will outline the available platforms which can be leveraged to provide: (i) Insights to understand population mobility in response to public guidance (ii) Support contact tracing efforts within work settings (iii) Monitoring of adherence to social distancing guidelines

Michael Gunadi

Hadean

michael@hadean.com

Mimi Keshani

Hadean

mimi@hadean.com

Topic: Spatial simulation for pandemic modelling

Michael Gunadi is the VP Sales at Hadean. He looks after our partnerships in everything from Gaming to Life Sciences.

Mimi is the VP Operations at Hadean. With a strong background in nanotechnology and chemistry, she also leads Hadean's Scientific Team.

Hadean's spatial simulation library, Aether Engine, is currently being used by the Francis Crick Institute and Imperial College to model the viral transmission of COVID-19 in the UK. It shared how technology is being deployed by researchers, clinicians, and government to tackle the pandemic

Dr. Vikas Aggarwal

Mott Macdonald

michael@hadean.com

Dr. Anthony Huszar

Mott Macdonald

mimi@hadean.com

Topic: Infrastructure Epidemiology

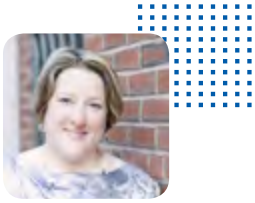
Dr. Vikas Aggarwal is a public health doctor and current Regional Lead for the Fleming Fund programme in South Asia.

Dr. Anthony Huszar is Mott MacDonald's Account Leader for Global Health Security.

Combining infrastructure and epidemiology expertise to provide a public health-based approach to help asset owners and operators restore services and build confidence for a pandemic-resilient future.

Knowledge sharing session - 2

Expert



Dr. Amy Hochadel

Connected Places Catapult

Amy.Hochadel@cp.catapult.org.uk

Topic: Smart Resilient Cities in a COVID world.

About

Dr. Hochadel is an expert in global cities, and currently the Director of Global Business at Connected Places Catapult in London, England. She works with local leaders, entrepreneurs, city and national governments around the world. She has over two decades of experience in politics & public policy and community, govt and international relations. She proudly serves as a member of the UN Global Happiness policy sub-committee and guest lecturer at Harvard's Kennedy School of Govt.

Topic Coverage

It included some overarching thoughts about big changes in the way cities are run focusing on agility and digitalisation. It also talked about Net Zero. It included multiple Indian examples and initiatives that MoHUA is working on that Indian cities need to consider.

Irene McAleese

See. Sense

irene@seesense.cc

Topic: Crowdsourced cycling data.

Irene McAleese is Co-founder and Chief Strategy Officer at See.Sense. Irene leads the company's Data Insights team, working with cities and partners around the world to use See.Sense data insights to help transform cities for cycling. Prior to See.Sense, Irene worked as a change management consultant at Accenture, utilising her Behavioural Science training to design and project manage workforce transformation programs for global companies. Irene is listed in Cycling UK's Top 100 Women in Cycling and as a British Cycling 'Trailblazer'

See.Sense is an award-winning cycling technology and data company. We produce intelligent and connected bike lights and GPS theft trackers that contain patented sensor technology to generate never before seen data insights on cyclists safety, and overall experience of the rider including the road surface, swerving, braking, collisions, and real-time journey monitoring that allows citizen engagement . This anonymised data is used by cities to plan safer and better cycling networks.

Max Martinez

Space Syntax Limited
benplowden@tfl.gov.uk

Topic: Data-rich, human focused approach to city planning.

Max is a member of Space Syntax's Board of Trustees and Board of Directors.

Max has over 20 years of international design experience. He leads multidisciplinary projects from the creation of design briefs to the strategic design of buildings and urban areas. Max has a proven record of successfully delivering complex master planning and building projects requiring in-depth spatial analysis, design innovation and complex stakeholder negotiations. His recent projects include 22 Bishopsgate and 1 Undershaft, two key developments in the City of London and the development of Regeneration Development Frameworks for Glasgow City Centre.

Covid-19 highlights the challenges and urgency to transform the way we understand, plan, develop and future proof our cities. Are particular cities or areas within cities better suited to withstand lockdown and post-lockdown recovery? How can cities be made more equitable? To address these challenges, the presentation showed the application of the Space Syntax toolkit - a data-rich, human centred approach that can quantify the impact that urban layout, land use and transport have on the social, economic and environmental performance of cities.

Peter Mildon

Vivacity Labs
peter@vivacitylabs.com

Topic: Revolutionising Transport Infrastructure with AI

Peter Mildon Co-founded Vivacity Labs in 2015, and is the COO. Peter met his Co-Founders while at Cambridge University in 2012/13, on a student lead project to design and build a Solar Powered Car.

Vivacity provide 3 AI based products which can help a city manage traffic: Video based sensors to provide classified real time data on Pedestrians, Cyclists and Vehicles. Presented how this has been adapted to measure Social Distancing. Traffic forecasting algorithms. AI Traffic Signal Control Optimisation.

Participants Profile:

Smart Cities Mission, Ministry of Housing and Urban Affairs

Ministry of Housing and Urban Affairs
Government of India

Kunal Kumar, IAS

Ministry of Housing and Urban Affairs

krkunal@ias.nic.in

Kunal Kumar is the Joint Secretary and Mission Director (Smart Cities) in the Ministry of Housing and Urban Affairs, Government of India. He is an alumnus of IIT, Roorkee, National University of Singapore, and Harvard Kennedy School, Cambridge, USA. He is an officer of the 1999 batch of IAS.

He currently leads the nationwide implementation of arguably the largest and most complex urbanization initiative in the world, India's Smart Cities Mission, focusing on the provision of integrated infrastructure and services through implementation of smart solutions in 100 cities.

Ministry of Housing and Urban Affairs
Government of India

Rahul Kapoor, IRAS

Ministry of Housing and Urban Affairs

rahul.kapoor@gov.in

Rahul Kapoor is Director, Smart Cities Mission in the Ministry of Housing and Urban Affairs. He holds a degree in Economics and Master's in Business Economics from Delhi University.

He is an officer of the Indian Railway Accounts Service. As a Director in the Mission, he is driving the Missions initiative on Smart solutions in core infrastructure to improve quality of life of citizens. As National Mission Data Officer, he is driving the DataSmart Cities Strategy for 100 Smart Cities focussing on three foundational pillars of People, Processes and Technology.

British High Commission

Anna French

British High Commission, India
a-french@fcdo.gov.uk

Anna French is the Deputy Head of DFID India, and Head of the Urban, Energy and Green Growth Team. Before heading to India, Anna was Head of DFID's Education Policy Team for 4 years.

Anna joined DFID in 2001, and has extensive experience in policy development and leading and managing programmes in fragile states including in Somalia, Afghanistan and Pakistan. During this time she also worked for 2 years as Senior Policy Adviser on Africa in the Cabinet Office, advising the Prime Minister on UK policy to Africa.

Philip Sydenham

British High Commission, India
philip.sydenham@fcdo.gov.uk

Philip Sydenham is First Secretary, Trade at the British High Commission in India, part of the Department for Trade's South Asia network aiming to increase trade and investment between the UK and the region.

Philip leads on the Urban and Infrastructure, Financial and Professional Services, Creative and Sports sectors and Sri Lanka, managing a team of over a dozen staff.

Philip is a career trade diplomat who has previously worked in India for over five years, and has covered a number of roles and regions on trade and investment policy and promotion from London.

Ashita Agnihotri

British High Commission, India
ashita.agnihotri@fcdo.gov.uk

Ashita Agnihotri is Senior Sector Manager, Senior Policy and Urban lead at the Department for International Trade. She brings with her extensive experience in Architectural Consultancy and Sustainable development practice. She leads on Smart Cities, Green Infrastructure and Environment Management projects under Urban Infrastructure sector. Supporting UK businesses grow and excel in the Indian market remains an integral part of her work.

She holds degrees in Architecture and MSC in Sustainable Building Technologies.

List of Participants

Knowledge session 1

1. Participants from Ministry of Housing and Urban Affairs, Smart Cities Mission

NAME	ORGANIZATIONS	TITLE/DESIGNATION
Kunal Kumar	MoHUA	Joint Secretary and Mission Director, SCM
Aarsi Desai	MoHUA	India Smart City Fellow
Abby Varghese	MoHUA	India Smart City Fellow
Abhishek Upperwal	MoHUA	India Smart City Fellow
Abhilash Verma	MoHUA	SME , Mission Management Unit
Aftab alam	MoHUA	SME , Mission Management Unit
Ananta Kukreja	MoHUA	Smart City Fellow
Ankur Negi	NIUA	
Aakriti Chaudhari	DFID TASC, MoHUA	Urban Planning Expert
Archit Nishant	Mohua	Smart city fellow
Arpit Tiwari	Niua	Fellow
Arun Sharma	DFID TASC, MoHUA	Water Sector Expert
Akshaya Kudale	NIUA	ISCF 2020
Anupama Bhardwaj	MoHUA	Smart City Fellow
Asmeeta Das	MoHUA	Fellow
Debaditya Swarnakar	NIUA	Iscf
Dilip Karmarkar	PwC	Project Coordinator
Dorin Paul	FCO	Programme Manager
Dr Ramji Lal Rajpoot	Nagar Nigam Aligarh	SBM nodal
Dr Vijay Suryawanshi	Smart Kalyan Dombivali Corporation ltd	CEO
Emam Ali	KDMC	Municipal Commissioner
Gaurang Patel	MoHUA	ISCF
Hamza Abdullah	MoHUA	ISCF
Ipsita Chanda	ISCF	Fellow
Jash Goswami	Niua	Fellow
Juhi Sah	Ministry of Housing and Urban Affairs	India Smart Cities fellow
Kumar Priyam	NIUA	Indian Smart City Fellow
Manuel Diego	MoHUA	Fellow

Neerad Swaroop	MoHUA	ISCF
Nidish Nair	Procurement Expert	SCMMU, MoHUA
Padam Vijay	DFID TASC Team	Strategic Advisor and Team Leader
Pritam Patnaik	DFID TASC Team	IT / Smart Solutions Expert
Priya Upadhyay	MoHUA	ISCF
Radha Karmarkar	MoHUA	Smart City Fellow
Rahul Singh	NIUA	Fellow
Rohitaash	DFID TASC Team	Deputy Team Leader
Debsharma	MoHUA	Smart City Fellow
Roopal Chopra	MOHUA	Fellow
Rupal Baid	MoHUA	India smart city fellow
Rupesh Chopra	SCMMU, MoHUA	MIS Expert
Sampath Kumar	DFID	Consultant
Santosh Bonam	NIUA	Fellow
Shikha Singh	Mohua	Fellow
Srijita Chakrabarty	MoHUA	Fellow
Srinidhi Ravishankar	MoHUA	Fellow
Monica Thakur	Iscf	ISCF
Thomas Pegu	ISCF	Fellow
Varsha Akavarapu	MOHUA	india smart city fellow
Veronica Wijunamai	Smart city Fellowship	Fellow
Vikash Chandra	SCMMU, MoHUA	PPP Expert
Zara Hasnain	MoHUA	Fellow
Zia ul haque .	MoHUA	India smart city fellow

2. Participants from British High Commission

NAME	ORGANIZATIONS	TITLE/DESIGNATION
Alok Srivastava	BHC	
Anurag Satpathy	Prosperity Fund, FCO, BHC	Urban Programme Lead
Ashita Agnihotri	British High Commission	Senior Sector Manager - Urban infrastructure
Dilip Karmarkar	PwC	Project Coordinator
Dorin Paul	FCO	Programme Manager
Jagan Shah	DFID	Senior Infrastructure Adviser

Jawad Sardar	UK Department for International Trade	Future Cities & Prosperity Specialist
Jitendra Jain	British Deputy High Commission, Mumbai	Senior Trade & Investment Adviser
Katherine Sargent	DFID	Deputy Programme Manager
KT Rajan	British High Commission	Head - Technology & Innovation
Manu Thomas	fco	prosperity officer
Mukul Verma	DIT	Adviser
Philip Sydenham	UK Department for International Trade	First Secretary, Trade
Pravalika Inala	DIT	Senior Trade Adviser
Rashmi Priyesh	BHC	Trade Adviser
Reshmi Ranjith	BHC	Adviser
Rishikesh Chanda	British Deputy High Commission	Senior Sector Manager - Infra
Suvash Thapa	British Embassy Kathmandu	Head of DIT, British Embassy Kathmandu

3. Participants from Smart Cities – CEOs and officials

NAME	ORGANIZATIONS	TITLE/DESIGNATION
Abhay Gupta	Gwalior Smart City	Add CEO
Amaravati Smart City	Amaravati Smart City	
Aniruddha Shahapure	Pune Smart City Development Corp.	CKO
Arun T	Puducherry Smart City	CEO
Avelu Ruho	Kohima Smart City	Jt CEO
CEO Jabalpur Smart City	Jabalpur Smart City	CEO
CEO Gangtok	GSCDL	CEO
Chandramani Dwivedi	Satna Smart City Development Limited	CDO
Commissioner Vellore Smart City	Vellore Smart City	City Engineer
Dattasmita HV	Tumakuru Smart City Limited	ICT Manager
Dr Ramji Lal Rajpoot	Nagar Nigam Aligarh	SBM nodal
Dr Vijay Suryawanshi	Smart Kalyan Dombivali Corporation ltd	CEO
Dr. Vijay Suryawanshi	KDMC	Municipal Commissioner
Gaurang Sangani	Surat Smart city	Senior Analyst
Ghanshyam Bhabad	Smart Kalyan Dombivli Development corporation Ltd	Manager IT
GSCDCL Gwalior	Gwalior Smart City	

Harikumar Th	Imphal Smart City Limited	CEO
Harikumar Singh	Imphal Smart City Limited	CEO
Harry Fulwala	Surat Smart City	
Purushottam kumar	BSCL	IT Expert
J Somasundaram	Puducherry smart city	Manager Technical
Jayaprakash Gandhi	Kakinada smart city corporation limited	Urban planner
Jitendra Rathore	Bscdcl	Ae
Meena Sharma	Silvassa Smart City Limited	CS
Muthu Lakshmi	Trichy City Corporation	AE
N Tepa	KSCDL	Data Officer
Navin Rai	Urban Development and Housing Department, Govt. Of Sikkim	Additional Chief Town Planner
Nilkanth Poman	PCMC	CEO
Nishant Goel	PMC, BSCL	Urban Planner
Pooja Rastogi	Mott MacDonald	Resource Manager
Raji R	Cochin Smart Mission Limited	General Manager
Rakesh Nandkeolyar	Ranchi Smart City Corporation Ltd	General Manager (T)
Ramdinthara Thartea	Aizawl Smart City Limited	Deputy CEO
Rangaswamy BT TSCL	Tumakuru Smart City Limited	Manager
Ritika Uniyal	NDMC Smart City Limited	Company Secretary
Sagar Smart City Limited Sagar	Smart City Limited Sagar	Manager
Saurabh Agrawal	Agra Smart City Limited	Chief Data Officer
Shrivan Wattamwar	Kakinada Smart City	Infrastructure Planner
Surat Smart City Development Limited	Surat Smart City	Company Secretary
Surat Smart City	Surat Smart City Development Limited	SSCDL Team
Suvash Thapa	British Embassy Kathmandu	Head of DIT, British Embassy Kathmandu
Thanjavur Smart City Limited	TSCL	IT Expert
Thoothukudi Corporation	Thoothukudi Smart City	Commissioner
V. Narayanan Nair	Smart City Limited	CEO
Vasudevan Deivasigamani		General Manager
Vibhushit Saxena	Bareilly Smart City Ltd.	Urban Planner
Vineeet Birdi	smart city saharanpur	Smart City Saharanpur
Yan Kikon	Kohima	Senior Tech Officer

4. Participants – others

NAME	ORGANIZATIONS	TITLE/DESIGNATION
Adil Zeya	IBI Group	Consultant
Amit Nakra	Tata Consulting Engineers Limited	GM
Anand Menon	Darashaw	Vice president
Anthony Huszar	Mott MacDonal	
Avikarsh Bhatnagar	SREI	Urban Planner
Bhalchandra Date	Independent consultant	Urban Planning / Design
Bharat Nihalani	CRISIL Risk and Infrastructure Solutions Private Limited	Urban and infrastructure planner
Dilip Karmarkar	PwC	Project Coordinator
Emam Ali		
Kamran Naseem	IBI Group	Urban Planner
Manojit Bose	Smart Cities Network	Advisor
Mayank Saravagi		
Mohammad	KDMC	Municipal Commissioner
Faisal	IBI Group	MANAGER
Pooja Rastogi	Mott MacDonald	Resource Manager
Rahul Tiwari	CRISIL	Assistant Engineer - IT
Raj Kumar	IBIS Group	
Sandeep Kumar	Amity University, Noida	Associate Professor
Shilpa Shashidharan		
Srishti Anthwal	None	Architect
Subarna Sadhu		
Subha Roy	Tractebel	Sr. General Manager
Subhash Patil	PwC	Team Leader
Sujit Varma	PwC	Consultant
Sumeet Sharma	IBI Group	General Manager
Vivin Nair		

Knowledge session 2

1. Participants from Ministry of Housing and Urban Affairs, Smart Cities Mission

NAME	TITLE/DESIGNATION	ORGANIZATIONS
Aakriti Chaudhari	Urban Planning Expert	DFID TASC
Aarsi Desai	ISCF	NIUA
Abhishek Upperwal	Fellow	MoHUA
Aditya Jain	Consultant	PwC
Akshaya Kudale	Fellow	NIUA
Aman Singh Rajput	Smart city fellow	NIUA
Aparna Ramesh	Smart City Fellow	ISCF
Archit Nishant	Smartcity fellow	MoHUA
Arpit Tiwari	NIUA	Niua
Asmeeta Das	Fellow	MoHUA
Hamza Abdullah	Fellow	ISCF
Jash Goswami	Fellow	MoHUA
Joydip Datta	Smart city fellow	MoHUA
Kumar Priyam	Fellow	Smart City
Lal Chhandama	MoHUA	MoHUA
Manuel Diego	ISCF	ISCF
Max Martinez	CEO	Space Syntax
Murali Mohan Thimmapuram	Associate Director	Deloitte
Neerad Swaroop	director	MCA
Nidish Nair	Director	PricewaterhouseCoopers Pvt Ltd.
Padam Vijay	IT / Smart Solutions Expert	DFID Technical Assistance to Smart Cities
Radha Karmarkar	Fellow	NIUA
Rahul Kapoor	Director	Smart Cities Mission, MoHUA
Rahul Singh	Deputy Team Leader	PWC
Rupal Baid	Fellow	MoHUA
Rupesh Chopra	Consultant	MoHUA
Shikha Singh	Fellow	MoHUA
Shilpa Shashidharan	Fellow	ISCF
Srijita Chakrabarty	Fellow	MoHUA
Srinidhi Ravishankar	Fellow	MoHUA
Sumani Dabas	Smart city fellow	MoHUA
Swarnakar Swarnakar	Iscf	Niua

Tanya Gunjan	Analyst	MoHUA
Vaibhav Sharma	Fellow	MoHUA
Vikash Chandra	PPP Expert	Smart Cities Mission
Vivin Nair	Fellow	MoHUA
Zia Ul haque	ISCF FELLOW	NIUA

2. Participants from British High Commission

NAME	TITLE/DESIGNATION	ORGANIZATIONS
Anna French	Deputy Head – DFID India	DFID - UK Government
Anurag Satpathy	Programme Lead - Urban Development (India Prosperity Fund)	British High Commission, New Delhi
Ashita Agnihotri	Senior Sector Manager - Urban	British High Commission
Daljeet Kaur	Climate and Environment Advisor	DFID
Debaleena Saha ghatak	Assistant Program Officer	UEGG DFID India
Jasin Thaj	Trade Officer - Tech & Smart Cities	British Embassy Abu Dhabi
Jawad Sardar	Future Cities & Prosperity Specialist	UK Department for International Trade
Jitendra Jain	Senior Trade & Investment Adviser	British Deputy High Commission Mumbai
Katherine Sargent	Deputy Programme Manager	DFID
Milan Nihalani	Operations Coordinator	Uk-India Tech Hub- BHC
Philip Sydenham	Head	Department for International Trade, UK Government
Pravalika Inala	Senior Trade Adviser	DIT
Rajni Sachdeva	ODI Lead	British High Commission
Rishikesh Chanda	SSM	British High Commission
Sam Kumar	Senior Prosperity Adviser	British Deputy High Commission, Chennai

3. Participants from Smart Cities – CEOs and Officials

NAME	TITLE/DESIGNATION	ORGANIZATIONS
Aniruddha Shahapure	CKO	Pune Smart City Development Corporation Limited
Anup Lahoti	Programmer	Nagpur Smart City
Avelu Ruho	Joint CEO	Kohima Smart City
Chetan Nandani	CEO	Rajkot Smart City Development Limited
Davanagere Smart city limited	Planner	DAVANAGERE SMART CITY LIMITED
Dr Garima Mittal	Chief Executive Officer	Faridabad Smart City Limited
Enjula Uchoi	Manager ICCC	Agartala Smart City Limited
Gaurang Sangani	Senior Analyst	Surat Smart city
Geetesh Mehta	Consultant	Thane Smart City Ltd.
Ghanshyam Bhabad	Manager	SKDCL
Imran Khan	Project Manager	Aurangabad Smart City Development Corporation
Manjunath Daler	DGM - IT	Bengaluru Smart City
Manoranjan Rao	DGM IT	Mangaluru Smart City Ltd
Rajiv Kumar	Manager IT	Patna Smart City Ltd.
Rakesh Kumar	AGM IT	DSCL
Rakesh Nandkeolyar	General Manager (T)	Ranchi Smart City Corporation Ltd
Ram Uniyal	DGM IT	Dehradun Smart City Limited
Ramachandran R	Data operator	Tiruppur smart city
Rourkela Smart city	IT expert	RSCL
Sas T	CTO	KSCCL
Shachi Singh	Consultant	NMSCDCL
Smart City Ahmedabad	Smart City employee	Smart City Ahmedabad Development Limited
Surat Smart city	Surat Smart City Team	Surat Smart City Development Limited
Susheela Varma	Associate Manager Urban Planning	Imagine Panaji Smart City Development Limited
Tadar Tarang	Joint CEO	Itanagar Smart City Corporation Development Limited
Tanumoy Das	City Data officer	Agartala smart city
Tapan Danke	Dy. CTO	Solapur City Development Corporation Ltd
Theja T	Architect	KSCDL
Tiruppur Smart city	Nodal officer	Tiruppur Smart City Ltd
Vipin Singh	Assistant Manager	Prayagraj Smart City Limited
Yawar Hamid	Statistical officer	Srinagar Smart City
Zakiekhotuo Kiso	Senior Manager (Planning)	Kohima Smart City Development Limited, Nagaland

4. Other Participants

NAME	TITLE/DESIGNATION	ORGANIZATIONS
Abhimanyu Acharya	Associate	Space Syntax Limited
Amit Nakra	General Manager	TATA Consulting Engineers Limited
Anand Voleti	TEAM LEADER PMC	LEA ASSOCIATES
Apoorv Garg	Urban designer	Self
Bhalchandra Date	Consultant	Independent consultant
C V	Project Consultant	Independent
Dipankar Satna	TL	Tata Consulting Engineers Ltd
Himani Gupta	Visual Artist	Self employed
Jo Morrison	Dr	Calvium
Kadakia Kadakia	AVP	Gaia Smart Cities
Korath Mathew	Consultant	PMC
Manu Mahajan	Associate Professor of Urban Design	SPA New Delhi
Max Martinez	CEO	Space Syntax
Oscar Mcdonald	Associate / Architect	Space Syntax
Peter Mildon	Mr	Vivacity Labs
Prince Agrawal	Manager	IPE Global
Pritam Karvir	Manager	EY LLP
Samantha Li	Project Consultant	Space Syntax
Shipra Bhatia	consultant	Steer Group
Sriparna Iyer	Vice President, Urban Infrastructure	IPE GLOBAL
Uhr Raina	Urban Plannee	IPE Global

India- UK Webinar

6th August, 2020

London's response to COVID-19

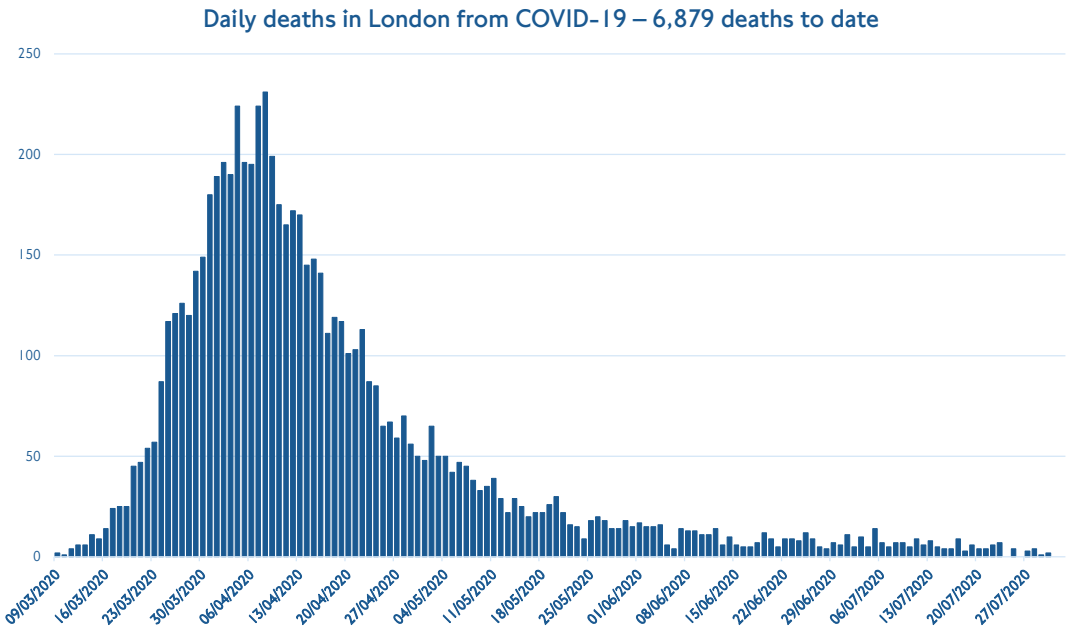
August 2020

Contents

This deck covers:

- Impact on London
- Demand & capacity on our network
- Our response:
  - Managing crowding
  - Cleaning
  - Protecting our people
  - Providing alternatives
  - Customer messaging
- Next challenges – financial recovery, school return

London was hit hard by the COVID19 crisis

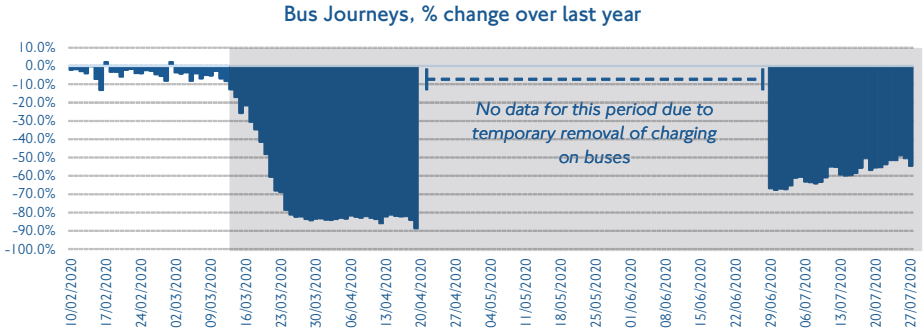


DEMAND & CAPACITY

Our customers initially stayed away; demand is now recovering

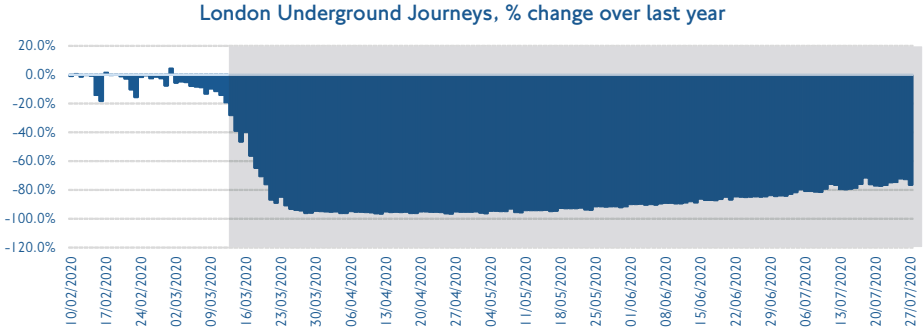
BUSES

Bus demand down 54.5% as of 27/07/20



UNDERGROUND

Tube demand down 76.4% as of 27/07/20



DEMAND & CAPACITY

Social distancing dramatically reduces capacity

2m *(from 23 March)*

1m+ *(from 4 July)*

Max of 34% of capacity

BUSES

2m *(from 23 March)*

1m+ *(from 4 July)*

Max of 25% of capacity

UNDERGROUND

OUR RESPONSE

Keeping people safely separated

- Clear signage
- Holding people outside stations where needed
- Reduced capacities of vehicles. Was 20 on a double-decker bus, now 30
- Mandatory face masks from 15 June

OUR RESPONSE

Reassuring our customers

- Hospital-grade cleaning and supplementing regular cleaning regime
- Extensive communication on posters and press

OUR RESPONSE

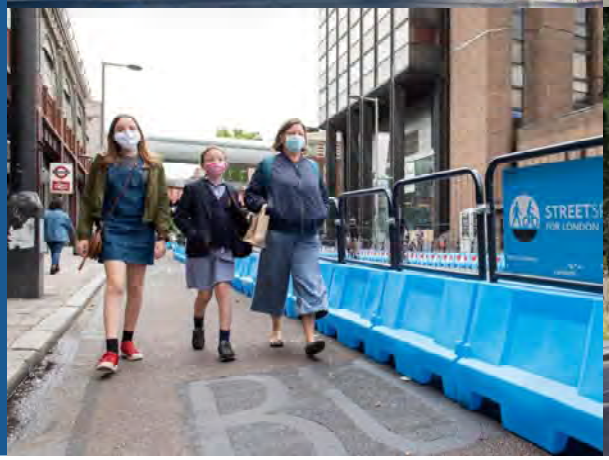
Protecting our people

- All our people offered face coverings since May. Upgraded in July
- Risk assessments open to all including extra PPE for our people at particular risk
- All office workers working from home where possible
- Grated special leave for staff to “shield” where work from home is not possible

OUR RESPONSE

Providing alternatives

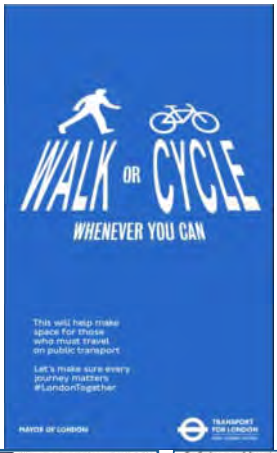
- Major Streetscape programme launched with London boroughs to quickly delivery space for walking and cycling
- Recent events make the environmental need even stronger

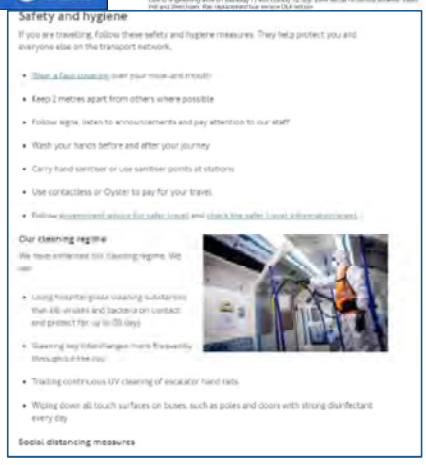


OUR RESPONSE

Customer messaging

- Messaging initially focussed on leaving public transport for key workers only
- Has recently loosened to allow more journeys
- Building confidence through stories of cleanliness, frequency and face mask compliance
- Aim is to provide reassurance the public transport system is clean, safe, orderly and reliable and can support London's recovery from the direct impacts of COVID-19
- Channels in use include our own space, radio, social media and email to our customer database





NEXT CHALLENGES

Focus is now on supporting recovery for both transport the wider economy

11

Financial and Economic	• Revenue has taken a big hit due to reduced PT demand • We've agreed a funding deal with government to October • Need to review our business plan in the light of this and future funding deal – but lots of uncertainty about how and when revenue might recover • TfL supporting wider recovery of London from impacts of COVID-19
Service	• Services now back to normal levels – but with social distancing capacity constraints • Next big challenge is expected to be start of school term in September (big impact on bus network), plus planning for potential second wave

UK's cities: strategies for their path to recovery

August 2020
Subtitle

steer

What will we cover?

How the UK is looking to kick-start its economy and what it means for transport

Why us?

We are supporting the UK government across India, Mexico and Colombia in their Prosperity Fund programme

Why now?

No better time than now to learn from each other as we go through a reset across the world

Content

This brief talks about the strategies and incentives by and for cities in the UK on their path to recovery post Covid-19 pandemic which can be relevant for Indian cities.

1 Green recovery
2 Low traffic neighborhood
3 Innovate UK
4 Eat out to help out scheme
5 Bike bonus scheme – Across Europe

steer

Green Recovery

- With a budget of £2 billion over the next five years, Britain has launched an **Active Travel England** programme as a measure to boost public health
  - New bike lanes
  - More parking spaces for bikes
  - Better protected junctions and pedestrian infrastructure
  - Public consultation on the Highway Code

- The UK government has launched a **£350 million green investment package** to **create jobs** and **decarbonise parts of the economy** in a Covid-19 recovery plan.
- This will help to decarbonise hard-to-abate sectors like construction, heavy industry and transport in line with the UK's 2050 net-zero target.

- The UK has come out with "**Traffic regulation orders during Covid-19**" to boost sustainable modes of transport while maintaining social distancing
- The key elements introduced are:
  - Installing new cycling lanes
  - widening pavements
  - changing parking provisions
  - reducing speed limits
  - allowing trial e-scooters to use cycle lanes

steer

Low Traffic Neighbourhood

UK is creating more space for people to safely walk or cycle as the country is opening up after lockdown, to make it easier and safer for people to keep up social distancing

Greater Manchester - £5million in emergency funding to allow people walk and cycle

- Enhanced spaces for pedestrians and people on bikes in the city-region
- Footway extensions, new one-way streets
- Removal of through motor traffic on some roads

steer

Innovate UK

Innovate UK, as part of UK Research and Innovation, is investing up to £1.25 billion to fund innovative projects

This would ensure firms and jobs in most dynamic sectors of the UK are protected through the crisis

- The scheme will support UK businesses to focus on emerging needs of society and industries during and following the Covid-19 pandemic
- UK registered businesses with an innovative idea can apply for funding
- An innovative idea should meet societal needs that have emerged due to the Covid-19 pandemic or the needs of an industry that has been severely impacted.

Steer has also won a grant as a part of this scheme – Our project is about how different sections of the cities will move out of lockdown while public transport and workplace capacities are severely reduced.

steer

Sector specific support example

To boost the hospitality industry, the UK government has started Eat out to help out scheme

- The scheme offers diners 50% off on their meals, with the discount capping at £10 per head
- The scheme is designed to get more customers – **protecting jobs** by giving **businesses the confidence** to retain and hire staff
- The registered restaurants can claim the money back from the government, with reimbursements set to reach restaurants within five working days

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Bike Bonus Scheme – Across Europe

In a bid to lower pressure on public transport and maintain social distancing, countries across Europe are coming up with innovative ways to encourage people to shift towards sustainable modes of transport

Italy

- Allocated €120 million to reimburse people to purchase bikes
- People can claim back 60% of the cost of a new bike capped at €500
- The bonus applies to electric bikes, scooters, hoverboards, monowheels and "shared mobility services for individual use"

France

- Allocated €20 million worth of subsidies towards the bike cost of repairs
- Through registered mechanics, €50 off on repairs per bike
- Employers are supported to cover up to €400 of travel costs of staff who commute by bike
- Increase in bicycle parking spaces, developing bike lanes and training people who haven't ridden bike.

Spain (Madrid)

- Allocated €2.5 million for 2020 and €3 million for 2021 to encourage purchase of non-polluting vehicles
- Subsidy to buy a motorbike, bike or scooter
- For scooters, the cap is €150 euros, for bikes it is €500, for mopeds €600, and for electric motorbikes €750

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Contact information

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- Luke Miller

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+44 7881914728

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Links

Green recovery

- https://www.gov.uk/government/news/pm-commits-350-million-to-fuel-green-recovery
- https://www.gov.uk/government/publications/making-traffic-regulation-orders-during-coronavirus-covid-19/traffic-regulation-orders-guidance-on-the-traffic-orders-procedure-coronavirus

Low traffic neighborhood

- https://www.forbes.com/sites/carltonreid/2020/05/06/greater-manchester-to-spend-5-million-on-pop-up-cycleways-widened-sidewalks/#dfdab2319e49

Innovate UK

- https://www.gov.uk/government/news/billion-pound-support-package-for-innovative-firms-hit-by-coronavirus
- http://udm.steergroup.com/#/

Eat out to help out scheme:

- https://www.gov.uk/government/publications/get-more-information-about-the-eat-out-to-help-out-scheme/get-more-information-about-the-eat-out-to-help-out-scheme

Bike bonus scheme – Across Europe

- https://www.thelocal.it/20200514/italy-offers-city-dwellers-up-to-500-to-buy-a-new-bike
- https://www.bbc.com/news/world-europe-52483684#:~:text=France%20is%20encouraging%20people%20to,training%20and%20temporary%20parking%20spaces.
- https://www.eltis.org/in-brief/news/madrid-announces-incentives-purchase-non-polluting-vehicles

steer

Ministry of Housing and Urban Affairs

TECHNOLOGIES AND STRATEGIES FOR COVID-19 RECOVERY

Aug 2020

Cellular Data

Population Mobility Insights

- Low Latency, daily data of population movement across Great Britain
- Provision of data and insights to Central Government, Academic Institutions…

We provide insights via anonymised and aggregated data generated from billions of network events

A similar platform with Bharti Airtel data could deliver insights across all states in India

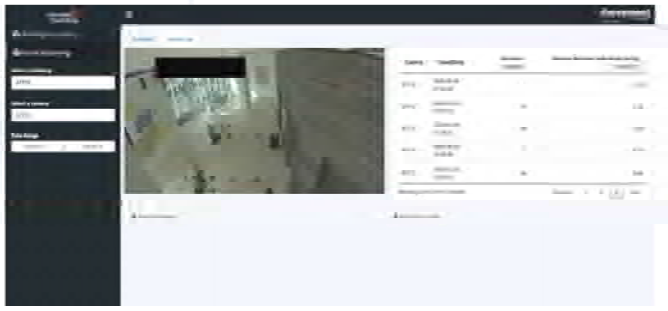
Smart Cameras

Social Distance Monitoring

COVID-19 RESPONSE

- Lightweight, scalable live dashboard monitoring social distance breaches detected by smart cameras
- Can be applied to all key environments:
  - Offices and Warehouses
  - Rail stations, airports and critical transport infrastructure
  - Retail
  - Hospitals

Identify **trends** in social distancing breaches to inform mitigation measures



Events Log of social distancing breaches to support safety decisions

GHD movement strategies

Smart BLE Tags

Contact Tracing

COVID-19 RESPONSE

A turnkey social distancing and contact tracing solution; a vital building block of a COVID-secure workplace, protecting employees, visitors and customers, helping businesses to "Get back to Business".

- Measure 24/7 across multiple facilities, if applicable
- Provide real time alerts
- Monitor KPIs and trends
- Actionable and measurable outcomes
- Provide assurance to staff and other stakeholders

GHD movement strategies

HADEAN

Aether Engine for Pandemic Modelling

Combating COVID-19 with Spatial Simulation

Mimi Keshani | VP Operations | mimi@hadean.com

Michael Gunadi | VP Sales | michael@hadean.com

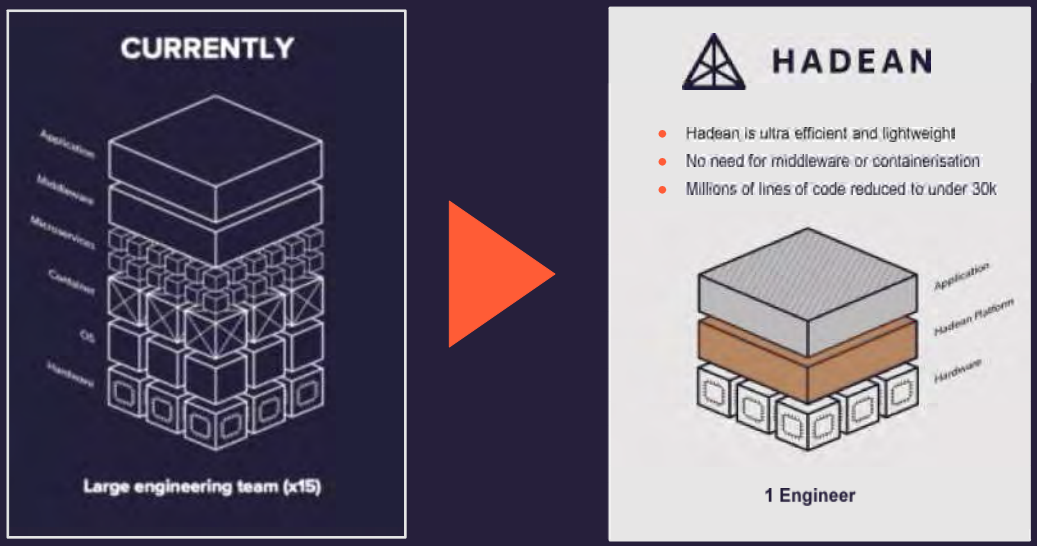
ABOUT HADEAN

We are a deep tech startup from London with 55 employees that has raised $16m to date

Microsoft Azure
Google Cloud
Microsoft Research
Imperial College London
THE FRANCIS CRICK INSTITUTE
NHS
Ministry of Defence
Project xCloud
MINECRAFT
Xsolla
EPIC GAMES
CCP

OUR MISSION

To build the defacto platform for distributed computing

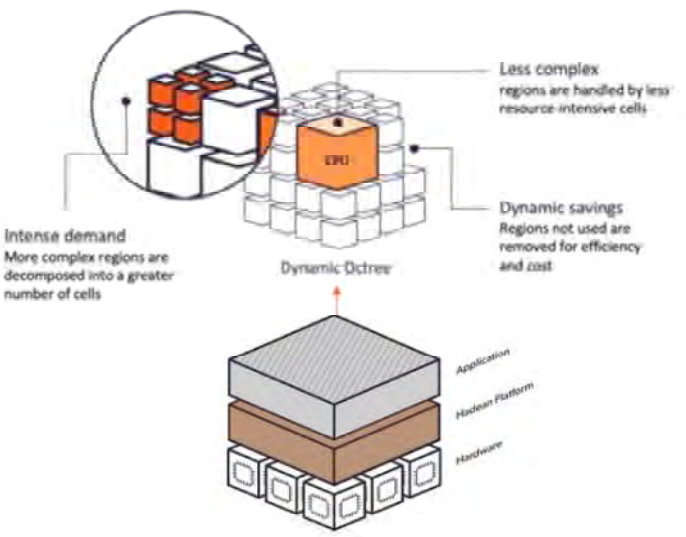


We have redesigned the technology stack, enabling anyone to easily build cloud-native applications with unparalleled performance, reliability, and scale

AETHER ENGINE

A distributed spatial simulation engine that enables high resolution and immense scale

Aether Engine: built on Hadean



Current application areas:

- Life Sciences & Healthcare
- Smart Cities & Urban Design
- Synthetic Training Environments
- Virtual Events
- Massively Multiplayer Online Gaming

Key benefits:

1. Dynamically scalable simulations for at-scale analysis
2. Optimised cloud usage & cost-efficiencies
3. Rapid iteration (prototype > production in weeks)
4. Extensibility with multiple infra, software, and datasets

FRANCIS CRICK INSTITUTE

Biomolecular modelling for Drug Discovery & Clinical Intervention

Overview:

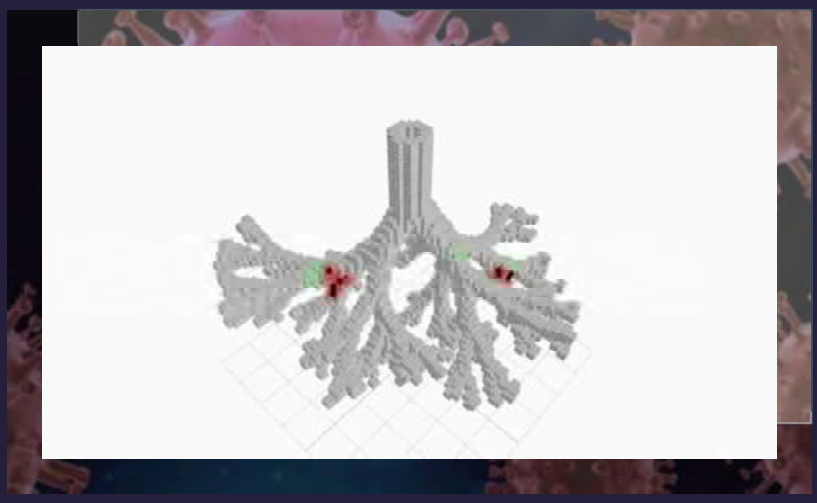
- Francis Crick's Biomolecular Lab are developing a high fidelity agent-based model on Aether Engine
- This will map the interplay between the virus, immune system, and any overlaid therapeutic
- Using Azure ML/RL to identify optimised intervention strategies for individual patients in a simulated treatment scenarios

Key benefits:

- Rapidly validate efficacy of drug candidates
- Personalised treatment planning for greater clinical effectiveness

Application areas:

1. Drug discovery / repurposing
2. Clinical management



// **Agent-based model of SARS-CoV-2 in the human respiratory system**

IMPERIAL COLLEGE

Macro-scale epidemiology and pandemic modelling

Overview:

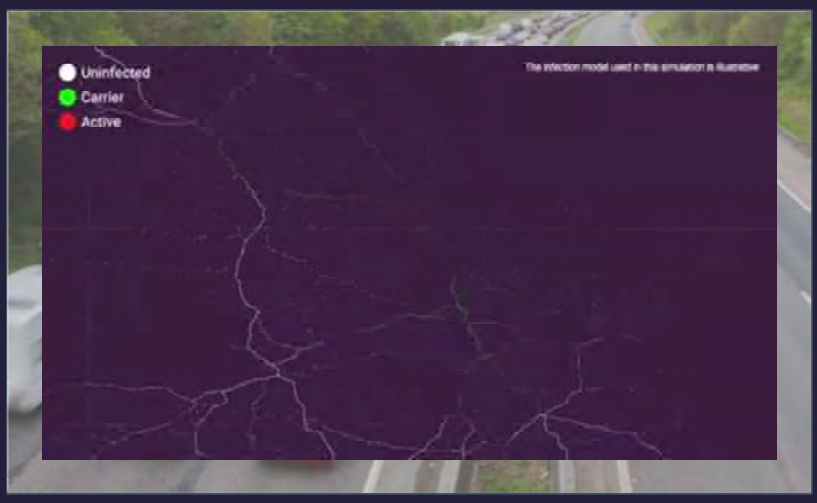
- Hadean is building a massive-scale geospatial network with Imperial College (UK Gov lead on COVID-19 modelling)
- An agent-based epidemiological simulation models the behaviour of infected, susceptible, and recovered populations across the UK

Key benefits:

- At-scale modelling of population mobility to inform localised lockdown measures / policy making
- Rapid configuration for scenario planning

Application areas:

1. Governmental policy-making
2. Transport and infrastructure
3. Clinical management



// **UK-wide model of viral transmission using road network data (assembled in 3 days by 1 dev)**

SUPPORTING GLOBAL COVID-19 INITIATIVES

A company-wide focus for Hadean

AETHER ENGINE

An accessible and configurable framework

A team of experts in distributed computing

Imperial College London

Microsoft Research

THE FRANCIS CRICK INSTITUTE

Leading scientific and domain partners

ORACLE

aws

A powerful and reliable global infrastructure

HADEAN

Thank you

Michael Gunadi, VP Sales
michael@hadean.com

Mimi Keshani, VP Operations
mimi@hadean.com

MOTT MACDONALD

Infrastructure Epidemiology

A public health-based approach to help asset owners and operators restore services and build confidence for a pandemic-resilient future

The challenge

Infrastructure settings promote disease transmission and, when the COVID-19 pandemic started, many cities reduced their operations, limited their transport networks, and closed large buildings.

In turn, this has slowed social and economic development – there is a need to reopen cities.

The challenge is in understanding and managing the risk, and in building confidence of employees and customers.

Infrastructure Epidemiology can help

Combining our global world class infrastructure and health advisory services to create a uniquely informed response to the COVID-19 pandemic.

We apply epidemiology principles and infection prevention and control practices to infrastructure planning, design and processes.

We aim to deliver practical and evidence-based guidance so that infrastructure and service providers can better manage their risks.

Our 3 Step Approach to Infrastructure Epidemiology

STEP 1

Immediate actions: Operational interventions to immediately reduce risk of transmission and get our cities moving again. Existing assets, equipment and processes are reviewed, and non-pharmaceutical interventions employed

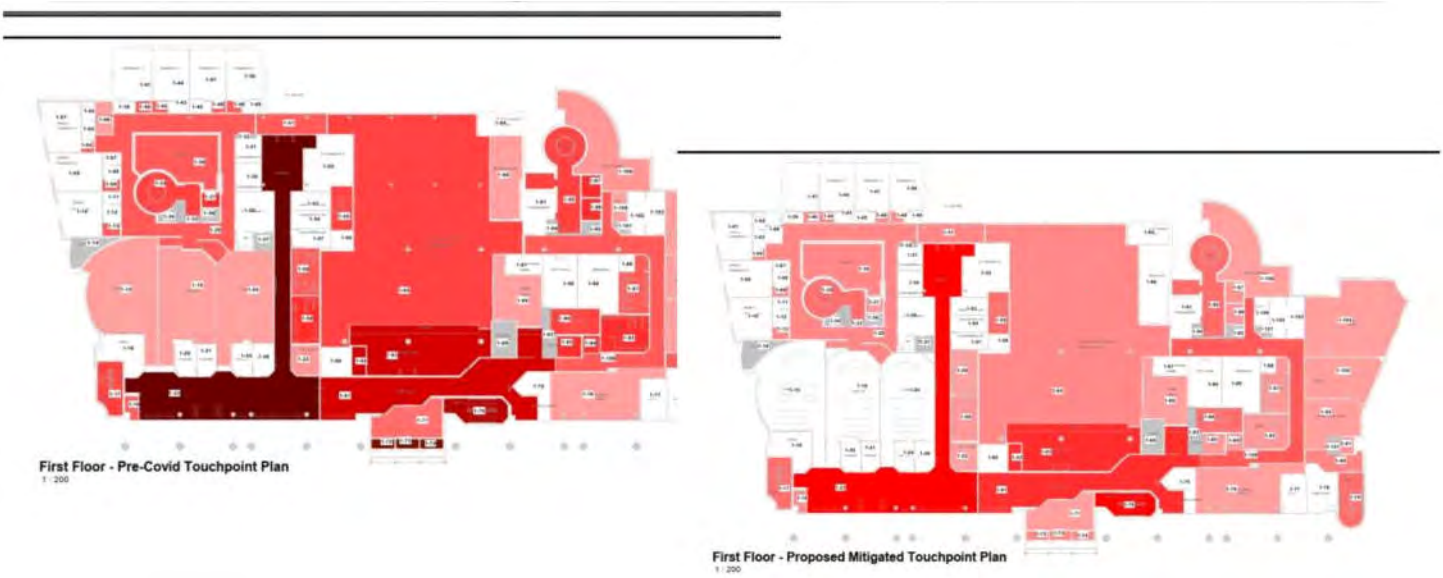
STEP 2

New solutions: Introduce new technologies to further reduce risk and improve the customer experience

STEP 3

Pandemic resilience: Longer term changes to strengthen risk management, contingency planning, including planning and design of future assets to reduce the impact of infectious diseases

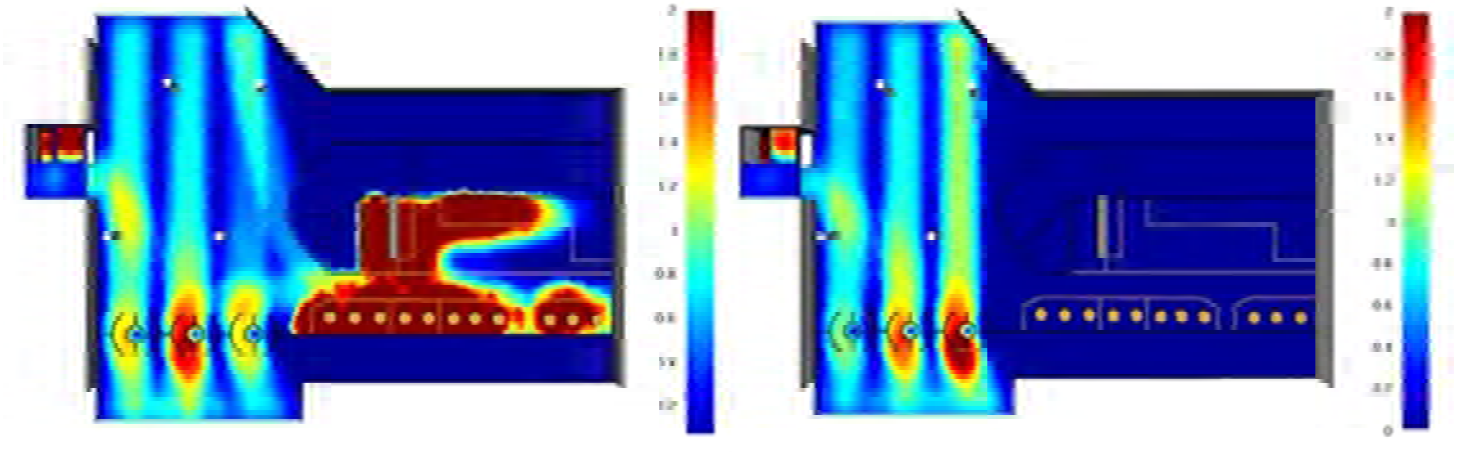
Touchpoint risk assessment in UK court houses



Comparative risk assessment tool in airports to quantify risk

Pedestrian modelling in transport hubs

For example, to test different social distancing measures



Preparing for the future

Our approach to uncertainty and pandemic resilience

1

Absorb

To be more resistant to pathogen transmission

2

Adapt

To be more responsive to changing needs

3

Transform

To be more versatile and change from their usual function

Thank you

For more information, please see:

- Mott MacDonald's response to COVID-19: https://www.mottmac.com/collaborating-to-beat-covid19
- Infrastructure Epidemiology: https://www.mottmac.com/views/infrastructure-epidemiology-can-build-confidence-and-reduce-risk-for-a-pandemic-resilient-future

Contact us:

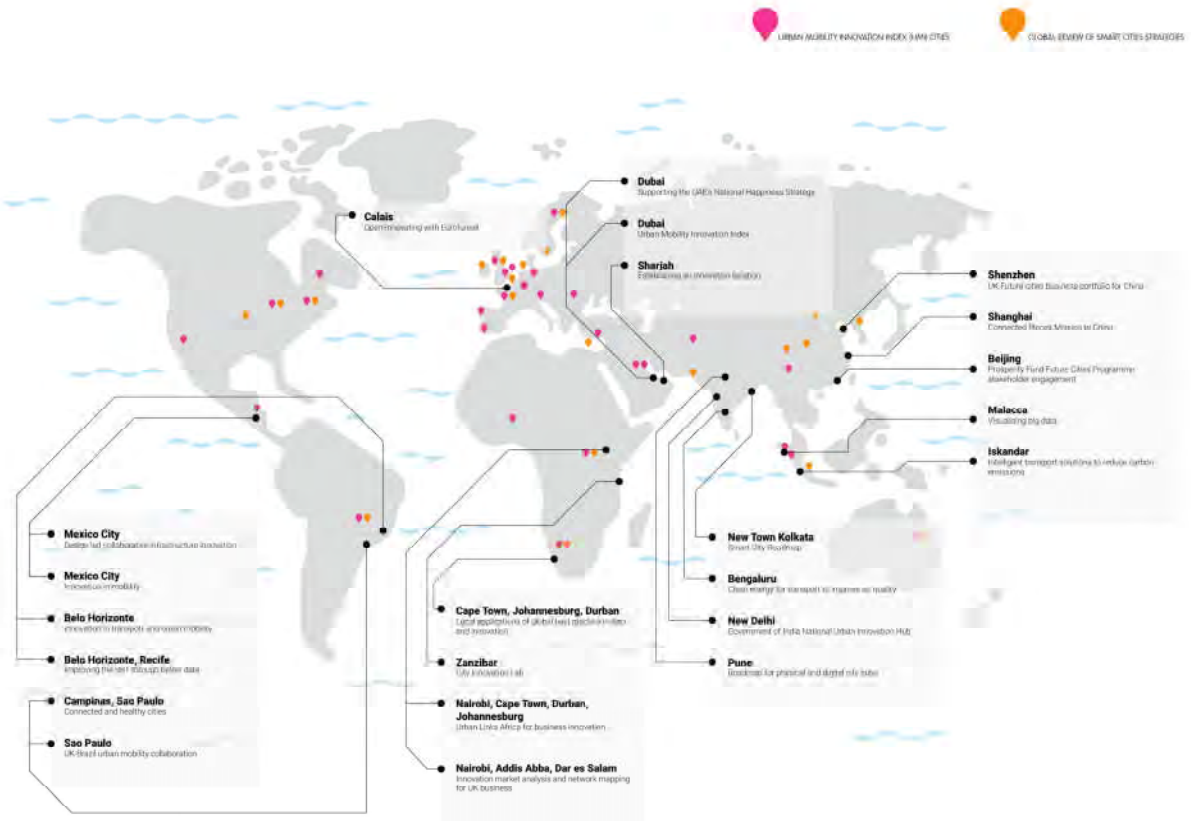
- Dr Vikas Aggarwal: vikas.aggarwal@mottmac.com
- Dr Anthony Huszar: anthony.huszar@mottmac.com

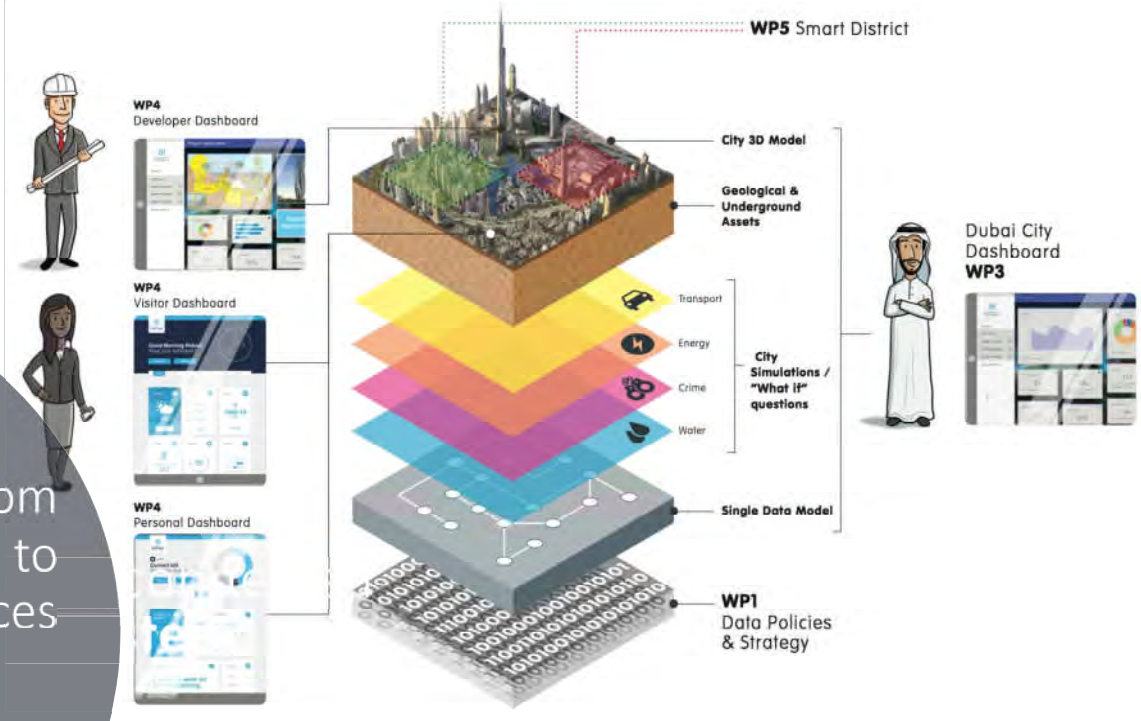
India- UK Webinar

13th August, 2020

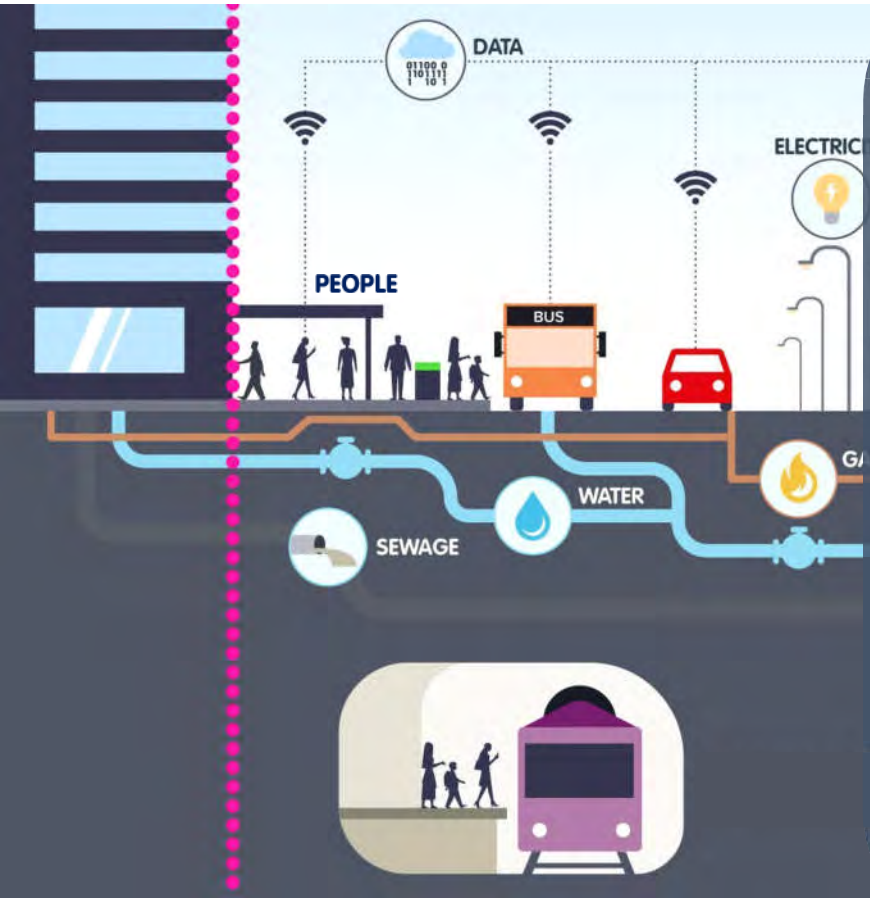
Smart Resilient Cities in a COVID world

Dr Amy Hochadel
Director of Global Business



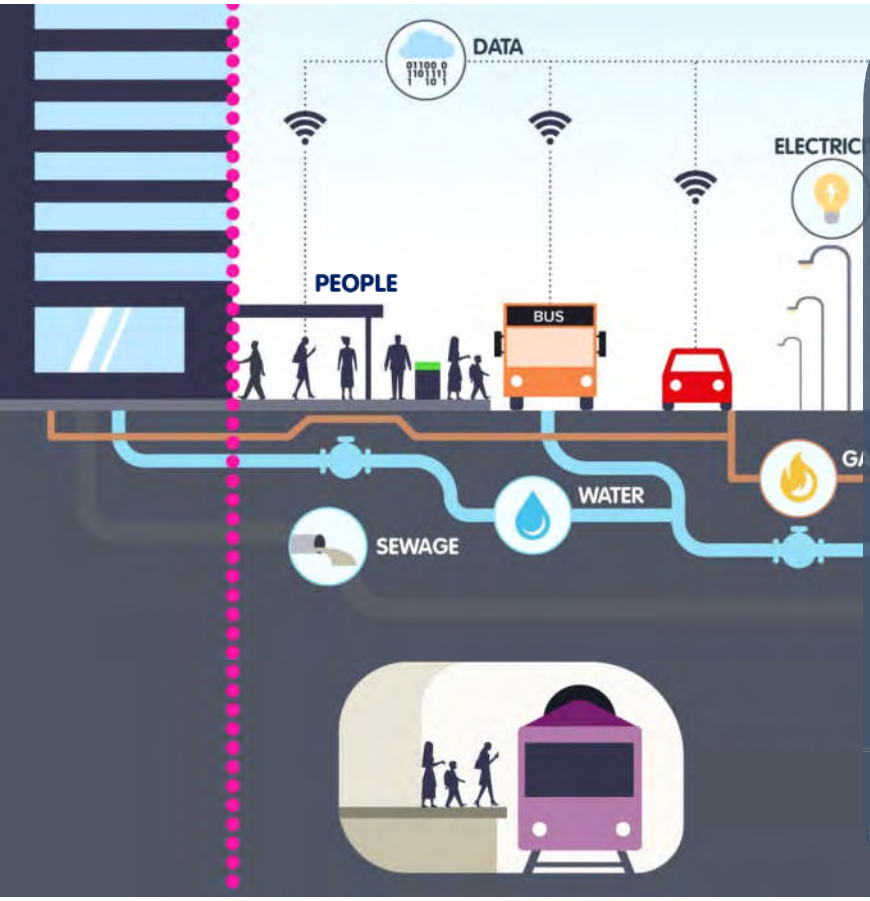


Shift in thinking from Smart Cities to Connected Places



Pre-Covid Barriers to Smart City Markets:

- lack of buyer confidence in tech
- fragmentation and silos in services and assets
- poor market coordination
- rigid regulatory environments
- lack of evidence for business cases
- privacy and security concerns
- disconnect between supply and demand



Post-Covid Barriers that have Transformed:

- ~~lack of buyer confidence in tech~~; Increased reliance on tech
- ~~fragmentation and silos in services and assets~~; Increased data sharing to compensate for service changes
- poor market coordination → increased
- ~~rigid regulatory environments~~; flexibility in regulatory environment
- lack of evidence for business cases
- ~~privacy and security concerns~~; increased willingness to share data for the 'greater good'
- disconnect between supply and demand

The early lessons learned from COVID

The opportunity before us can help inform smart *and* resilient cities – two issue areas that must now be addressed hand-in-hand if we hope to have both economically successful and healthy cities moving forward.

Agile Cities

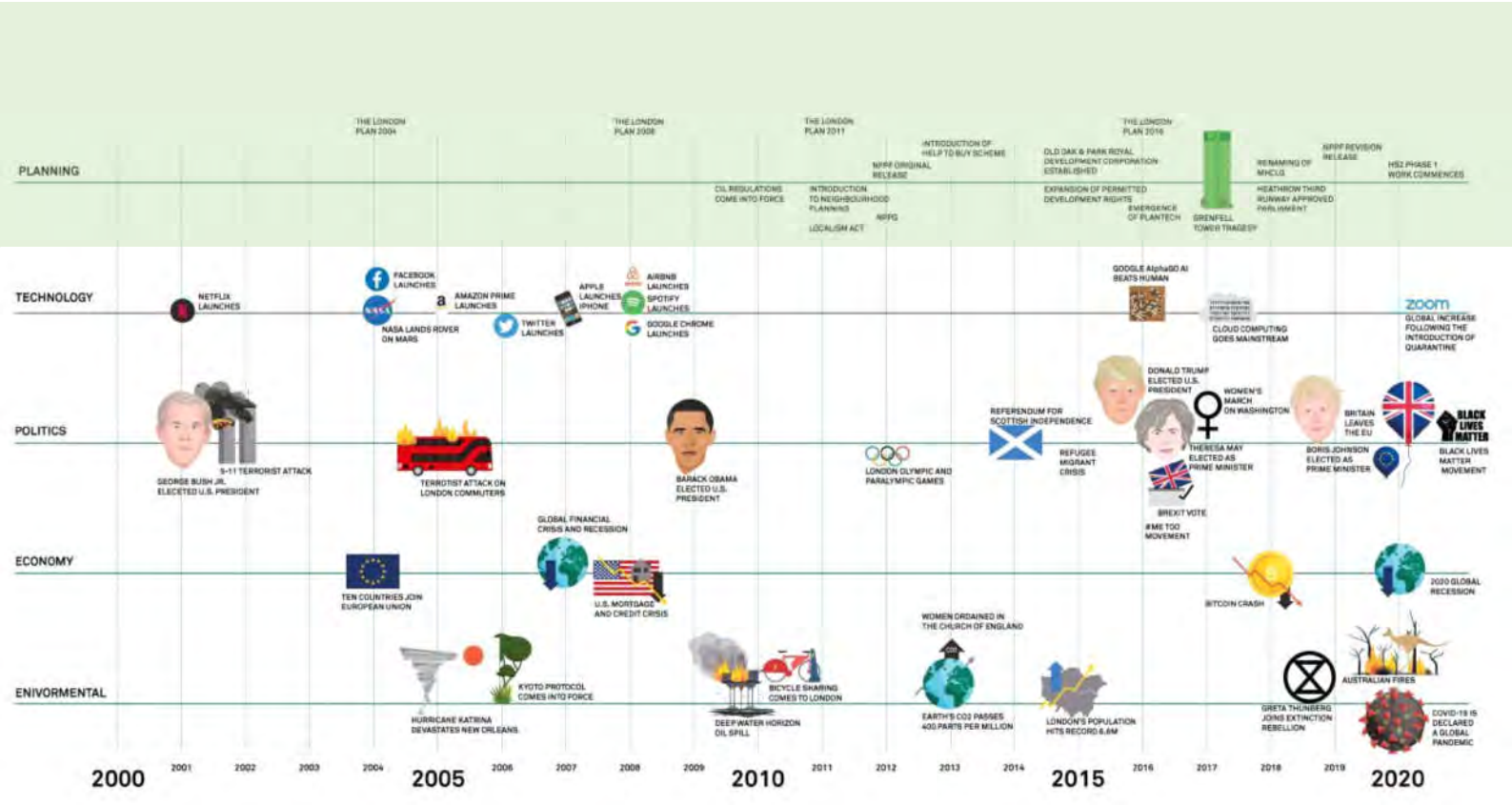
Cities that pre-COVID, were open to new ways of working, new innovations, testing digital methods and cultivating a dynamic and integrated innovation ecosystem exhibited a higher level of resilience during the crisis.

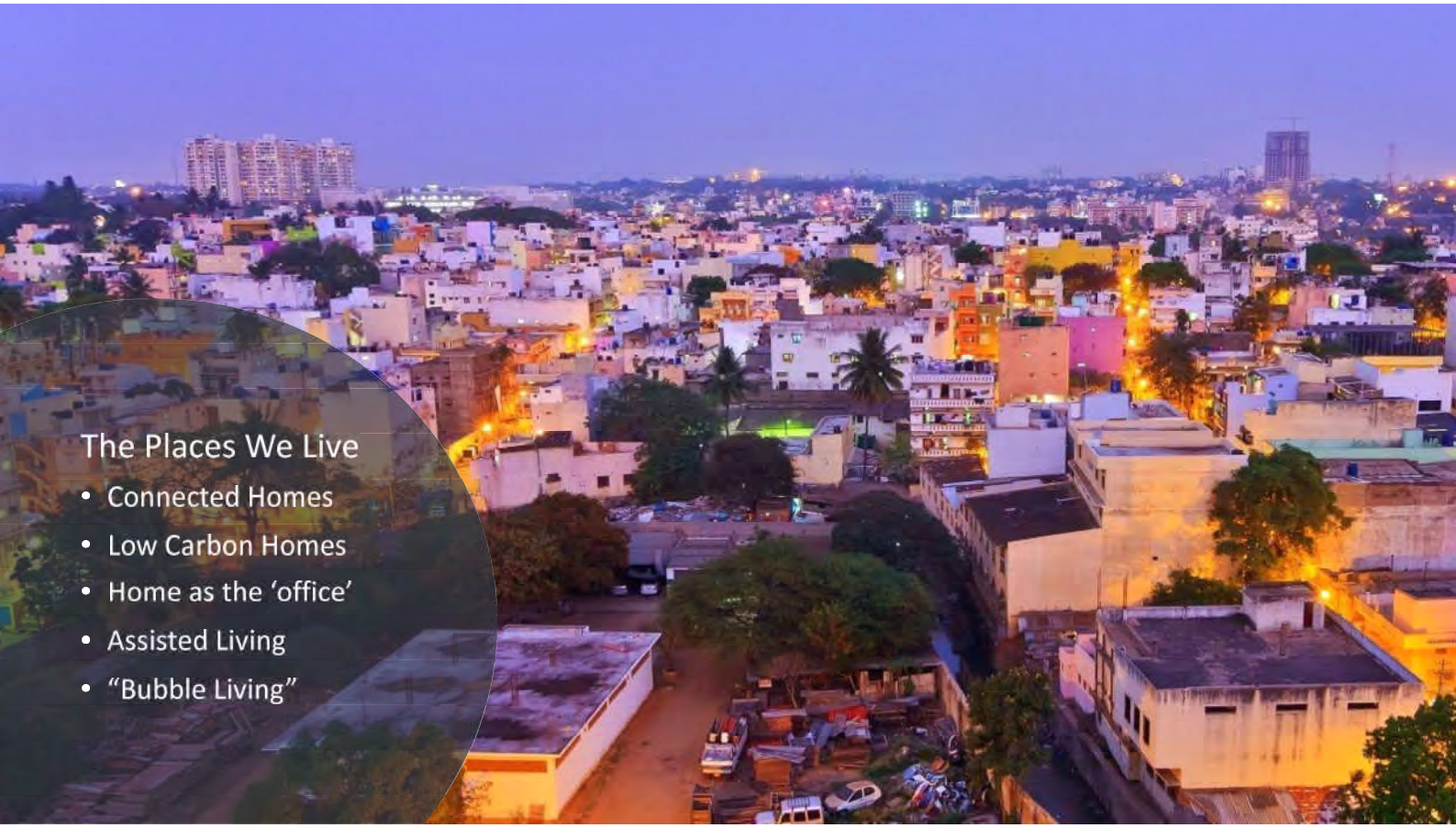
Digital Cities

Digitalisation is 'make-or-break' for cities in the new COVID world. Digitalisation will be the foundation for city services that will determine if a city economy and the related public health can bounce back and be relevant in a COVID world.

Net Zero Cities

Making a step change in how we achieve environmental targets and decarbonize our economies for both the health of our citizens as well as our economies.




The Places We Live
• Connected Homes
• Low Carbon Homes
• Home as the 'office'
• Assisted Living
• "Bubble Living"


Please Keep Our
Environment
and Green
The Way We Move
• Active Mobility
• Electrification
• Mobility as a Service MaaS
• CAVs & Automation
• Shared Mobility
• Micro Mobility
• Drones
The Depth of the Democracy is decided by the width of the footpath in the city.
–Prasanna Desai architects


The Way We Govern
• Citizen engagement will be critical
• Shared governance
• Shared services
• Digitising processes
• Cities setting precedent for nat'l policy


Unaware
Acknowledge
Engage
PROMOTIONAL MATERIAL
Malay reads about a successful mobility project completed in another city and Sam sees an advert about the hub opening in Pune. Garati attends a talk about the Hub held at her university. All promotional materials directs users to find out more .
EVENTS PROGRAM
Malay is inspired to launch a mobility challenge in Pune after attending a City Academy Workshop where Garati gave a talk on urban mobility best practise.
ONLINE HUB
Sam and Garati both join the hub community to connect with other members and find opportunities.
JOB OPPORTUNITY BOARD
Garati applys for an internship through the hub's Job Opportunity Board.
CITY IMMERSION DAY WORKSHOP
Sam attends a City Immersion day workshop to better understand the challenges in Pune.

Acceleration – Opportunities for smart cities that resulted from COVID

Smart Governance and Economy

- Digital platforms for public engagement
- Full mobile integration Gov 'one-pass'
- increase cycle to work schemes including electric bikes;

Regulations of Smart Cities

- regulations for planning / greenspace, mobility that encourage 'sand boxes'
- E-scooter lanes alongside cycle lanes
- re-allocation of road space/parking for outdoor sitting for restaurants

Smart Data Collection

- complete data integration across sectors and with industry
- walking/cycling apps integrated with COVID apps to divert users from hotspots to give sense of safety, mapping and multi-modal navigation apps,

Sustainability of Smart cities

- Integrated urban planning
- Public transport - tools for monitoring passengers temps;
- live apps redirecting passengers from busy stations/services
- Increase in digital collaboration tools across sectors

Smart Cities Initiatives

- planning for self sufficient housing development 'bubbles'
- Place making virtual tours/3D tours for tourism bookings of accommodation;
- Drone market, Medical supplies delivery, Airline repurposing to drone industry,

Innovating For Clean Air

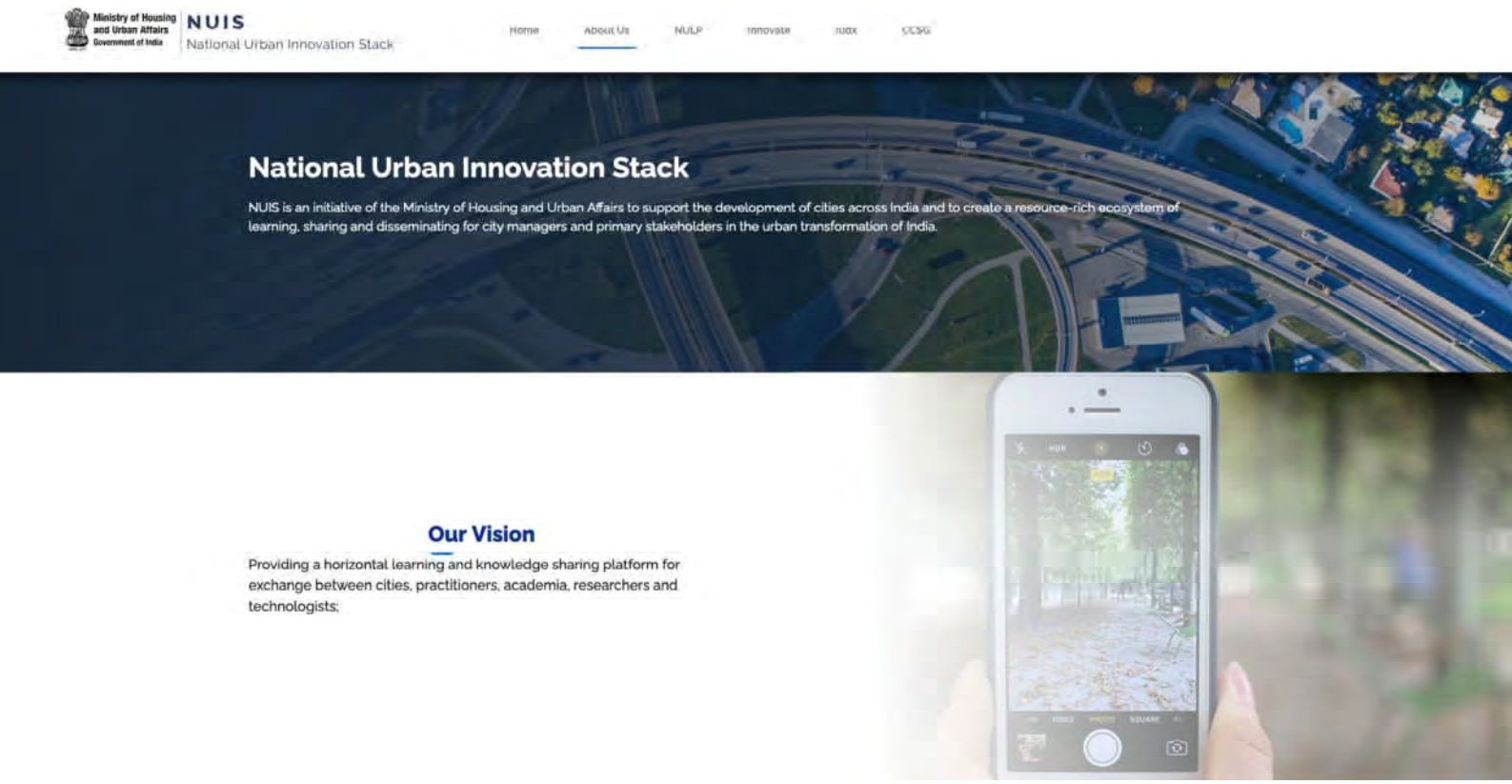
A UK-India initiative supporting innovators in Bengaluru to promote best practice innovation and technology exchange, improve the local business ecosystem, and create a sustainable platform for ongoing UK-India government and industry cooperation.

The EV Innovation stream

- Charging infrastructure solutions
- Grid management
- Renewable energy integration, and
- Electric mobility (all aspects, including battery management systems).

The Air Quality Innovation stream

- Innovative ways to measure and visualise air pollution
- Solutions promoting active mobility (walking and cycling)
- Smart waste management
- Clean cooking and heating, and
- Ways to promote and empower behaviour change.



Dr Amy Hochadel, Director, Global Business
amy.hochadel@cp.catapult.org.uk

CATAPULT
Connected Places

1 Sekforde Street
Clerkenwell
London
EC1R 0BE

Thriving Life
Connecting people

Technologies & Strategies for Covid-19 Recovery

Safe Public Spaces

Max Martinez
Director

Space Syntax

Evidence-based approach

Space Syntax approach is built on a data-rich, human centred approach that can quantify the impact that urban layout, land use and transport have on the social, economic and environmental performance of cities

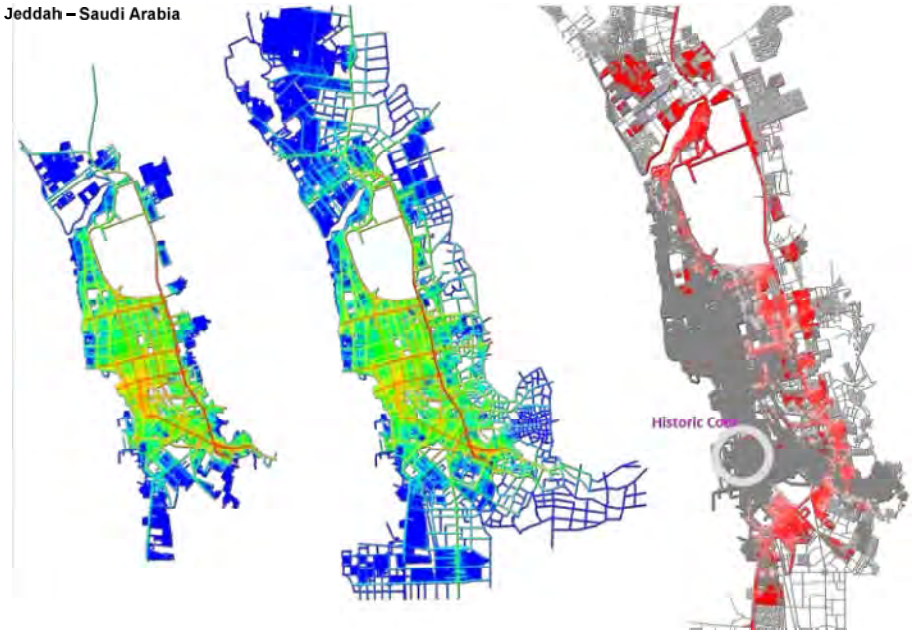
Covid-19 highlights the challenges and urgency to transform the way we understand, plan, develop and future-proof our cities.

Are particular cities or areas within cities better suited to withstand lockdown and post-lockdown recovery?

How can cities be made more equitable?

What can Space Syntax do?

Spatial Network Model – designs can be tested before being built



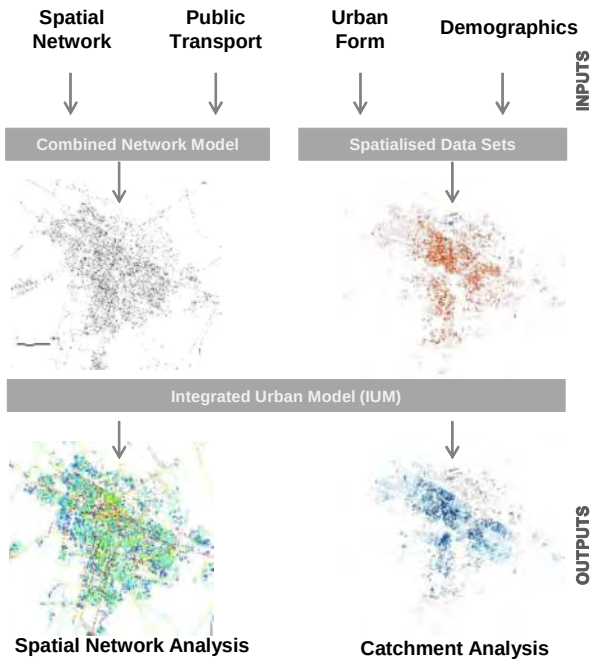
Existing spatial network | Former plan | Impact

What can Space Syntax do?

Integrated Urban Model

An Integrated Urban Model is a set of interlinked data layers describing urban form and/or function. It is made of adding layers (inputs) for public transport, land use, economic and demographic data. The outcomes can be weighted spatial network analysis models and catchment analyses.

Given its interdisciplinary approach, it allows for better urban designs and policy decisions by measuring how systems interact to affect daily patterns of use.



What can Space Syntax do?

Integrated Urban Model – urban form can be measured

User focused outcomes:

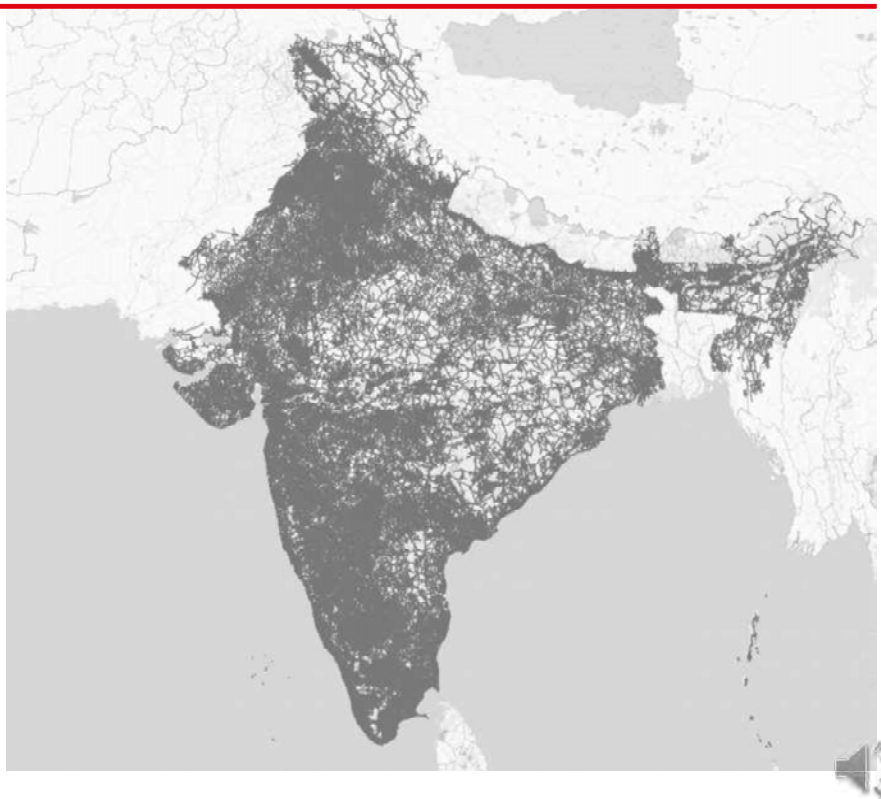
How many jobs can I get to in half an hour?

Can I walk to a decent school or doctor?

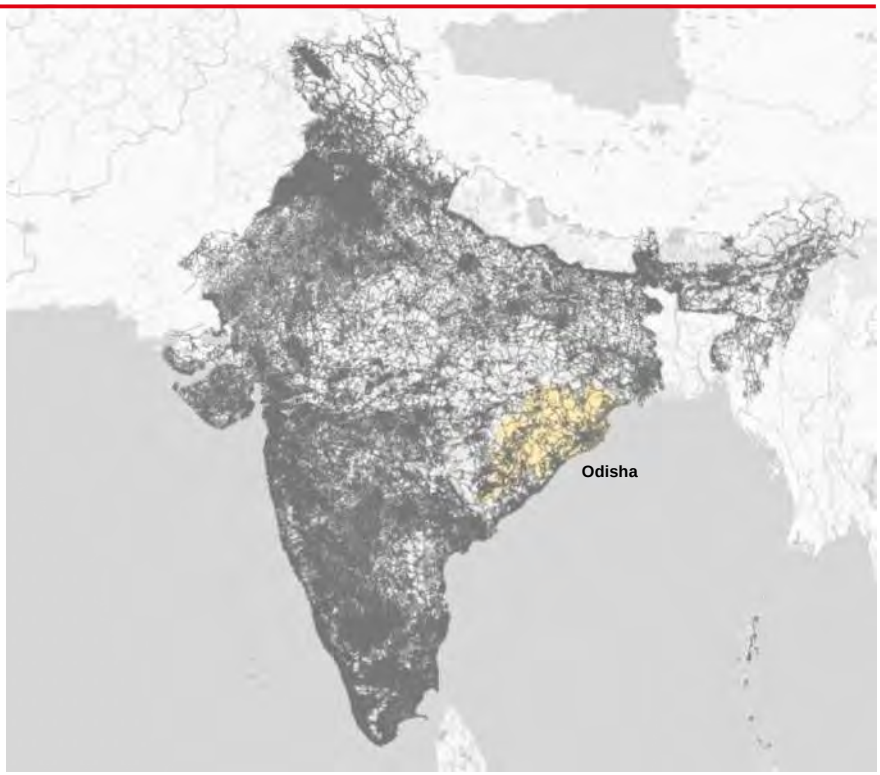
Am I close to shops, cafes, parks etc?

What is better for everyone?

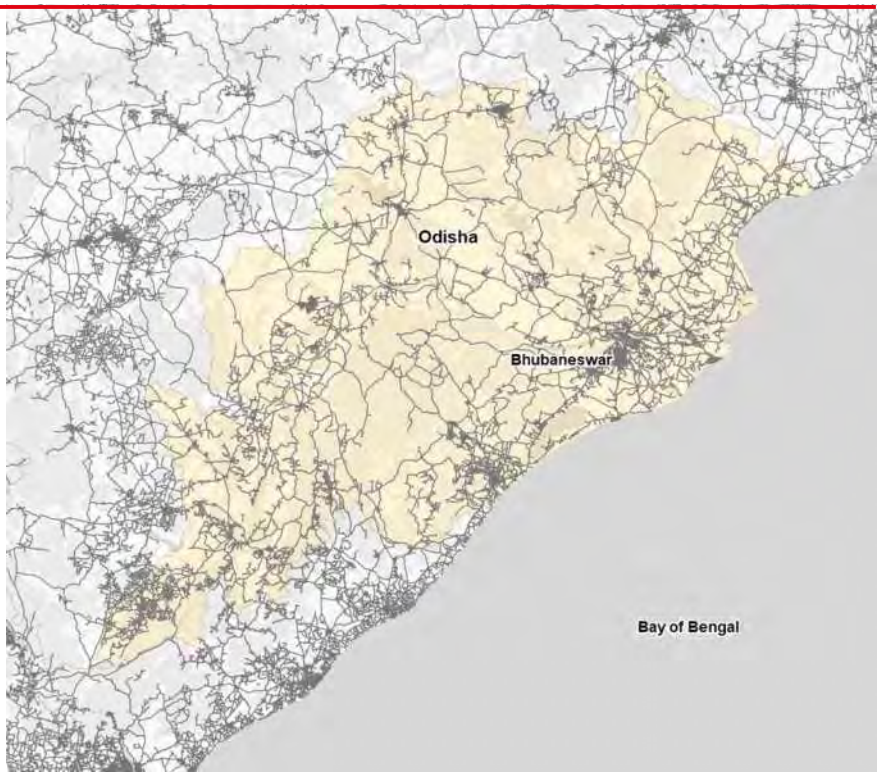
Spatial Model of India



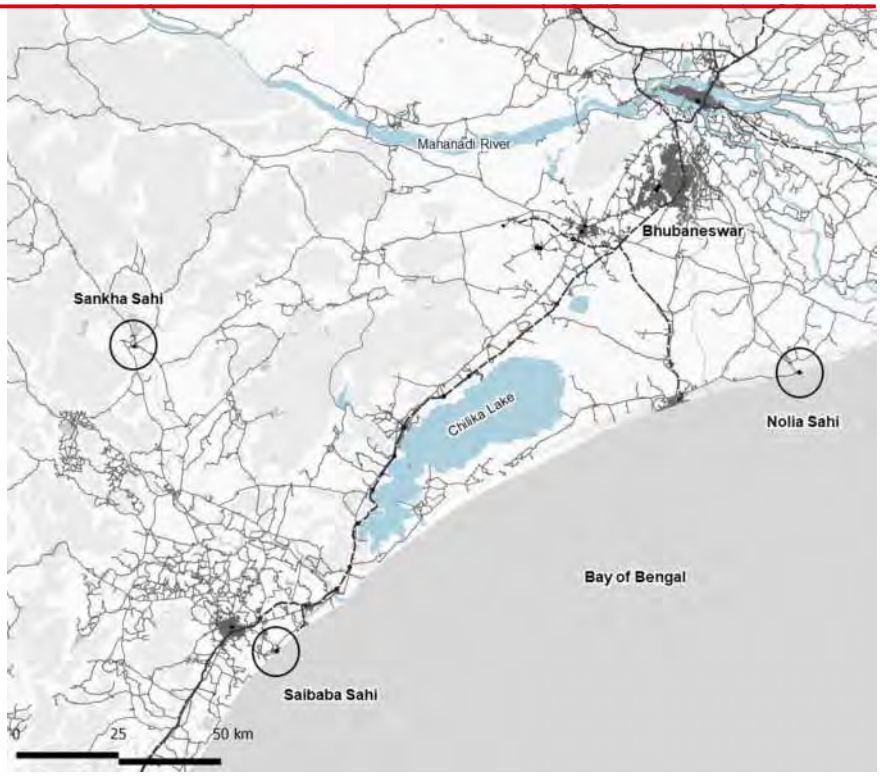
Spatial Model of India



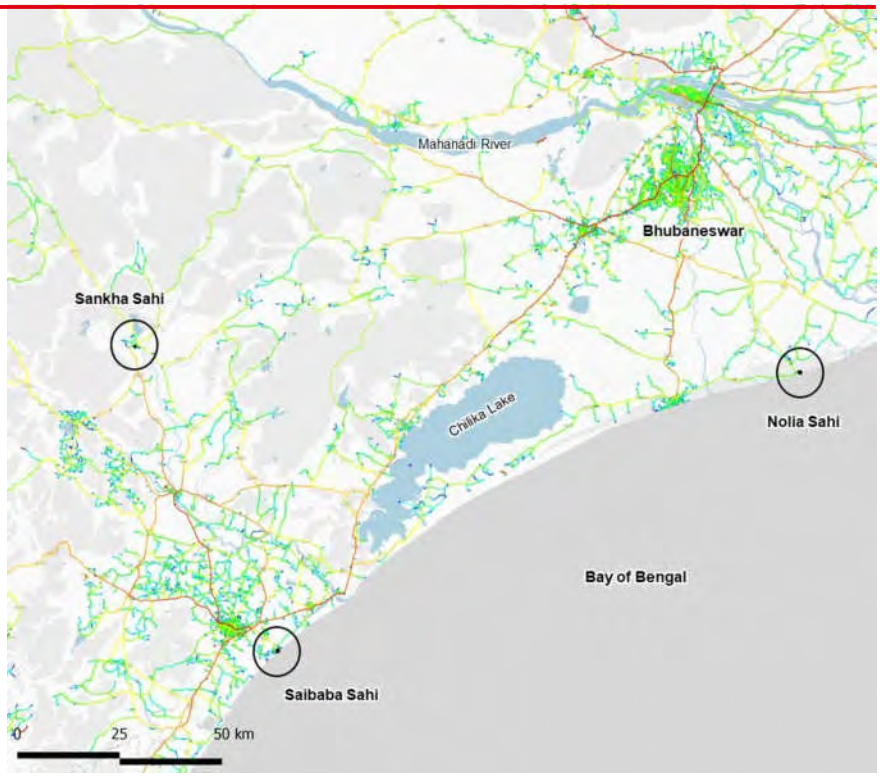
Focussing on Odisha



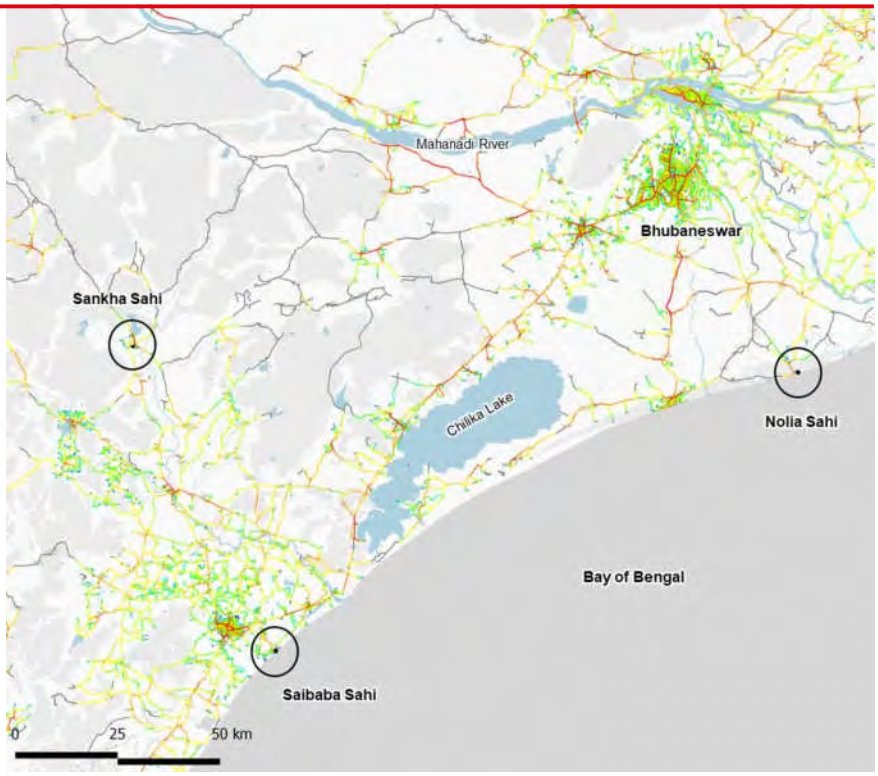
Focussing on Odisha



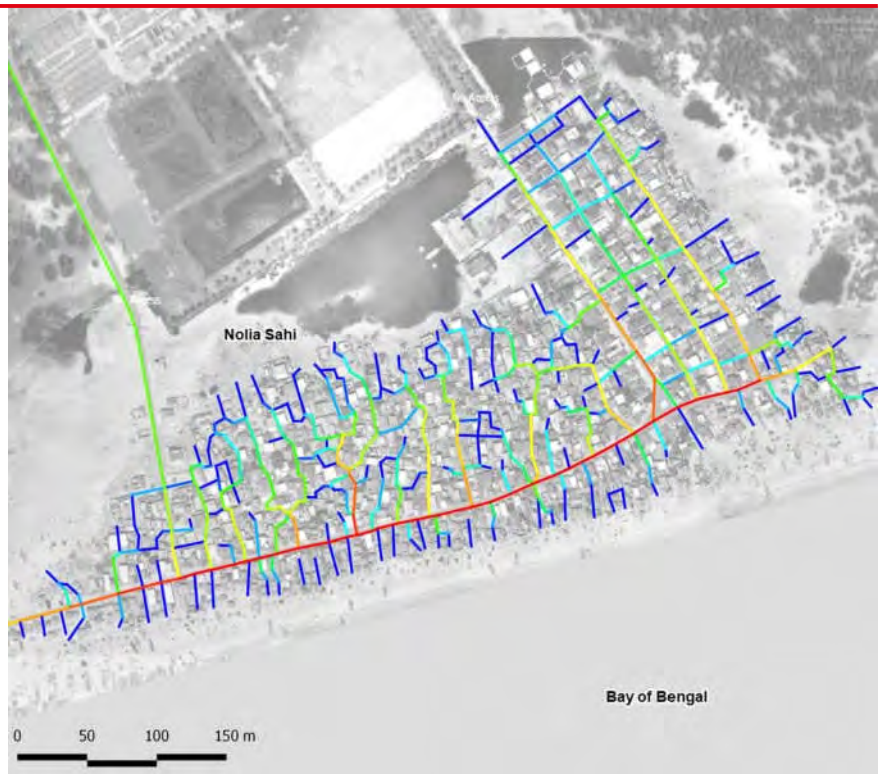
Spatial Accessibility 100km



Spatial Accessibility 10km

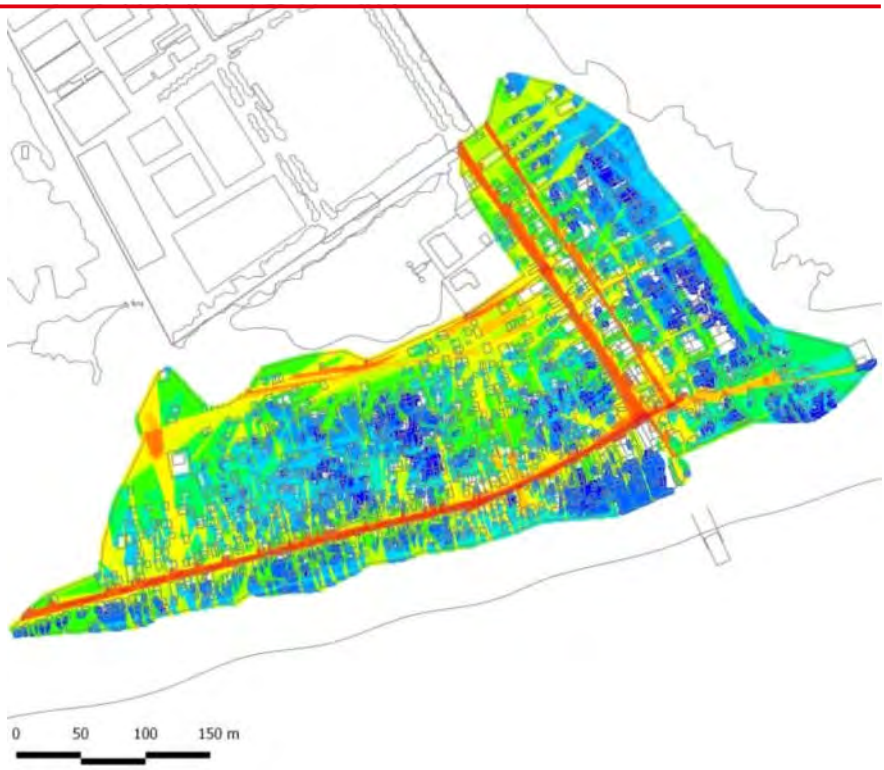


Spatial Accessibility Nolia Sahi



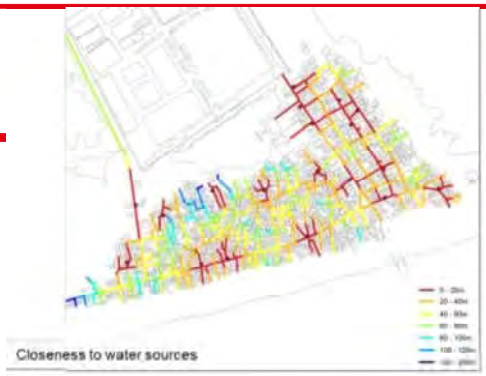
Visibility Analysis

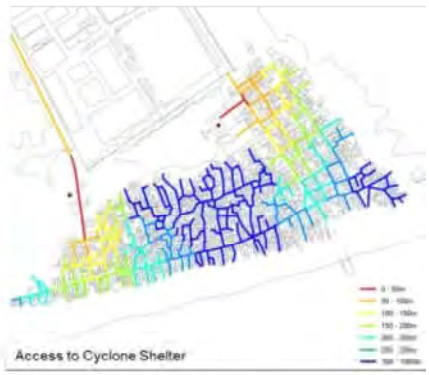
Nolia Sahi



Access to Facilities

Nolia Sahi





Planning for Growth

Nolia Sahi

Existing

Proposed growth

Further optimisations

What can Space Syntax do?

Integrated Urban Model – systems evaluated across scales

1

VIVACITY

Revolutionising Transport Infrastructure with AI

Vivacity Labs

August 2020

WSJ THE TIMES BBC The Telegraph THE Sun Forbes

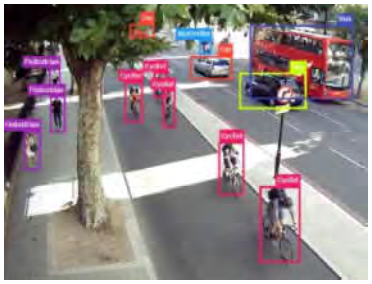
2

VIVACITY

We provide cities with mission-critical AI Products to manage road transport

UNDERSTAND

Sensor Data to help City understand live network usage, using AI video analytics



PROACTIVELY MANAGE

Cloud Portal providing congestion and incident alerts, and AI traffic forecasts to control room

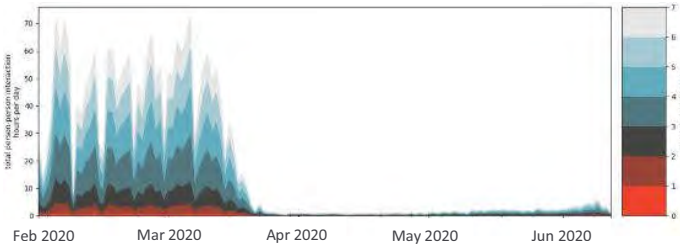
CONTROL

Traffic signal optimisation, using our data & AI, to prioritise journey time, air quality, or other policy driven requests

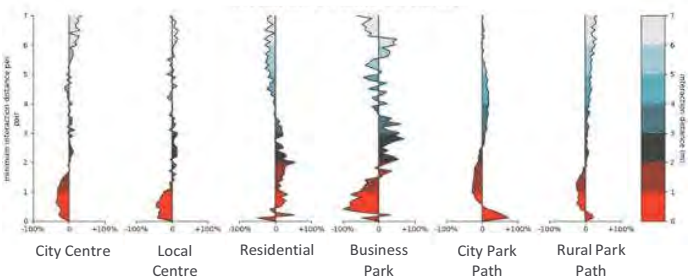
Social Distancing

During the Covid-19 Lockdown, we have provided national data on Social Distancing to DfT and SAGE.

15 City Centres across UK



Change in interactions between March and April



Sensor

Edge Processor

No Personal Data

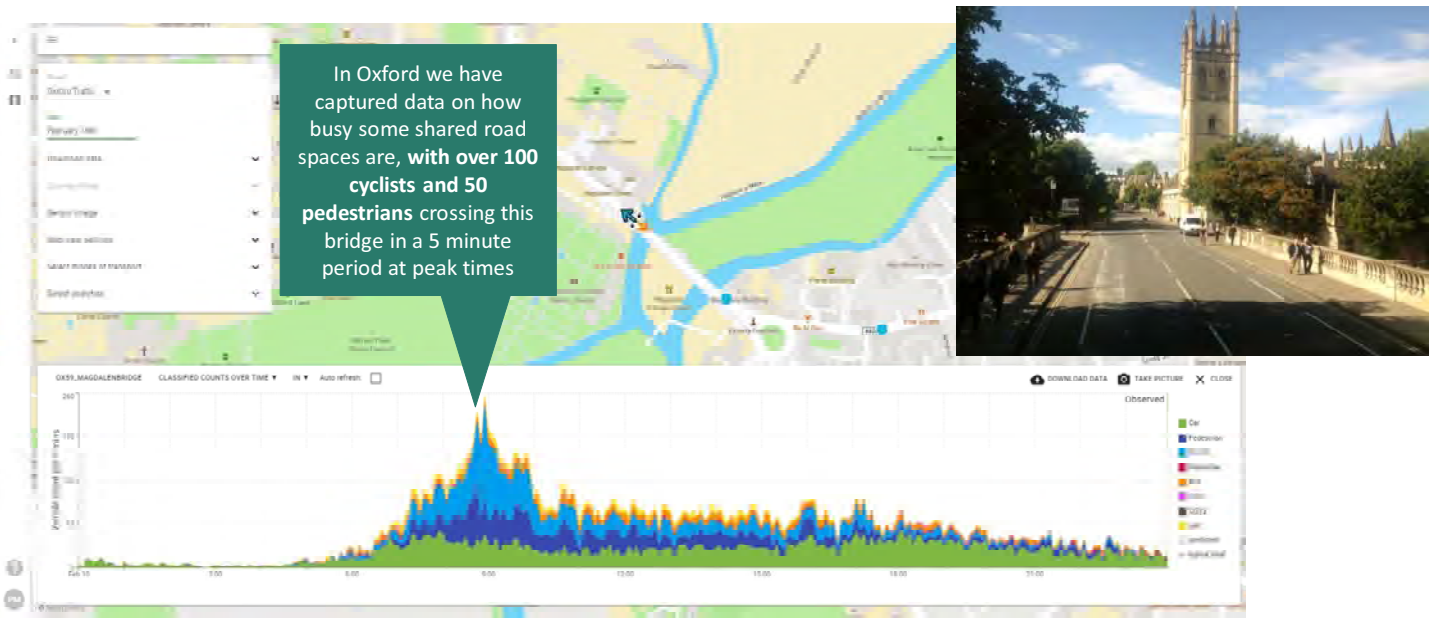
or

3rd Party CCTV

Integration

9

Primary road user classifications



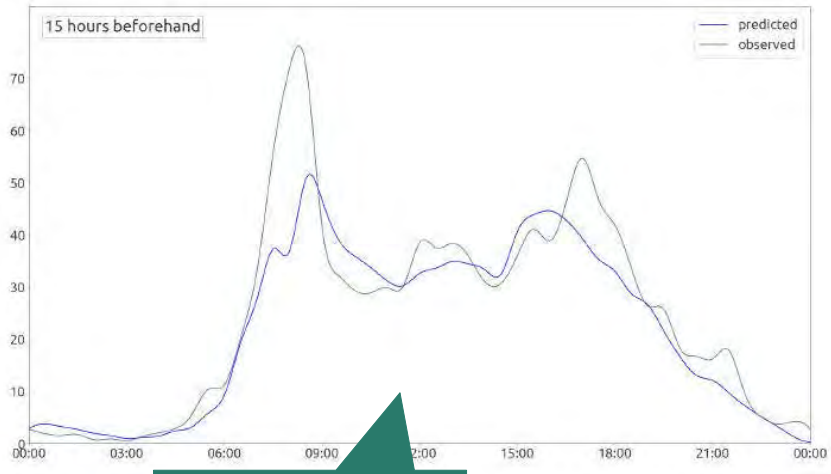
UNDERSTAND | PROACTIVELY MANAGE | CONTROL

VIVACITY

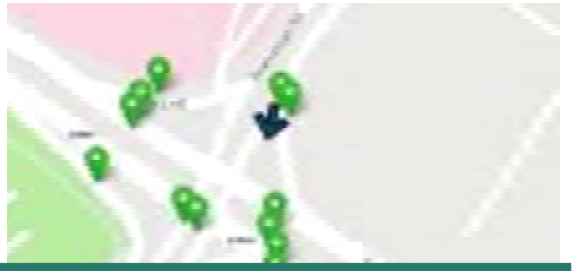
Our path overlay feature shows how different modes interact on a London street

UNDERSTAND | PROACTIVELY MANAGE | CONTROL

VIVACITY



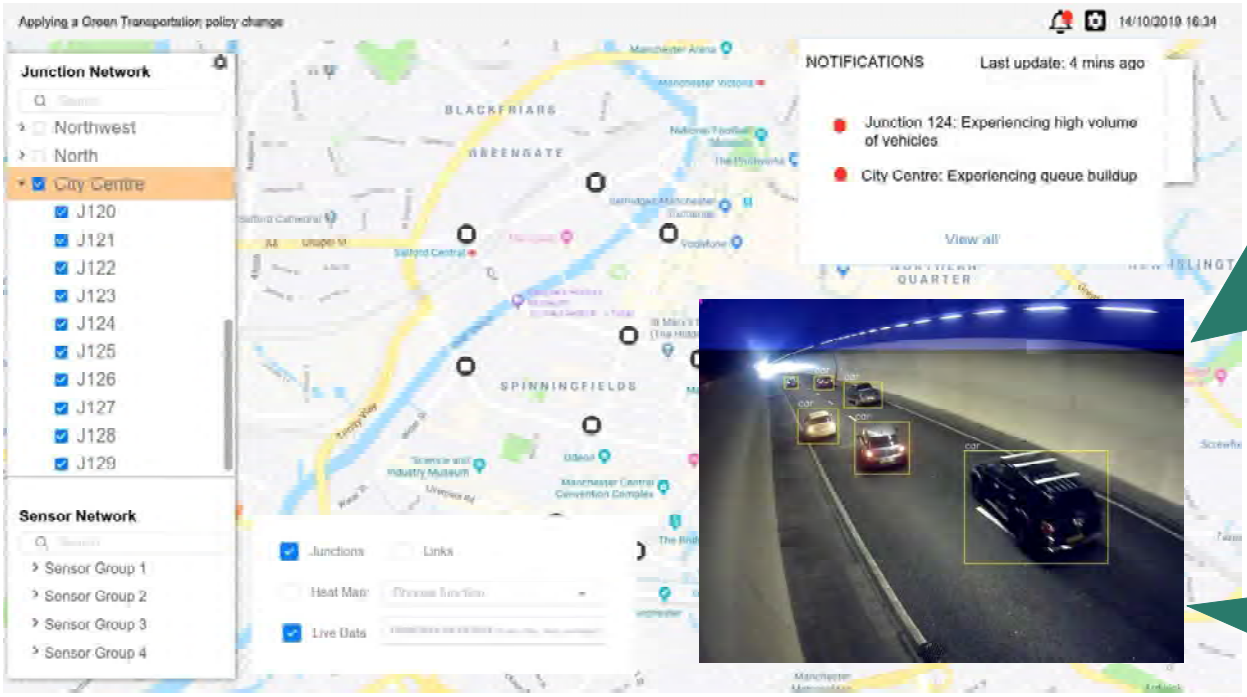
Traffic Forecasting to enable Proactive Demand control in the traffic control room



In Bournemouth, our traffic forecasts are part of the daily workflow, with traffic strategies now proactively varied

UNDERSTAND → PROACTIVELY MANAGE → CONTROL

VIVACITY



On Demand CCTV

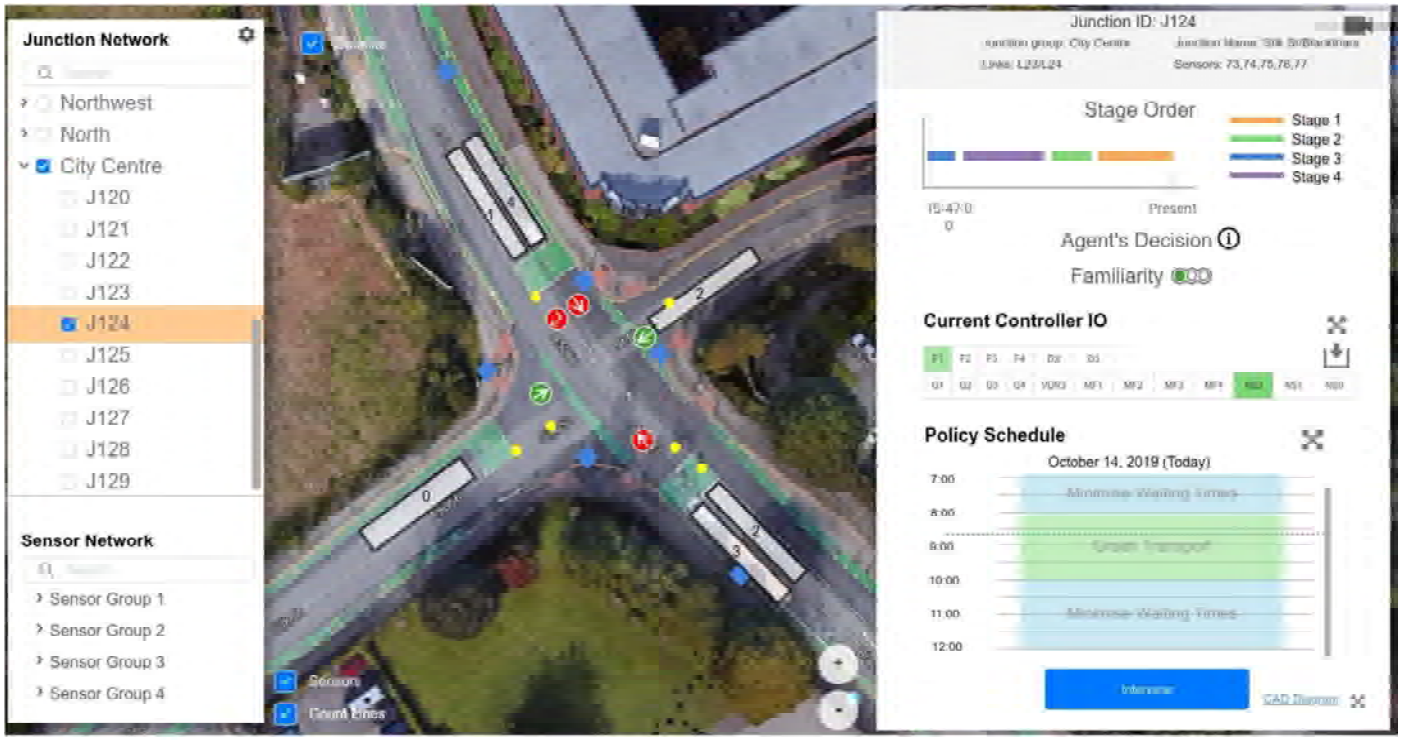
AI watches at the edge so you don't have to, saving time and bandwidth

Video can be streamed when needed

Highways England have just procured this system across 50 feeds

UNDERSTAND → PROACTIVELY MANAGE → CONTROL

VIVACITY



Thank you, what questions do you have?

Revolutionising Transport Infrastructure with AI

peter@vivacitylabs.com

SEE.SENSE®

RIDE INSIGHTS

CYCLING CAN HELP COVID-19 RESPONSE & RECOVERY

HEALTH AND ENVIRONMENTAL BENEFITS

_ Cycling provides a way for people to travel while maintaining physical distancing

_ People who commute by bicycle are healthier and more productive

_ Replacing car trips with bicycles helps to reduce air pollution for everyone

ECONOMIC BENEFITS

_ The economic cost of congestion is high, by reducing car journeys you help improve mobility

_ Bicycle infrastructure enhances the visibility of retail store and sales, boosting the sales for a business

_ Real estate valuation can increase for homes and businesses located near an off-street bicycle paths

INDIA CYCLES 4 CHANGE CHALLENGE

_ Creating extensive cycling-networks through low-cost interventions like pop-up cycle lanes and traffic-calmed or non-motorised zones,

_ Launching programmes such as community-led cycle rental schemes that increase the availability of cycles to citizens

_ Promoting the usage of cycling through public events and outreach.

In the long run the Smart Cities Mission encourages cities to convert temporary interventions into permanent ones.

PRINCIPLES OF A GOOD NETWORK

SAFETY

Safety is a basic requirement for any cycling infrastructure, as safety concerns are a major barrier to cycling.

DIRECTNESS

Direct cycle routes reduce travel times and distances and increase competitiveness of the bicycle compared with motorised transport.

COHERENCE

Routes should be coherent and accessible, enable people who cycle to easily travel between their origin and destination.

ATTRACTIVENESS

People will be encouraged to cycle if they feel safe and if the infrastructure and route is aesthetically attractive.

COMFORT

The cycling experience should be enjoyable, smooth and relaxed to maximise the comfort of people cycling.

EMERGENCY/TEMPORARY BIKE LANES RESPONSE TO PERMANENT CYCLING NETWORK

TEST

Test cycling interventions

LEARN

Learn from pilots together with citizens

SCALE

Scale up solutions to transform the city

ROUTE AUDIT

CURRENT DATA COLLECTION APPROACHES:

_ Cyclist behavior is generally provide insights into the volume cyclists on routes at specific locations

_ Safety data is tracked objectively through police collision reports/ hospital admissions

THIS CREATES GAPS IN CYCLING DATA:

_ Tracking of near-miss safety events and behavior of cyclists that may indicate potential safety issues within the system

_ Control for representation across social groups or neighborhood areas and abilities

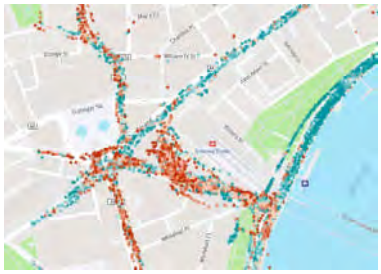
SEE.SENSE DATA INSIGHTS

Highly granular insights unlock new insights to design & maintain better cycling infrastructure and networks.

SAFETY

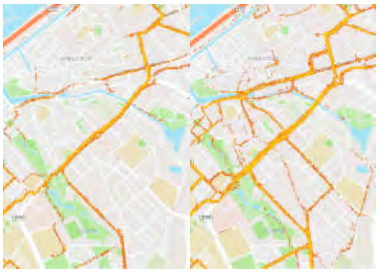
Collisions, braking, swerve data
See.Sense provides sensor data on collision, swerve and braking locations mapped to location. This helps cities identify hotspot areas where interventions can be made.

ROAD CONDITIONS



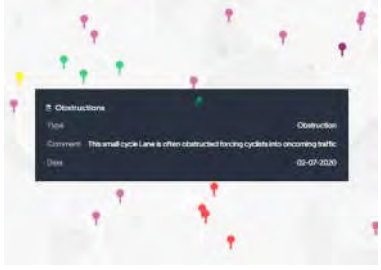
Road surface quality data
See.Sense monitors road surface quality plotting conditions of the road against a roughness index. Poor road surface is a contributory factor to collisions and also affects the comfort of cyclists, so these insights are vital for a high performing network.

JOURNEY MAPPING



Origin to destination & flow data
Understand popular routes and the speed cyclists travel. Also gain insight into where there is congestion due to higher dwell times.

PERCEPTION



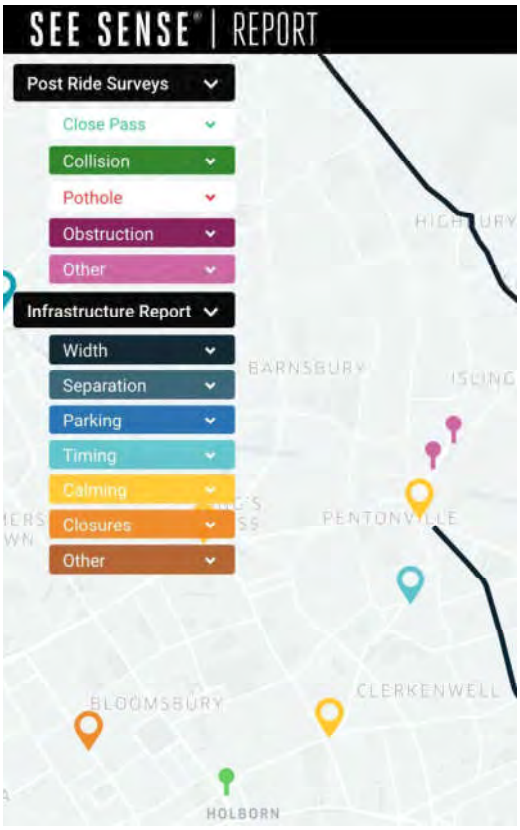
Understanding the experience
Cyclist in-app survey reports on events such close pass, collision, pothole, obstruction and other feedback, tagged with spatial location.

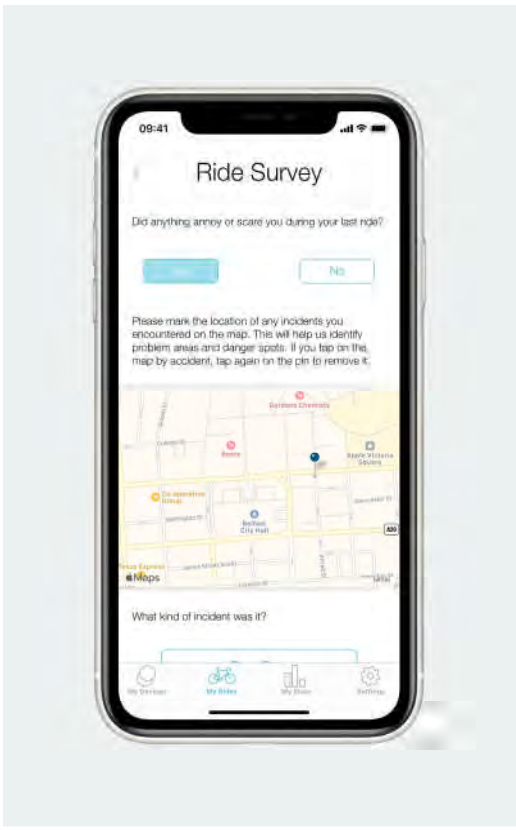
SEE.SENSE REPORTS

Ride Surveys
_ Close passes
_ Collisions
_ Potholes
_ Obstructions
_ Other

Infrastructure Requests
_ Add more width
_ Add separation from motor traffic
_ Add cycle parking
_ Change timing of traffic lights.
_ Calming
_ Closures
_ Other

Reports are freely visible on the SeeSenseReport Dashboard, refreshed daily.





NETWORK PLANNING

Analysis Project using See.Sense bike lights to help inform a Network planning approach for Masterplan.

Commercial or central areas
Neighborhoods

Corridor

ABOUT SEE.SENSE

See.Sense creates cycling tech products that make cycling safer, and that engage our community to share powerful data insights to improve conditions for cycling.

OUR TECHNOLOGY

See.Sense patented technology uses advanced sensor technology and AI to give the devices situational awareness. This provides benefits to our customers to improve the cycling experiences, and unique sensor data needed by cities.

INTELLIGENT BIKE LIGHTS & FREE APP
Our smart bike lights are used by 50,000 cyclists every day.

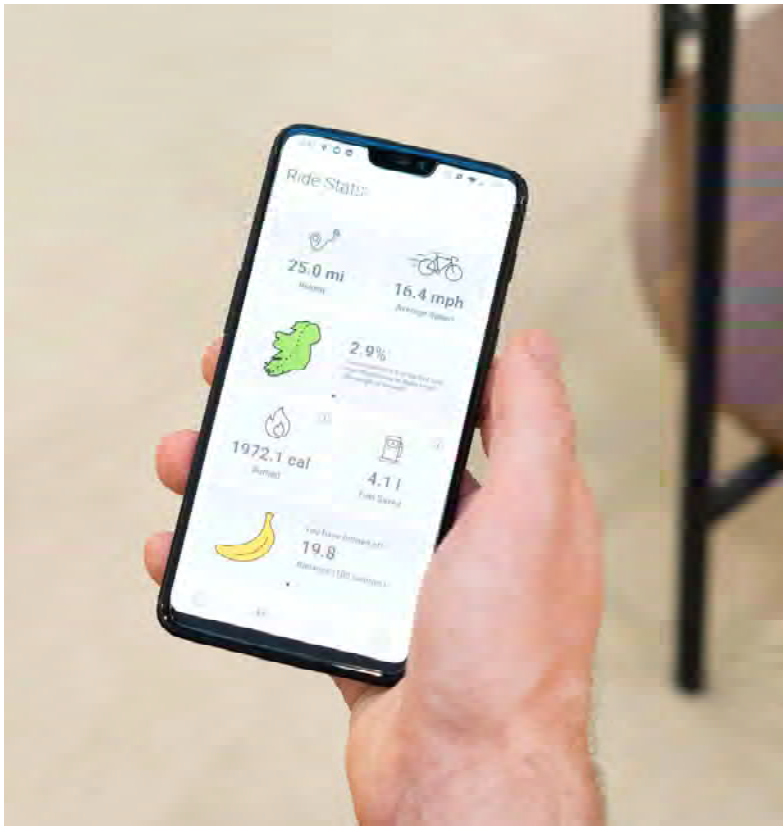
AIR BIKE TRACKER (coming soon)
Air is a state of the art low powered tracking and sensor package' consumer product.

BIKE SHARE INTEGRATION
Our technology can be embedded into existing bike share / scooter schemes.

SEE.SENSE B2C COMMUNITY

Riders can choose to join the See.Sense community to unlock app features for free and contribute aggregate, depersonalised ride insights. The app includes these features:

- Crash Alert
- Theft Alert
- Ride Stats
- Settings
- See.Sense Reports
- Share Ride Insights



OUR SOLUTION BENEFITS FROM BEING:

LOW COST

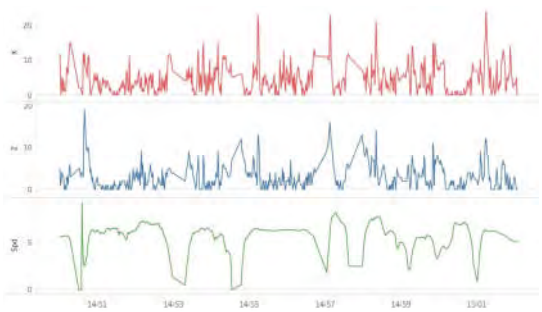
vs

MOBILE

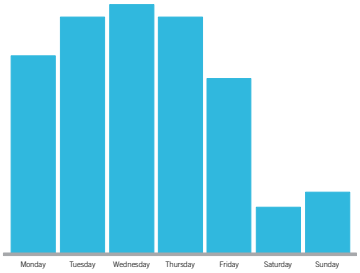
FAST COMPANY

"Useful for cities as they redesign roads to make cycling safer"

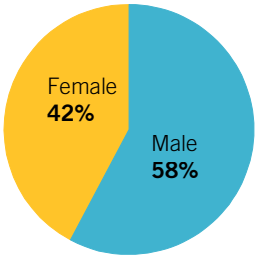
HIGHER ACCURACY AND WIDER RANGE OF DATA THAN APPS



MORE REPRESENTATIVE OF EVERYDAY/COMMUTER CYCLISTS



Popular Days of the Week



Male vs Female Participants

CITIZEN ENGAGEMENT ON PROJECTS

400
cyclists apply

180
cyclists accepted

5
Months of data collection from Oct - Feb

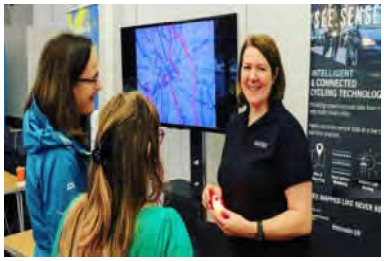
137
cyclists collected data

385
annoyances recorded

4105
Total number of journeys

25489
Total distance covered (km)

Monthly Newsletter



Public Showcase

Hackathon

Participant Workshop

USING OUR PRODUCTS YOU CAN UNLOCK ONE OF THE MOST COMPREHENSIVE CYCLING DATASETS AVAILABLE

Free See.Sense Report Data

See.Sense Reports

Full See.Sense Sensor Data

Popular Routes

Speed & Dwell Times

Road Roughness

Collisions

Braking Patterns

Swerving Patterns

Origin - Destination

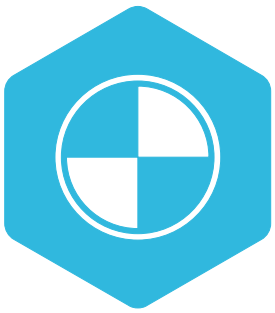
Profile Data

MOBILITY DATA SOURCE COMPARISON

	Quantitative	Near Real-Time	Range of Variables	Primary Data (not inferred)	Low Cost	Mobile
See.Sense	●	●	●	●	●	●
Surveys				●	●	
Counters	●			●		
Fixed Video Installation	●	●	●			
Apps	●			●	●	●
Historic Reports	●			●	●	
Mobile Phone Data	●	●				●
Visual Inspection	●		●	●		

WHAT CITIES CAN DO WITH THIS DATA

IMPROVE SAFETY



Gain insights on collisions and near-miss events help you reduce dangerous cycling hotspots.

LOWER TRANSPORT POLLUTION

Create evidence-based infrastructure that will make cycling a more convenient, enjoyable and popular mode of transport.

REDUCE FUTURE ROAD REPAIRS

Accurately map road surface conditions, allowing you to repair roads and cycleways more efficiently and cost-effectively.

CREATE PEOPLE-CENTRED CITIES

Understand how a range of cyclists are using your streets, and make better informed decisions as a result.

CASE STUDY - LONDON

DATA FROM 200 CYCLISTS OVER 3 MONTH PERIOD

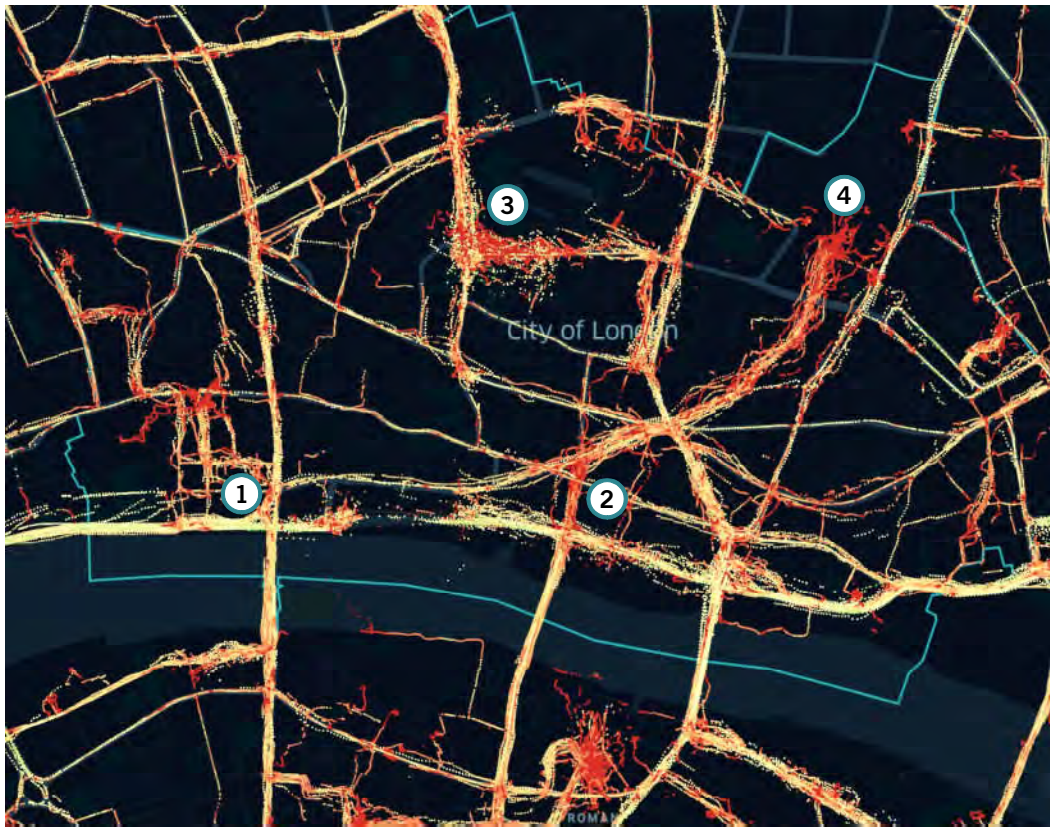
SPEED HEATMAP

1 Dedicated segregated infrastructure of CS3 yielding highest relative speeds - indicative of cyclists feeling confident. Notable 'pinch points' along the route with lower speeds

2 Southwark Bridge to Queen Victoria/Upper Broad Street has heavy traffic and slow cycling speeds

3 London Wall from Rotunda to Moorgate recording relatively slow speeds

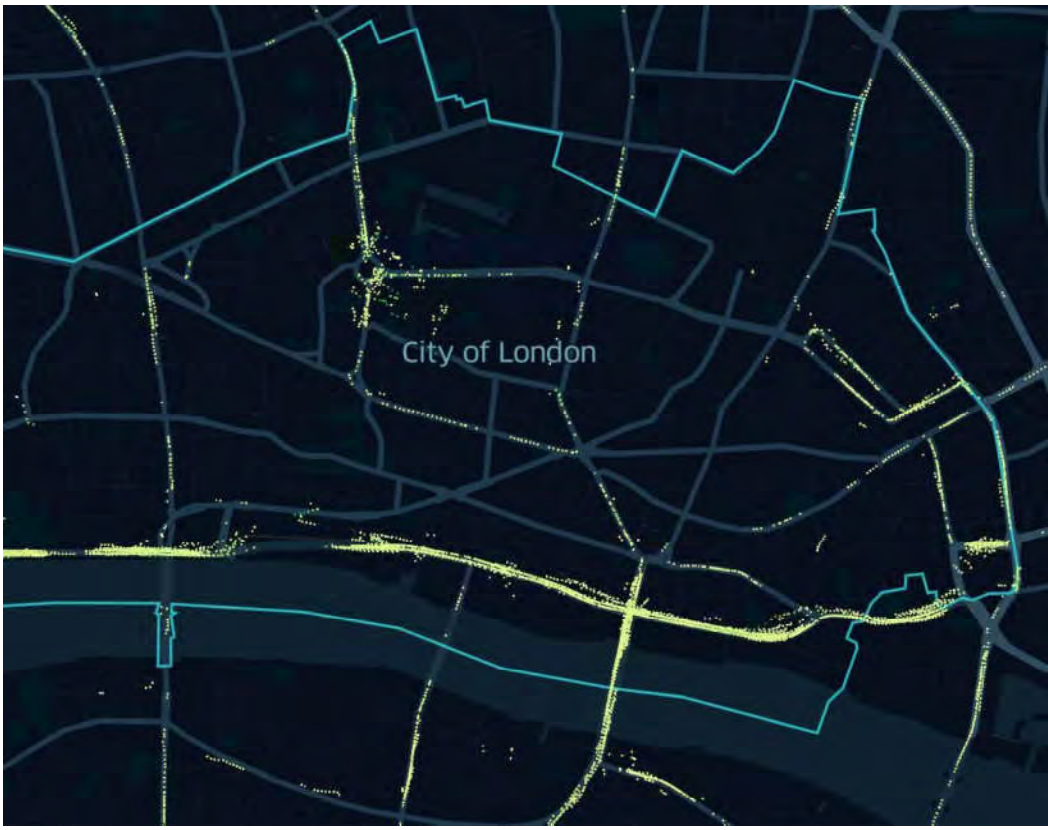
4 Journeys starting/ending at Liverpool Street Station



SPEED HEATMAP
SPEEDS >20MPH

This map visualises data showing speeds in excess of 20mph.

This data represents c.2% of the overall data collected through the trial period.



Speed Mph
- 20-25
- 25-30
- 30-35

DWELL TIMES

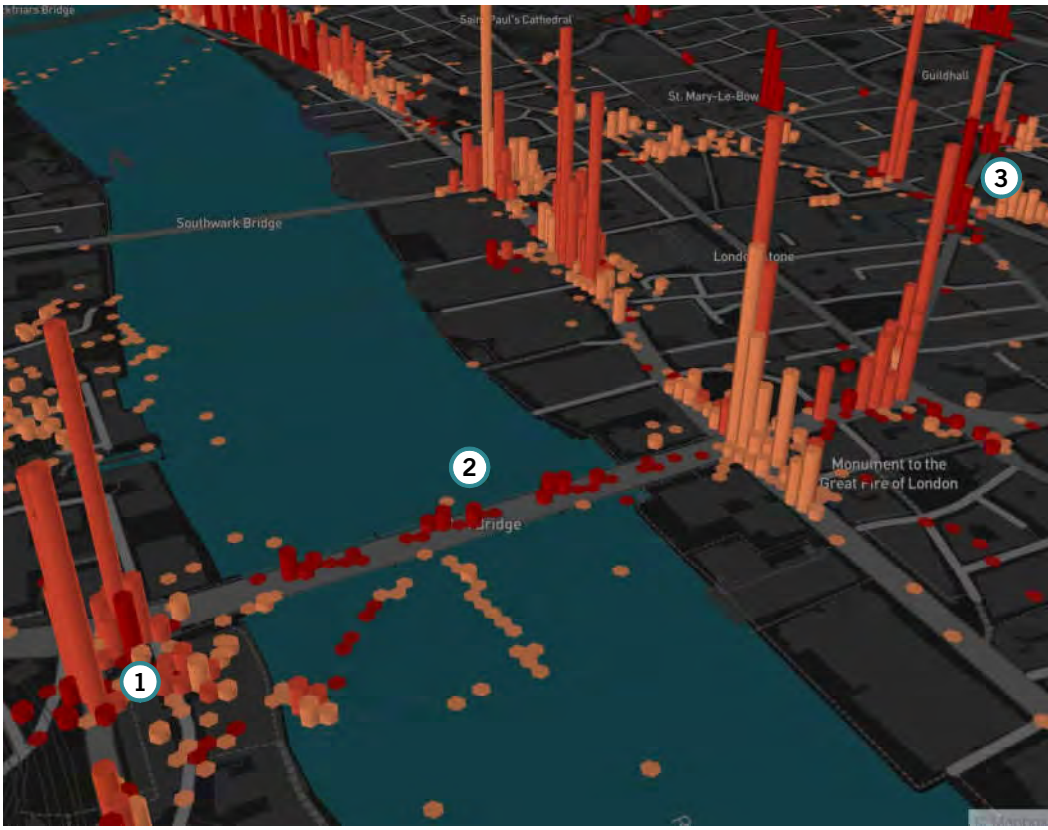
1 South side of London Bridge - relatively high volume of cyclists waiting a long time at traffic lights

2 Congestion evident along length of London Bridge (northbound)

3 Bank junction again has relatively high volumes of cyclists waiting a long time at lights

Length of time stopped

Low High



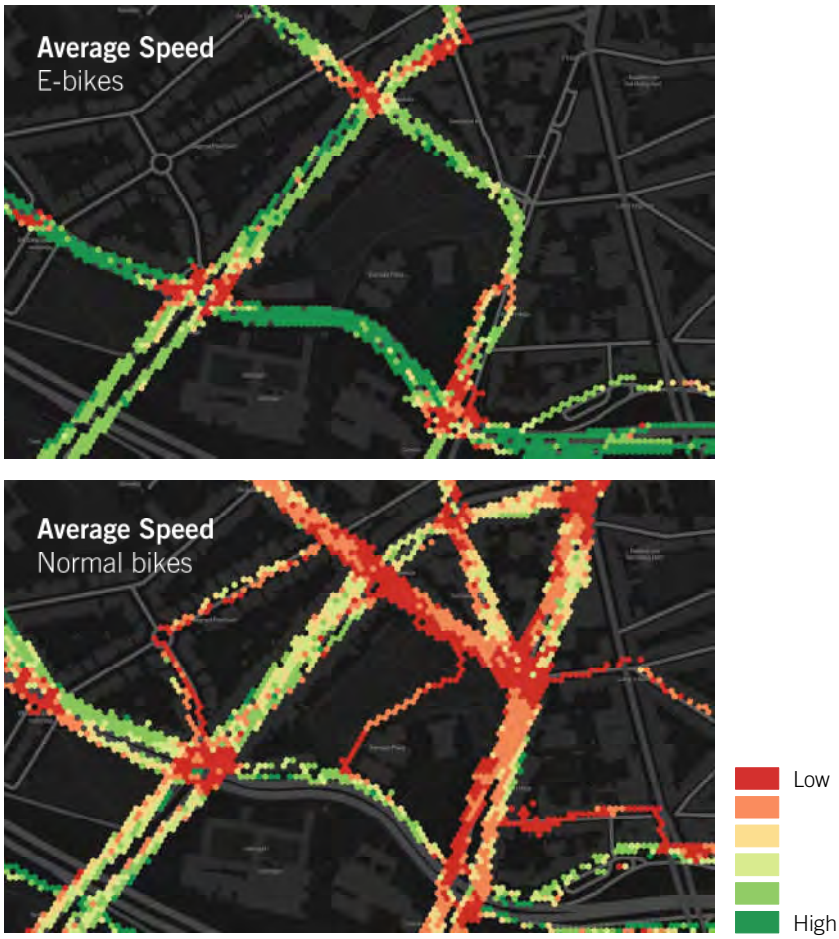
No. of cyclists
- Low
- High

UNDERSTANDING CYCLING BEHAVIOURS

When matched with the user profile information the See.Sense data can be used to identify differences in riding patterns and behaviours between different groups.

We currently collect profile data including:
_ Gender
_ Age
_ Bicycle type (e-bike/regular)

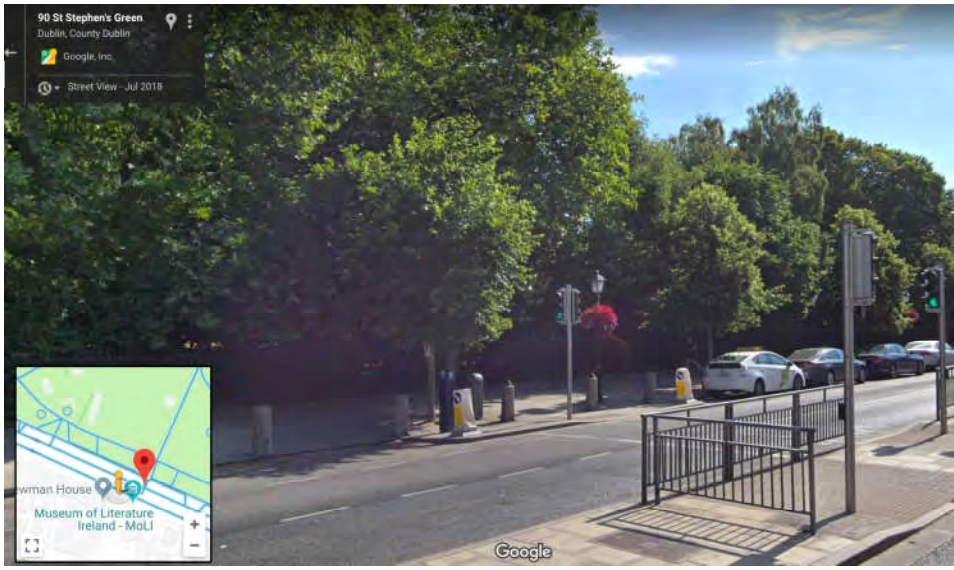
Here you can see the difference in speeds between E-bike users and regular bike users.



IDENTIFY CONFLICT AREAS BETWEEN ROAD USERS

St Stephen's Green Dublin

Deceleration hotspots are highlighted in yellow. Longer stretches of deceleration leading into junctions are shown as expected. However, this map indicated a hotspot of relatively heavy braking occuring at a southern entrance of the park.



On visual inspection we can see the data has highlighted an issue whereby a pedestrian crossing was partly obscured by trees and pedestrians were coming out of the park and crossing the road leading to heavy braking and negative pedestrian-cyclist interactions.

EXAMPLE SEE.SENSE ANALYSIS
ROAD ROUGHNESS

CLUSTER MAPS OF ROUGH ROADS

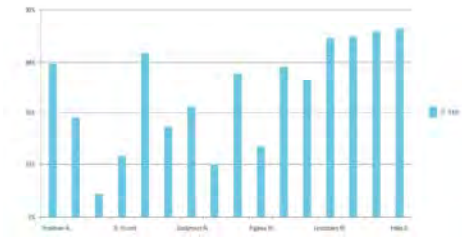
CORRELATION WITH POOR SURFACE CONDITIONS

There is a strong correlation between visual inspections of the road surface, and the conditions found by our Road Roughness Rating Index. See.Sense therefore removes the need (and cost) for human inspections.

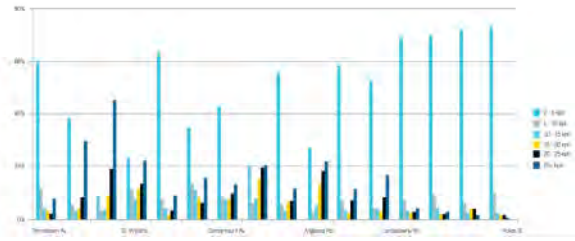
A NEW METHODOLOGY FOR
LEVEL OF SERVICE WAS TESTED

AECOM SEE.SENSE®

JUNCTION ANALYSIS (INBOUND)
Avg. Speed at Junctions



JUNCTION ANALYSIS (INBOUND)
Delay at Junctions (% results with speed <5kph)



Data recorded by the See.Sense lights was used to get a better understanding of a Cities cycle network in terms of: Desire Lines, Junction Delay, Pavement Condition & Conflicts.

ROAD & PAVEMENT CONDITION

An AECOM engineer conducted a visual inspection and compared the SSRI (See.Sense Roughness Index) with the rating AECOM would apply. A strong correlation was found.

IMPACT OF INFRASTRUCTURE ON SWERVING

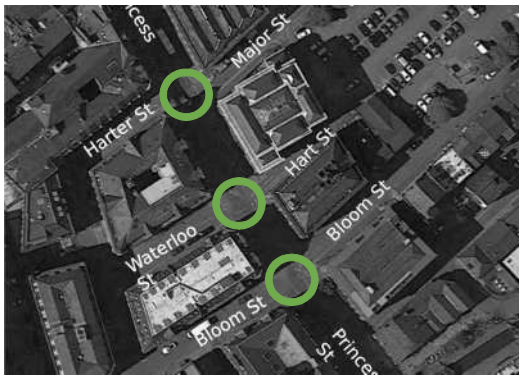
Southward Bridge (1) has a dedicated cycle land and our data clearly shows less swerving compared to London Bridge (2), where cyclists travel in a shared bus lane.

COLLISION ANALYSIS BY ARUP ON MANCHESTER A34
USING SEE.SENSE SWERVE AND BRAKING DATA

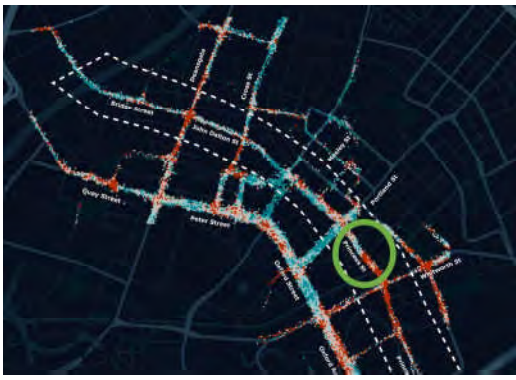
"In response our design has narrowed the carriageway to slow vehicle speeds and provided pedestrian priority (continuous footways) to slow turning vehicles.

Moreover, we have used this analysis as part of a broader case for implementing wider traffic management interventions to reduce the overall volume of vehicles in the area".

ARUP



= Junctions with recorded collisions



Red = high levels of swerving

PROFILE ANALYSIS- CASE STUDY ON GENDER

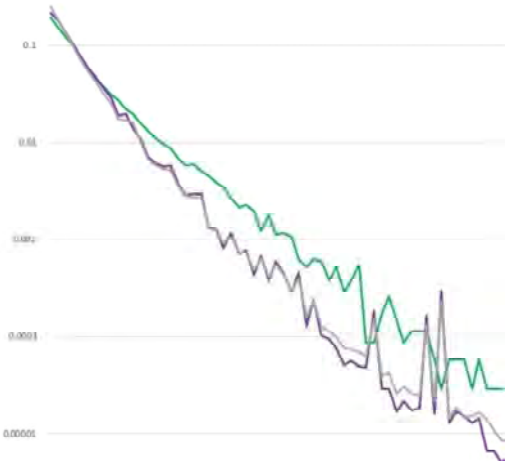
WHERE SUFFICIENT DATA COVERAGE EXISTS, WE CAN DISAGGREGATE THE DATA TO PROFILE LEVEL.

_ In Dublin, our road surface data showed that on the same stretch of road, women are experiencing a rougher ride, potentially impacting on their comfort as well as their safety.

_ We think this is because women are riding closer to the gutter due to safety concerns.

IMAGE 1: ROAD ROUGHNESS

Logarithmic scale: the proportion of your journey spent at particular roughness level, showing that females spend disproportionately more time in rough road surface, relative to male cyclists.



COMBINE DATASETS FOR RICHER INSIGHTS

COMBINED STATIC COUNTER & SEE.SENSE SOLUTION

_ Scale GPS data to real traffic enabling extrapolation on volume of cyclists in any location

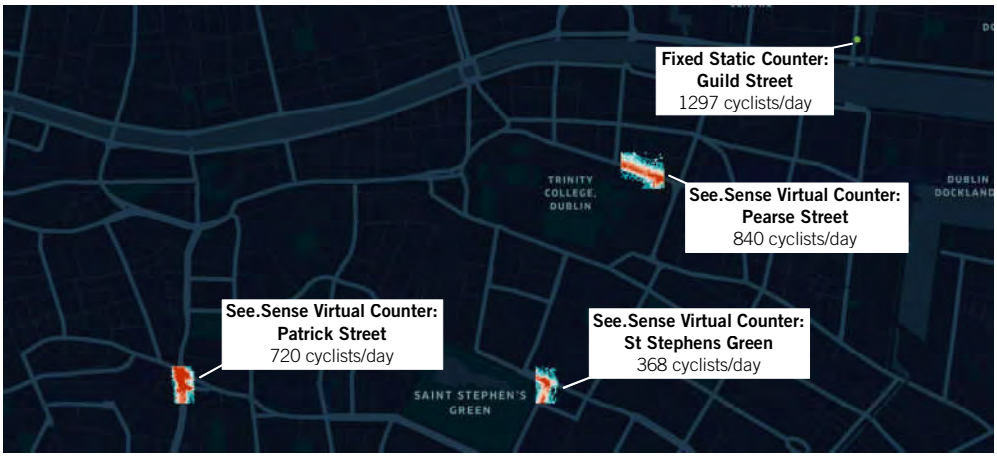
_ Generate deeper insights of usage on routes with profile data, speed and dwell times

_ Identify where to support deployment of more static counters based on routes

_ Origin destination for routes

Case Study: Extrapolation to create virtual counters

A series of three virtual counters, generated by extrapolating riders from the fixed point:



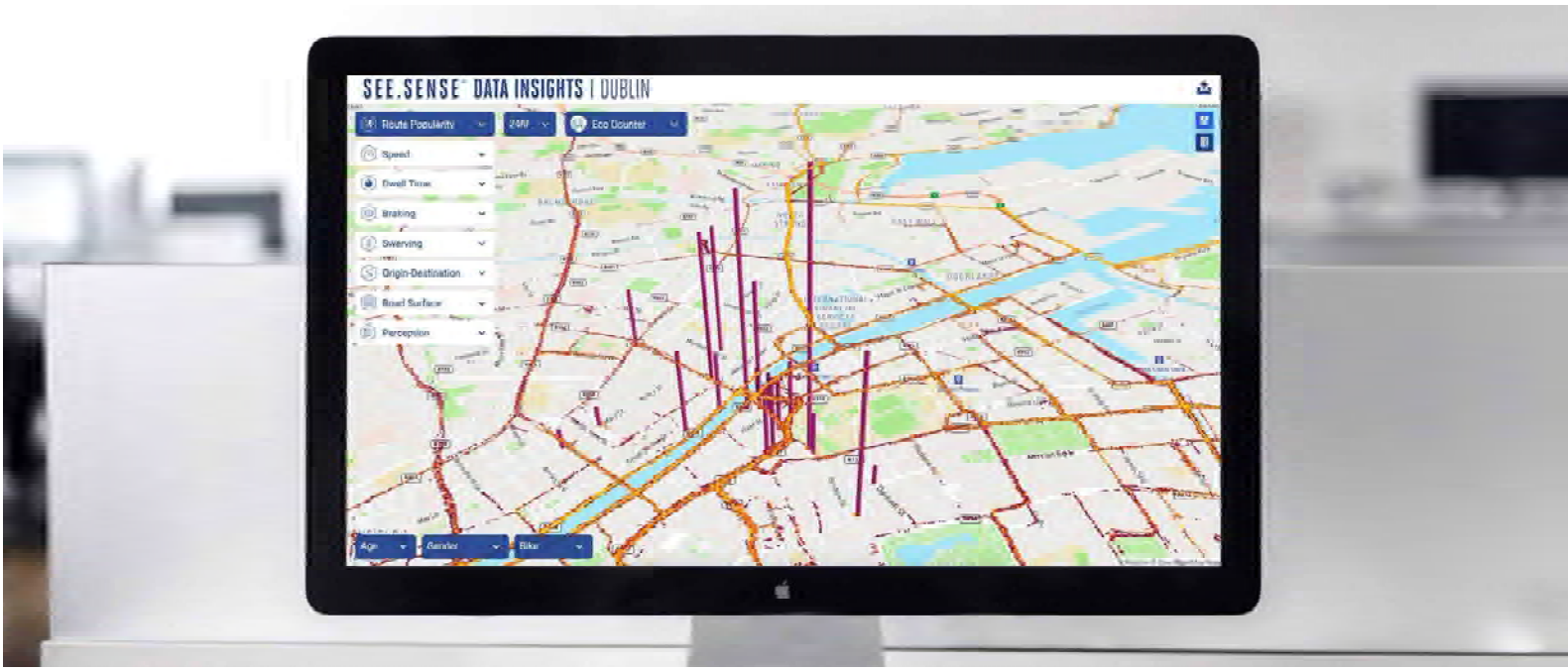
STATIC COUNTER

Average cyclists per day at Guild St in October 2018.

SEE.SENSE

GPS reading at same counter location in October 2017 (extrapolated from 2018 data).

OUR DATA DASHBOARD IS EASY TO USE & CAN BE CUSTOMISED TO BRING IN ADDITIONAL DATA FEEDS



HOW WE CAN HELP YOU TAKE YOUR CYCLE INFRASTRUCTURE PLANNING TO THE NEXT LEVEL

MONITORING & EVALUATION OF TEMPORARY/ EMERGENCY RESPONSE CYCLING INFRASTRUCTURE TO UNDERSTAND:

_ Use of temporary bike lanes

_ Use of feeder roads to access bike lanes

_ Where to build modal filters

_ Where there are areas of congestion for cyclists

_ Where to build 'whole of route' corridors

_ Where to build additional cycle parking

_ Areas impacting on cyclist safety

_ And more...

CITY PROGRAMME
DATA AS A SERVICE

Where enough See.Sense data collectors already exist in your location, data can be accessed under licence.

This saves the city the cost of hardware deployment.

Access to data insights in dashboard and API provision if required.

CITY PROGRAMMES
STARTER PACK

City Project Starter Pack

Our starter pack allows a city to quickly deploy lights, obtaining sufficient coverage to achieve useful data insights.

Includes:
_ 200 See.Sense ACE project lights

_ Deployment guide pack including communications plans, templates used in previous successful projects

_ Access to data insights on Dashboard and API provision if required

CITY TRIAL PROCESS
HOW IT WORKS

1. PROJECT BRIEF

To be agreed
_ Spatial coverage
_ Timescales
_ Target population (if any)
_ No. of lights required
_ Outputs - dashboard, api etc
_ Consultancy & tech support
_ Use case identification

2. APPLICATION PROCESS

Tasks
_ Collateral created
_ Pick up locations identified
_ Applications open
_ Applications assessed
_ Successful applicants notified
_ Light collection

3. CITY TRIAL

Process
_ Participants opt in to share ride insights
_ Insights collected
_ Engagement process

4. USE CASE ANALYSIS

Outputs
_ Dashboards and or visualisation prepared
_ Shared with relevant stakeholders

SEE.SENSE
CORPORATE PROGRAMME

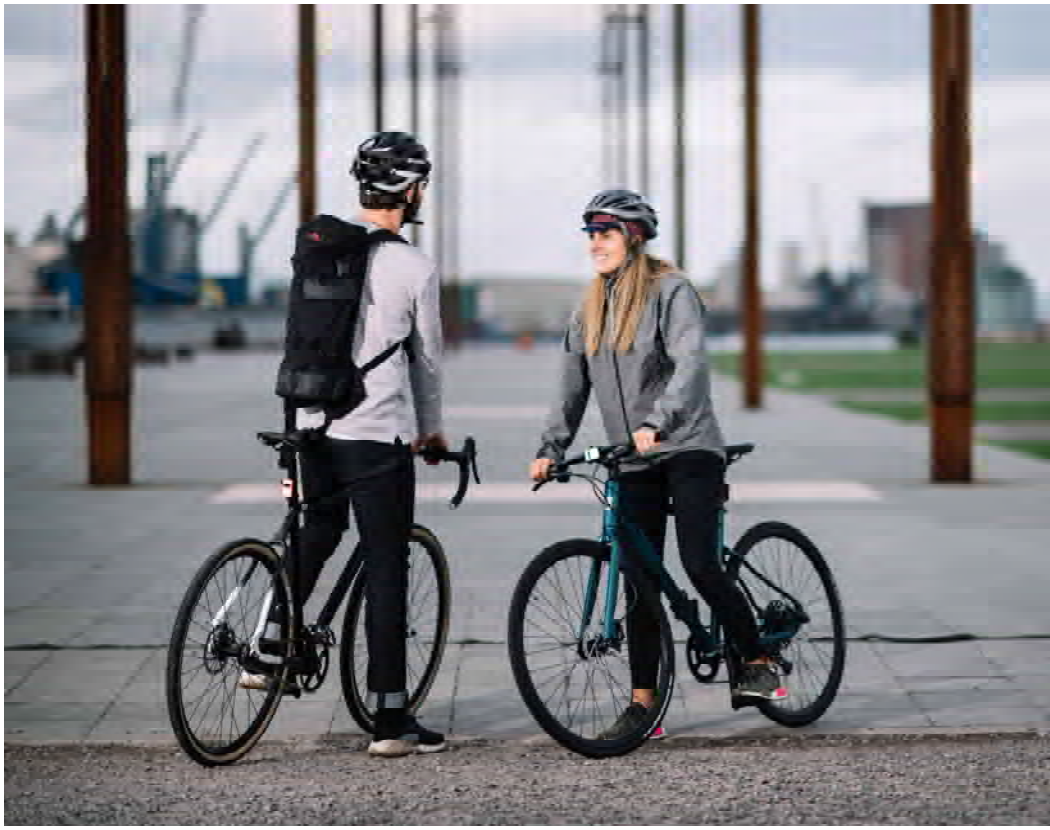
We partner with forward-thinking companies who want to encourage more employees to cycle.

Make Employees Safer

Improve Employee Incentive Schemes

Measure CSR Programmes

Help Your City Upgrade Cycling

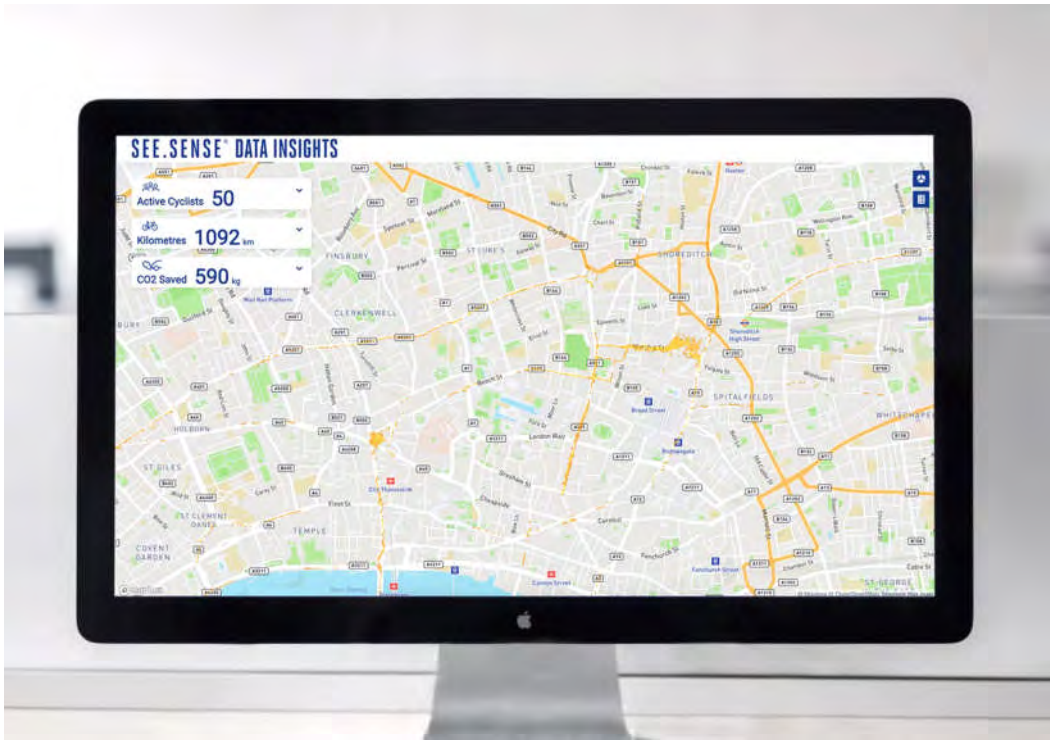


SEE.SENSE CORPORATE PROGRAMME

Track CO2 emissions saved and promote your company as a sustainable and healthy place to work. With our data dashboard you can access aggregated ride insights generated by your employees including:

_ Popular routes
_ Total Miles travelled
_ CO2 saved

All the while, you are helping to develop a valuable pool of data that the city can access to help design improved cycling infrastructure for the city.



BIKE SHARE SOLUTIONS (COMING MID 2020)

See.Sense has developed patented sensor and communication technology that seamlessly integrates into bike share schemes, sending data over LPWA networks to offer state of the art data collection.

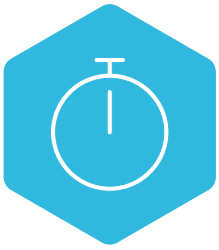
STATE OF THE ART SENSOR & CONNECTIVITY ALLOWS US TO PROVIDE

_ Near real-time GPS tracking
_ Accurate positioning and alerts
_ Connection over a wider area and through walls
_ Low battery drain through use of NB-IoT tech rather than older cellular tech
_ Powered by bike's own dynamo or independently
_ Integration inside bike so doesn't attract vandals or thieves
_ Data for your city to help build bike infrastructure/ docking stations

SHARE UNIQUE SEE.SENSE DATA WITH YOUR CITY

_ Know where to locate docking station or parking bays
_ Share data with your city to help with tenders & improve network

Prevent theft & vandalism & track stolen bikes



Track fleet movement in near real-time

Perform predictive maintenance

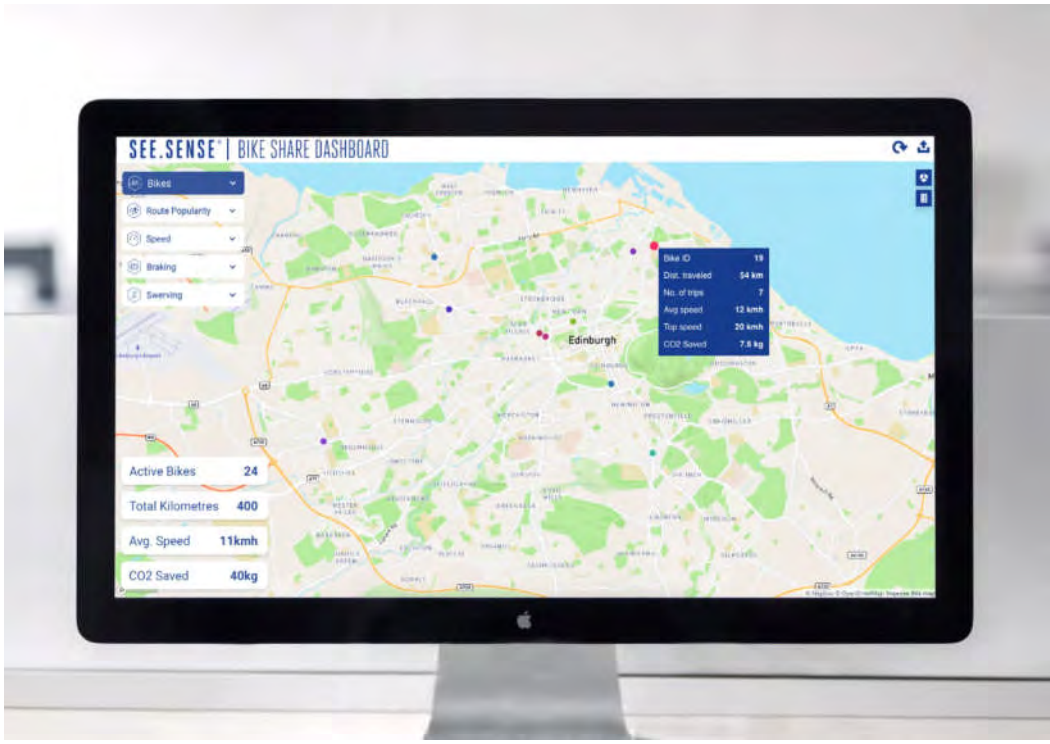
Redistribute bikes more efficiently

Help differentiate your tender

SEE.SENSE BIKE SHARE SOLUTION: OPERATOR DASHBOARD

"Our partnership with See.Sense launches in Spring 2020 and will be a world first, providing near real-time tracking of our Co Bikes using the latest in IoT technology. This granular analysis will enable us to fully understand trip types and journey patterns, helping us plan new stations in optimal locations."

Mark Hodgson, CEO
Co-Cars / Co-Bikes



CLIENT REFERENCES
CITY PROJECTS

MANCHESTER

"The data gathered by BT and See. Sense as part of this trial is already changing the way we look at delivering and designing cycle infrastructure and policy across the Region.

With 'Made to Move' and Beelines being developed in every authority, having effective data about use and preferred routes can really **help us to invest in an effective manner**."

Sam Li,
Transport for Greater Manchester
Innovation Officer

cityverve

DUBLIN

"This pilot generated fantastic engagement with our cycling community with over 500 commuter cyclists taking part keeping them safer on their journeys in the city. It also produced never-before-seen data and insights that going forward will aid planning for better cycle infrastructure and policies to increase the modal share of cycling in our city."

Jamie Cudden,
Smart Dublin
Smart City Program Manager

SMART DUBLIN

BELFAST

"This innovative smart city project used the See.Sense leading edge smart sensor on the "Belfast Bike' Scheme. This data is now helping to paint a sophisticated picture of the city's road infrastructure and, in particular, the experience of the city's thousands of cyclists."

Deborah Colville
Belfast City Council
City Innovation Manager

Belfast City Council

SYNCHRONICITY

Successful Completion of the European IoT Large-Scale Pilot project Synchronicity deployed to 800 cyclists across 3 cities

MEDIA COVERAGE

Forbes

"Transforming Cities with Big Data and Bicycle Lights"

Cycling Weekly

"See.Sense teams up with British Cycling to offer insights into dangers faced by cyclists on the road"

FAST COMPANY

"This Smart Bike Light Sends An Emergency Text If You Crash–And Helps Cities Plan Better"

CitiesToday
Connecting the world's urban leaders

"Cities are gathering fresh insights into cycling with See.Sense"

London Evening Standard

"Technology within See.Sense lights can detect potholes and cycling conditions"

BBC

"Connected Bikelight does three things"

INDUSTRY RECOGNITION

Velo-City
Conference Presentations
2017, 2019

Cycle City Active City
Conference Presentation
2017, 2018, 2019

Cycling Industries Europe
(Board Member)
2019 - Current

Polis
Conference Presentation
2018

ITS World Congress
Conference Presentation
2018

Mobile World Congress
Conference Presentation
2017

AWARDS

Winner Digital Catapult Platinum Award
2019

TRANSTech Award
Safety & Security Category
2019

Winner of Safety Category in the Highways UK Intelligent Infrastructure Challenge 2018

Digital DNA Awards,
Best Small Tech Company
2018

The Spectator Economic Disruptor Award 2018
Regional Winner (Scotland & NI)

Winner of IoT Impact Award
Big Chip Awards 2018

Finalist LA CoMotion New Mobility Challenger
2017

BT Infinity Lab SME Award 2016: Connected Cities, May 2016

INTERESTED IN WORKING WITH US?

CONTACT

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Co-Founder & CSO
See.Sense
irene@seesense.cc

UK Government

Ministry of Housing and Urban Affairs
Government of India

Smart City

स्वच्छ भारत
एक कदम स्वच्छता की ओर