The future of living: Smart and sustainable homes and cities

HOMES UK
THE FUTURE OF LIVING
27-28 November 2019, ExCeL, London

Speakers

Richard Dilks, chief executive, CoMoUK

Mark Jenkinson, consultant and former head of cities AMO, Siemens

Henry Pethybridge, director of WiredScore Home, WiredScore

The sustainable development of cities through provision of smart infrastructure

Crystal Associates Ltd   @MarkGJenkinson

Crystal Associates – what do we do?

Smart / Sustainable Cities

Climate Change / Resilience

Air Quality

Mixed-use developments

Circular Economy

IoT / Digitalisation

How is technology enabling urban planners and developers to create more adaptable, efficient, secure and greener places?
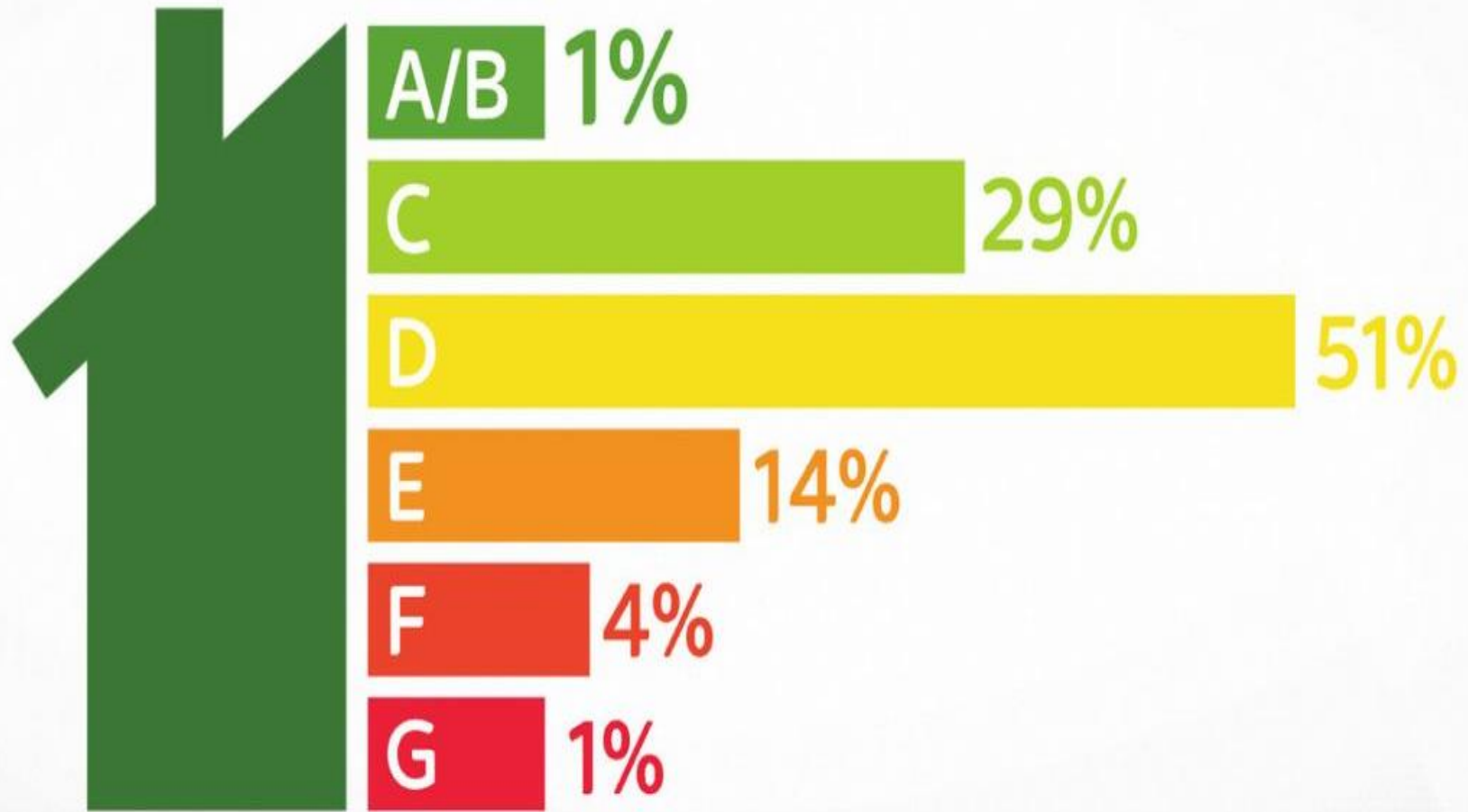
The Crystal: an all-electric intelligent building

Solar thermal panels

Data screen

Weather station

Photovoltaic panels

Openable rooflights

LED lights

Battery storage

Electric vehicle charging

Chilled beams

Underfloor heating

Natural ventilation

Heat pump

Modular cooling system

Potable water treatment

Non-potable water treatment

Underground thermal storage

Blackwater recycling plant

Energy piles

Bores

Rainwater storage

U.S. GREEN BUILDING COUNCIL — LEED PLATINUM — USGBC™

CODE FOR A SUSTAINABLE BUILT ENVIRONMENT — BREEAM — OUTSTANDING

43% improved energy efficiency

71% lower green-house gas emissions

Housing

14%
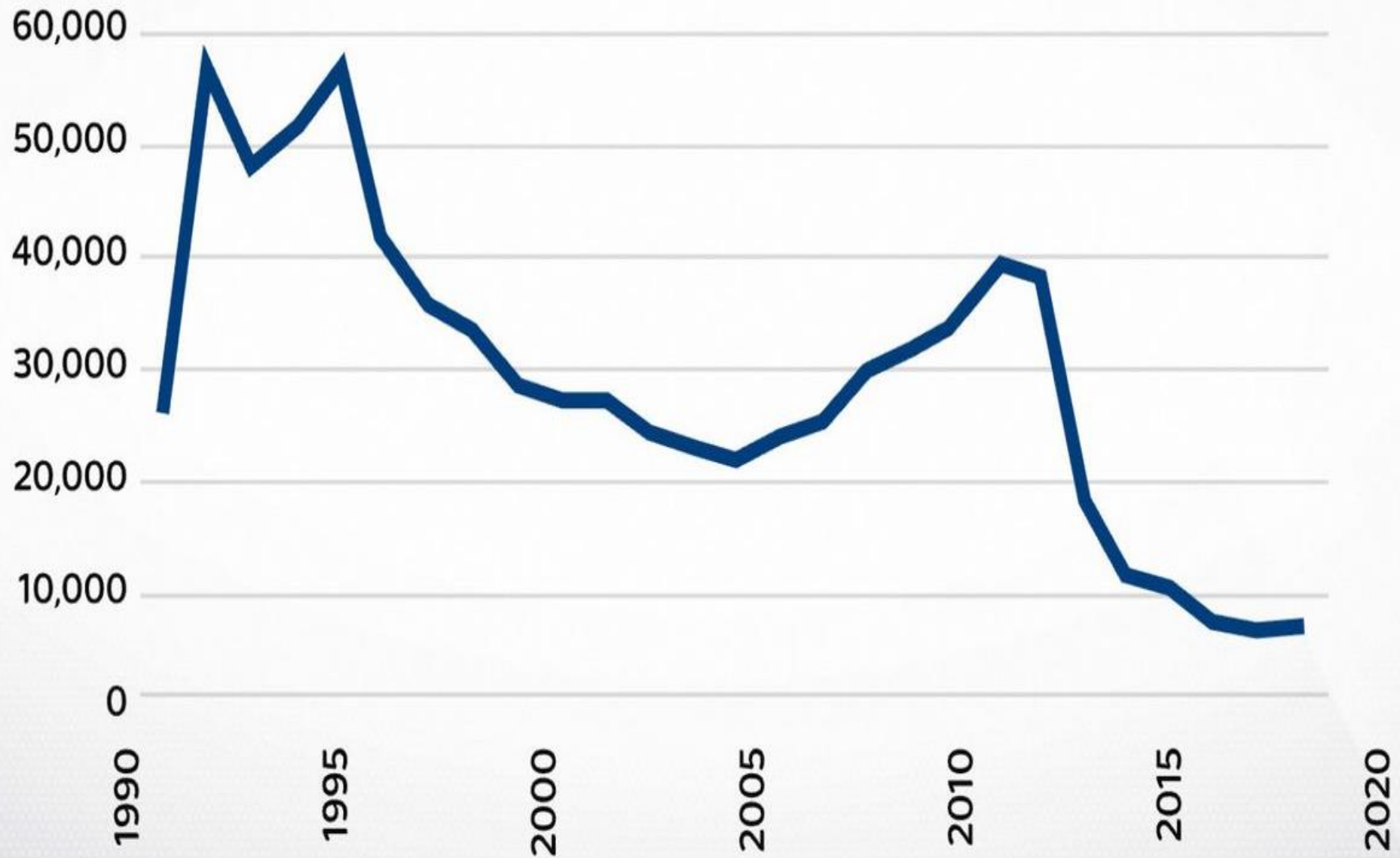## of all UK emissions

A/B 1%

C 29%

D 51%

E 14%

F 4%

G 1%

1%
of new homes meet standard

New social housing

SOURCE: MHCLG

Digitalisation in 2005

Digitalisation in 2013

What happens in 60 seconds on the internet?

> 470,000 tweets

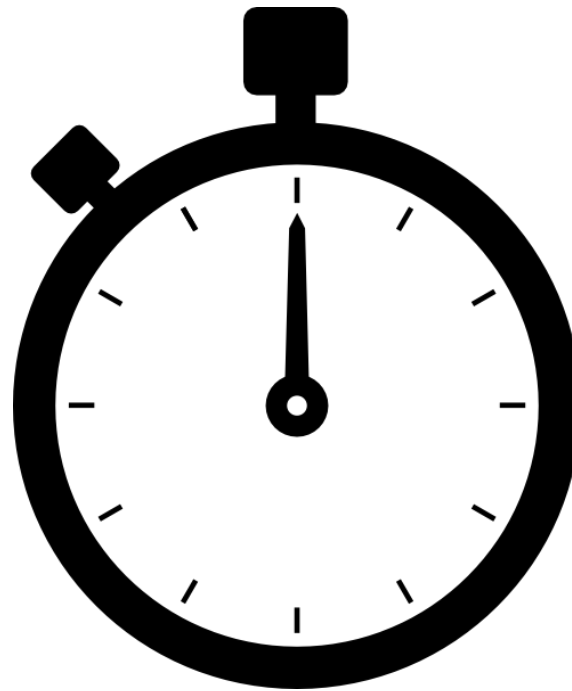~ 30 million WhatsApp messages

3.8 million search requests
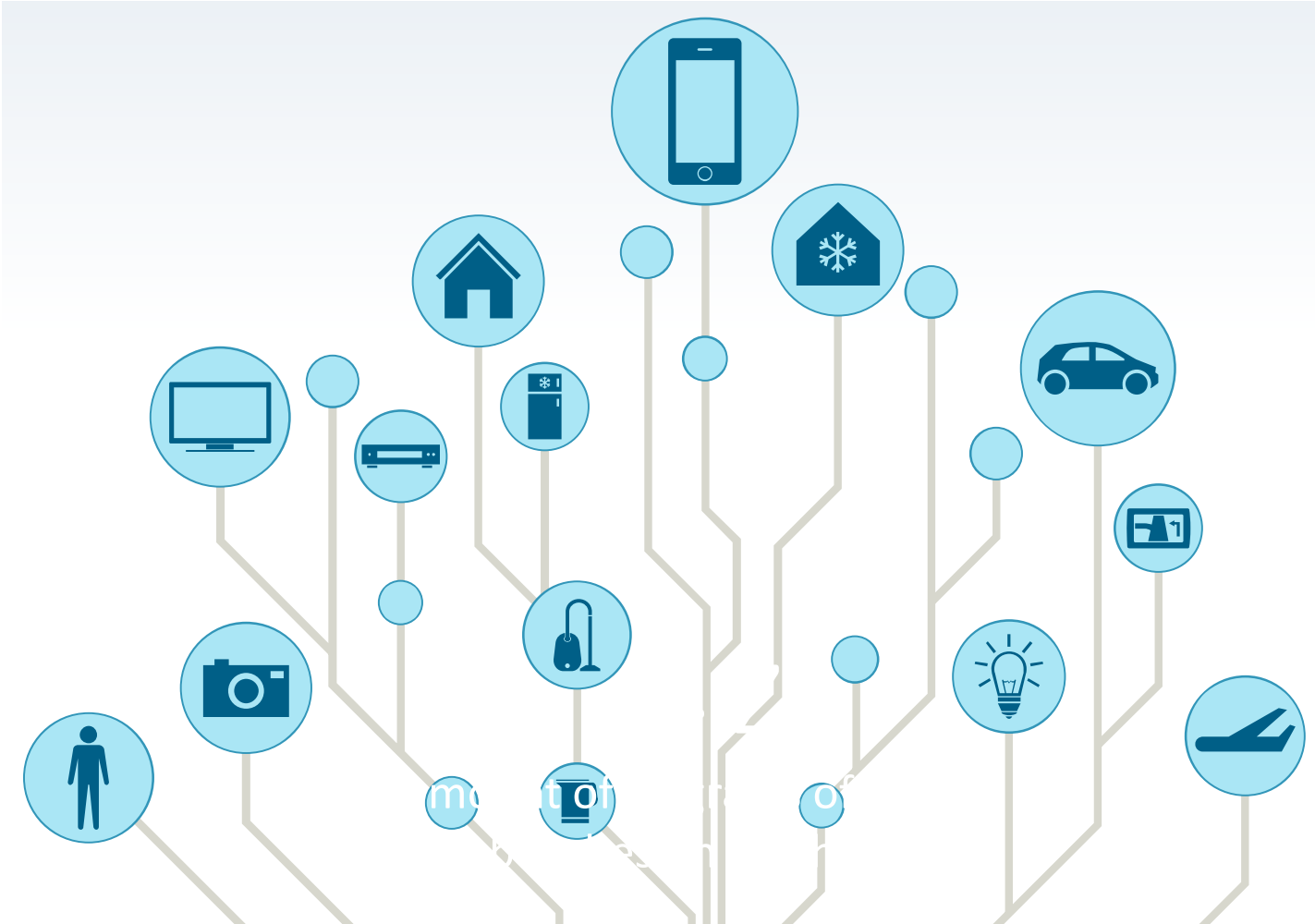
> 150 million emails

> 1,100 deliveries

amazon

YouTube

> 4.3 million videos

How much data is being created and stored?
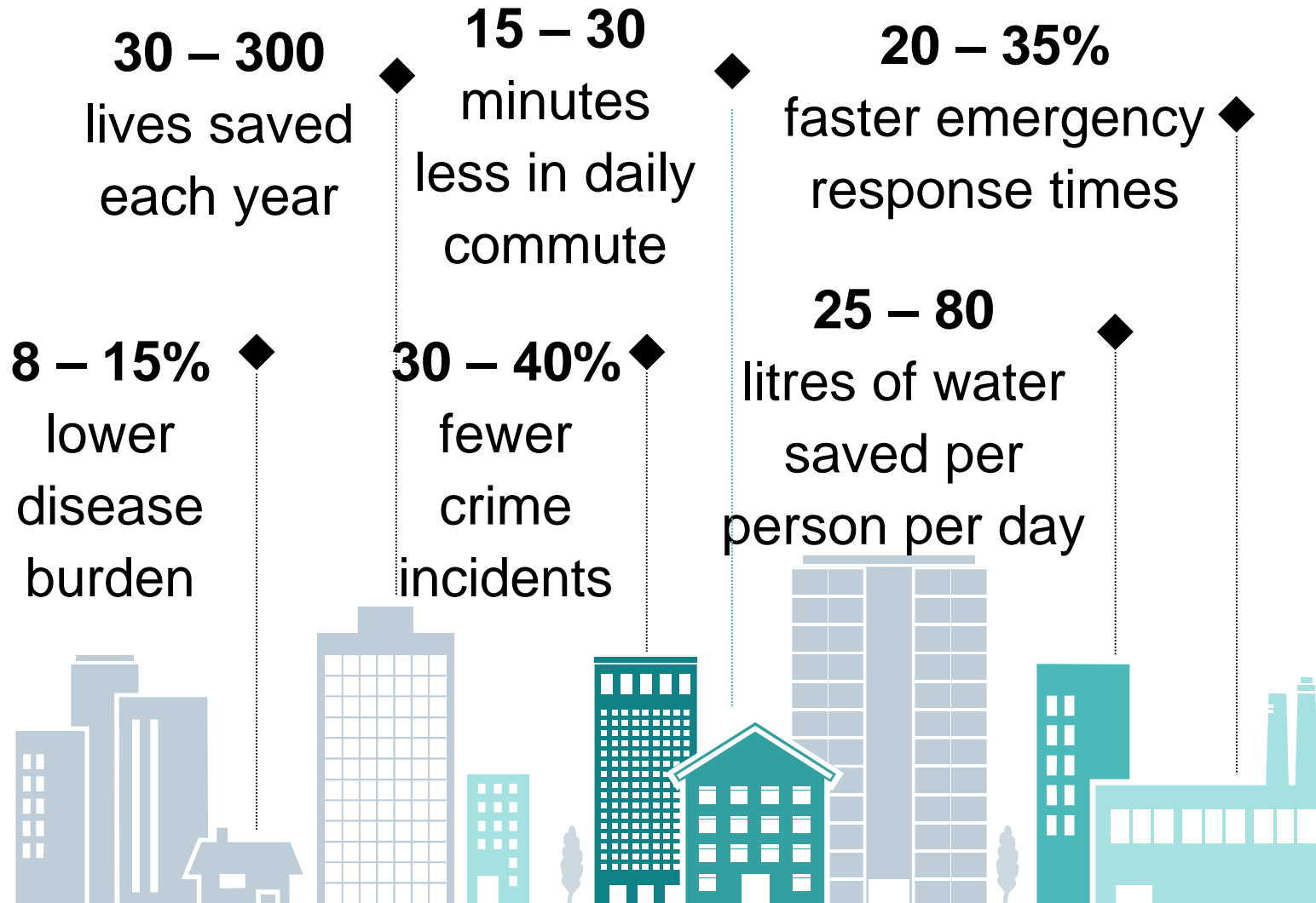
Big data

By 2020, the volume of all data stored will amount to 44 zettabytes = 44 trillion gigabytes

"Currently, 85% of potential assets remain unconnected..."

World Economic Forum

What impact can data have in a city?

30 – 300 lives saved each year

15 – 30 minutes less in daily commute

20 – 35% faster emergency response times

8 – 15% lower disease burden

30 – 40% fewer crime incidents

25 – 80 litres of water saved per person per day

➢ **Efficiency**
➢ **Productivity**
➢ **Resilience**
➢ **Eco friendliness**
➢ **Utilisation**
➢ **Safety and security**
➢ **Competitiveness**
➢ **Saving time**
➢ **Quality of Life**

What is the Business Case for 'smart' cities?

Energy

4x

Average return on investment from energy measures across five cities

Ports

€1.6m

Annual financial revenues from a smart terminal management system

Connectivity

10x

The total cumulative return from connectivity measures is over 10 times the investment required

Security

32x

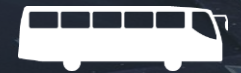*Return on investment in smart security infrastructure in one city*

Buildings

14x

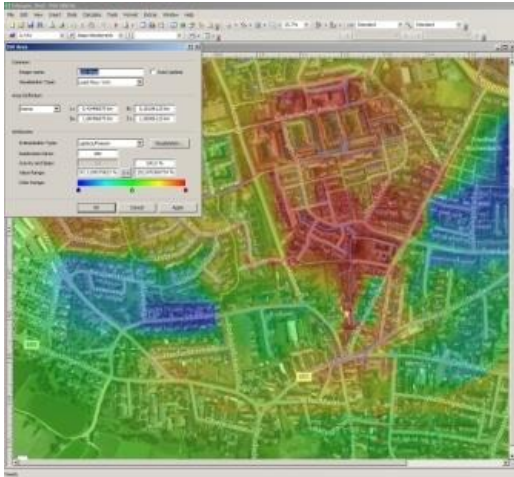*Average return on investment from smarter buildings*

Transport

20x

Average return on Investment from transport measures

Find the report: https://w3.siemens.com/topics/global/en/intelligent-infrastructure/Pages/smart-city-london.aspx.

Connecting the virtual world to the real world

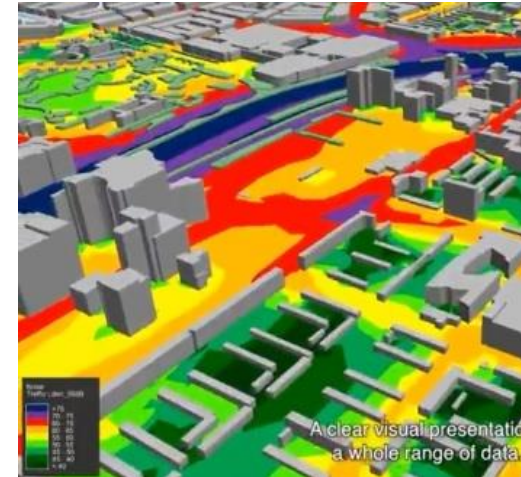# Can digital twins help urban planners & developers?

Plan
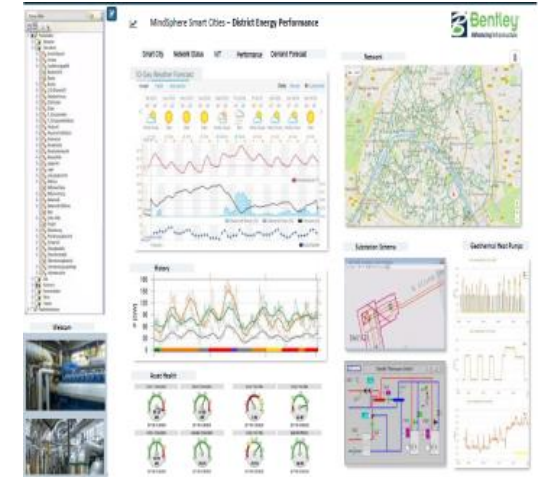

Smart 3D modelling

Design

Compare and analyse building proposals from every angle

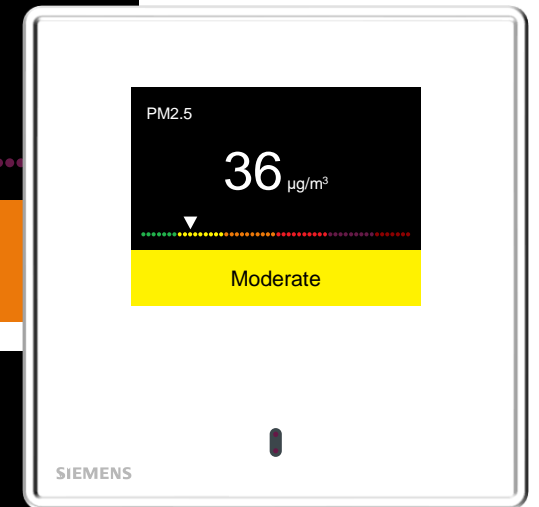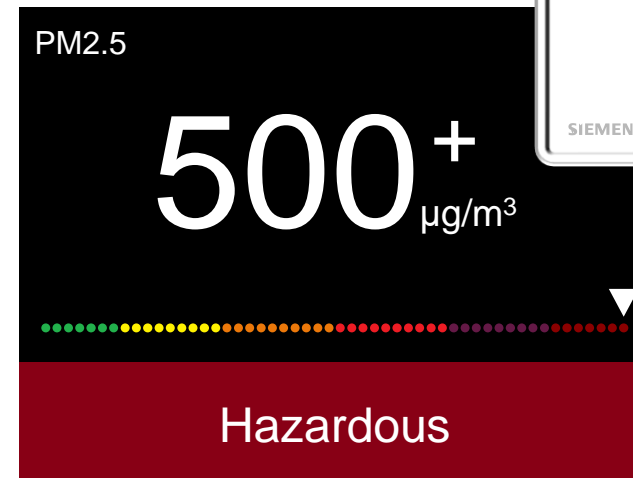**Simulate & Optimise**

Simulate the impact of design changes

Operate

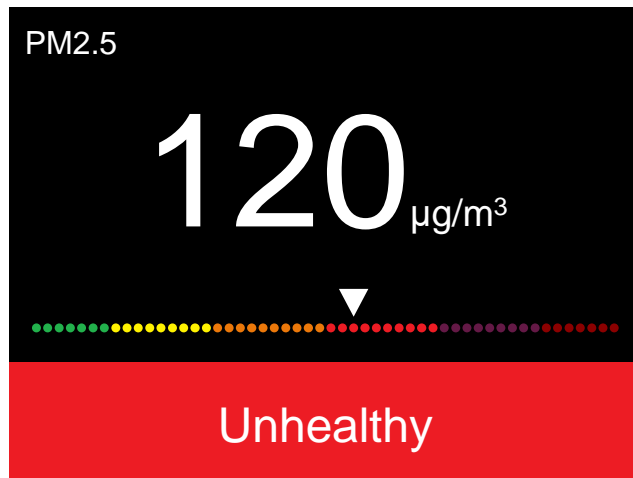IoT operating system for optimised city management

Source: Siemens

90%?

Can Air Quality sensors help?
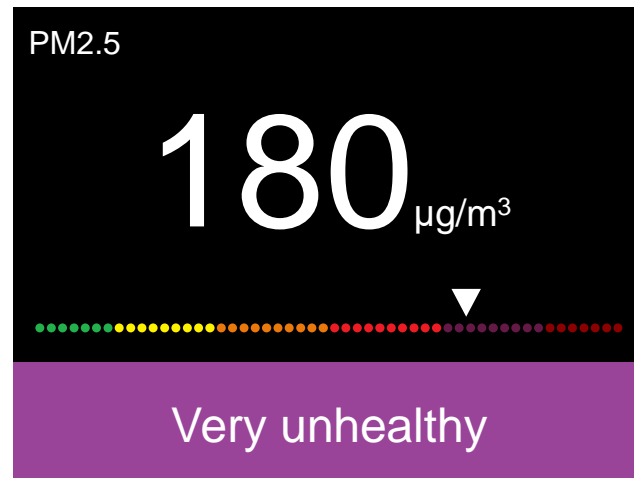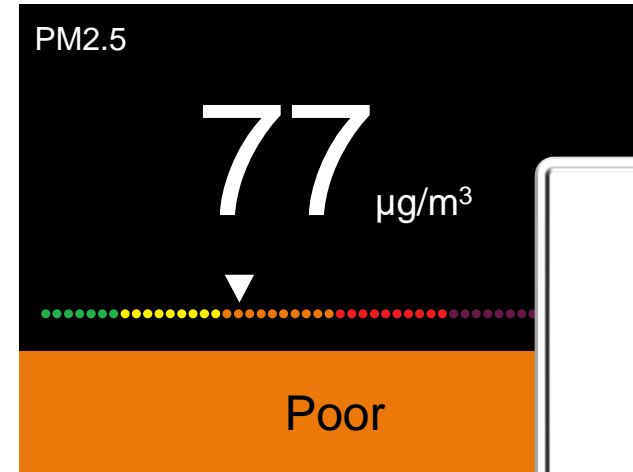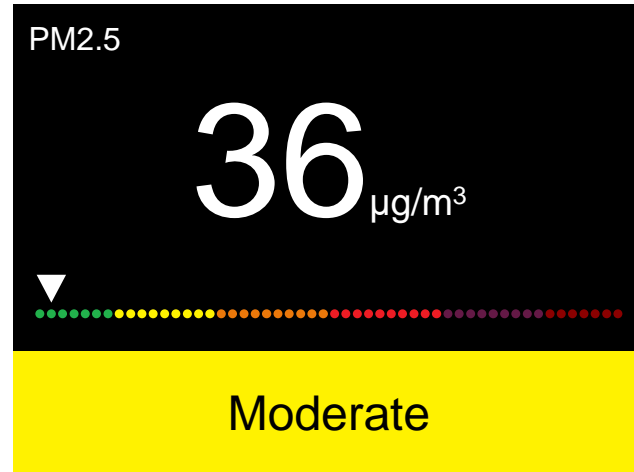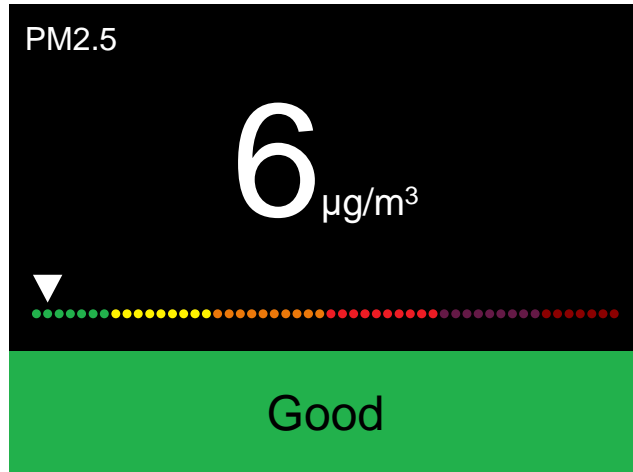
Can AI & Chatbots help build community?

How can we create more adaptable, efficient, secure and greener places?

The future of living: Smart and sustainable homes and cities

HOMES UK
THE FUTURE OF LIVING
27-28 November 2019, ExCeL, London

Speakers

Richard Dilks, chief executive, CoMoUK

Mark Jenkinson, consultant and former head of cities AMO, Siemens

Henry Pethybridge, director of WiredScore Home, WiredScore

Better places, better mobility

Richard Dilks, CoMoUK

- For the public benefit of shared mobility; founded 1999

  - Survey impacts and outcomes of the bike share and car club sectors

  - Accredit bike share and car club operators' fleets

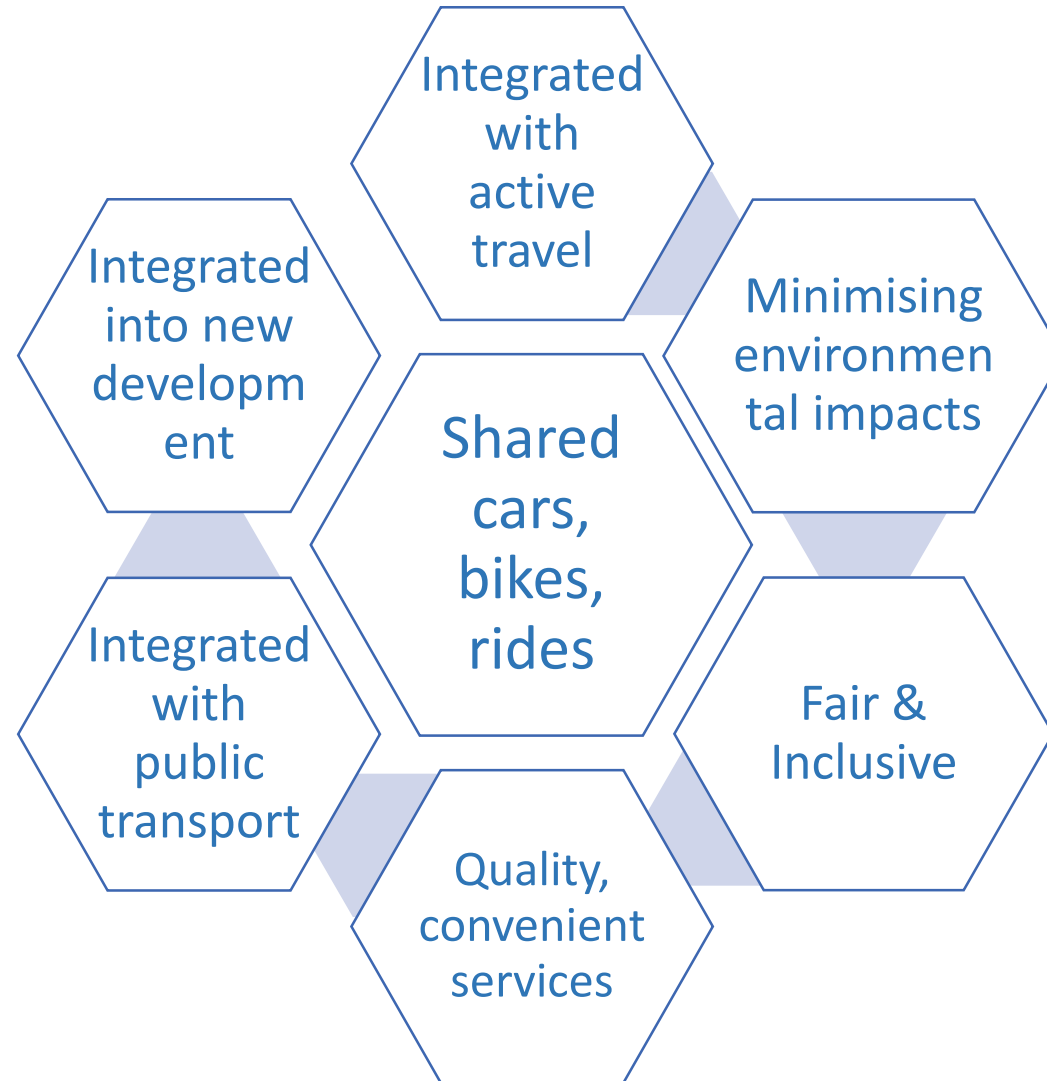 - Run webinars and fora where private and public sector meet on shared mobility

  - Liaise with local authorities

comouk
supporting shared transport

REDUCING CAR OWNERSHIP

When car club members join, they typically reduce their annual household mileage. They also **cycle** and **walk** more frequently than the London average.

Many members choose to give up a vehicle, with over **31,000** privately owned vehicles removed from the roads as a result of car club membership.

Thats enough to cover 62 football pitches!

62

Each round-trip car club car replaces **10.5** vehicles removed from the road in the last **12** months.

Each flexible car club car replaces **13.4** vehicles removed from the road in the last **12** months.
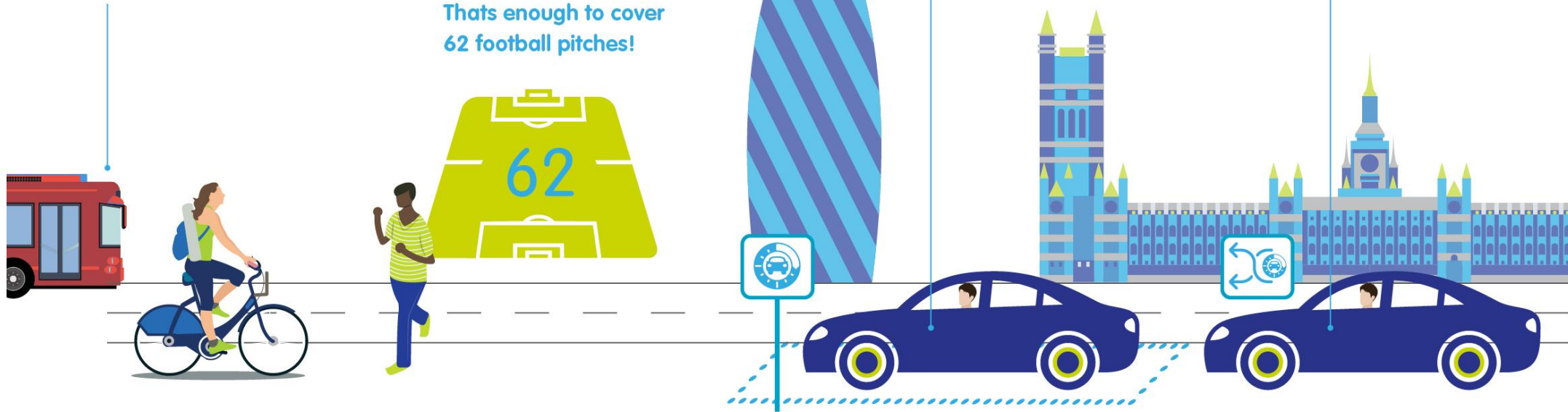
*London stalling Reducing traffic congestion in London, London Assembly, 2017

ROUND TRIP CAR CLUB BAY

FLEXIBLE CAR CLUB

2019 Survey Result Key Findings

comouk
supporting shared transport

THE GENDER SPLIT OF BIKE SHARE USERS IS MUCH MORE EVEN THAN FOR GENERAL CYCLING

40%
FEMALE

58%
MALE

DATA AVERAGED OVER 4 YEARS OF RESULTS

SHARED EBIKE SCHEMES SUPPORT USERS TO CYCLE TO WORK MORE FREQUENTLY

60%
OF THOSE USING EBIKES SHARE REPORTED THAT THEY WERE COMMUTING

48%
SPECIFICALLY REPORTED ON EXERCISE/PHYSICAL HEALTH BENEFITS AS REASONS WHY THEY CHOOSE TO USE THE BIKE SHARE SCHEME

BIKE SHARE ENABLES USE OF PUBLIC TRANSPORT BY OFFERING A LAST MILE SOLUTION.

23%
RESPONDENTS USE BIKE SHARE IN CONJUNCTION WITH THE BUS
–
35%
RESPONDENTS USE BIKE SHARE IN CONJUNCTION WITH THE TRAIN

DATA AVERAGED OVER 4 YEARS OF RESULTS

BIKE SHARE IS A TOOL FOR RE-ENGAGING CYCLISTS.

46%
BIKE SHARE USERS SAID THE BIKE SHARE SCHEME WAS THE CATALYST TO CYCLING (AGAIN)

www.como.org.uk

comouk™
supporting shared transport

Mobility Hubs
Guidance

Mobility
- Shared mobility modes
- Public transport modes
- Freight role too potentially

Mobility-related
- Bike parking / repair
- Zero tailpipe emission vehicle charging
- Wayfinding

Non-mobility
- Enhanced public realm
- Greater security / waiting areas
- Package delivery pickup/dropoff lockers
- Wifi

- **Large interchanges/city hubs**
- Larger-scale PT eg National Rail
- Large-scale cycle parking
- Substantially improved urban realm, perhaps including pocket park
- **Transport corridor / smaller interchanges**
- Regional rail
- Safer street crossings
- Covered waiting area
- **Business park / new housing development**
- **Suburbs**
- **Small market town / village**
- **Tourism**

Components of mobility hubs

Mobility hubs can be seen as an interface between the transport network and spatial structure of an area. Mobility hubs include a range of different components, This diagram illustrates some of the most commonly used components:

A1: Mobility components: Public Transport

A2: Mobility components: Non - public transport

B: Mobility related components

C: Non-mobility & Urban realm improvement

C: NON-MOBILITY & URBAN REALM IMPROVEMENT

- Package delivery lockers
- Mini fitness or play area
- Café and Co-working space
- Outdoor water fountain

A1: MOBILITY COMPONENTS - PUBLIC TRANSPORT MODES & OTHER PICK UP /DROP OFF:

- Bus
- Tram
- Rail
- Demand responsive mini-buses (all one points)
- Ride hailing, (shared) taxis

A2: MOBILITY COMPONENT: SHARED MOBILITY

- Car share: back to base, one way, electric.
- Bike share: back to base, one way, electric.
- Cargo bike share, cargo bike logistics store
- Other future micro-mobility options e.g. e-scooters, moped share
- Ride sharing
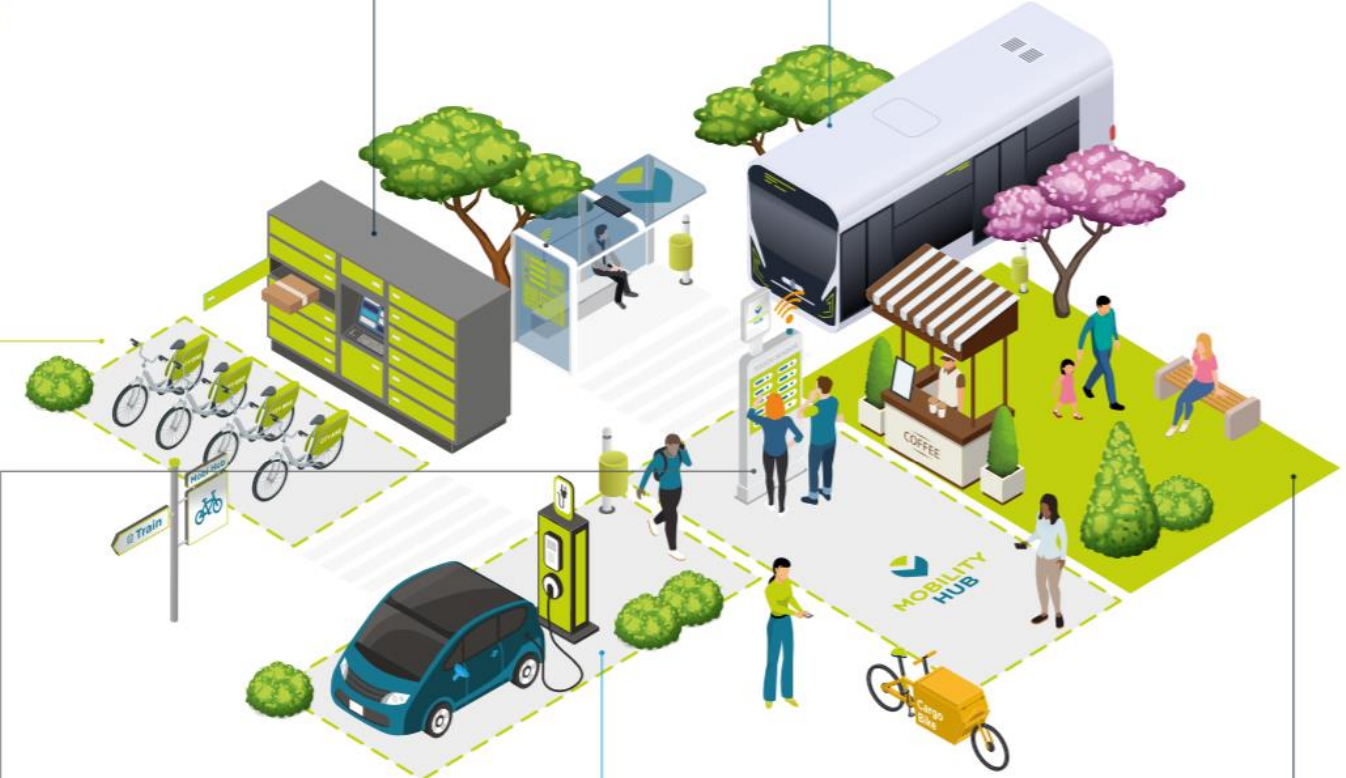
B: MOBILITY RELATED COMPONENTS

- EV car charging
- Bike parking, (Standard, covered, restricted access, EV charging)
- Bike repair, pumps
- Digital pillar, (transport info, ticketing, way finding, walk distances, local services
- Child car seats, bike seats & trailers
- Community concierge parcel last mile delivery

C: NON-MOBILITY & URBAN REALM IMPROVEMENT

- Improved public realm, safer crossings, step free access, road repairs, adjustments for disabilities.
- Waiting area space, covered, seating, planting, artwork, kiosks for coffee etc.
- Wi-Fi, phone charging

Branded pillar

Mobility hubs require a prominent sign or pillar with a common brand to make them visible to the public. The inclusion of a digital elements in a pillar can provide:

- Access to a local transport website for information on services
- A journey planning service for multi-modal trips
- A way finding option for local walking and cycling trips
- Registration and ticketing
- Customer services.

@dilks_richard
@Como_uk

www.como.org.uk

richard@como.org.uk

?

The future of living: Smart and sustainable homes and cities

HOMES UK
THE FUTURE OF LIVING
27-28 November 2019, ExCeL, London

Speakers

Richard Dilks, chief executive, CoMoUK

Mark Jenkinson, consultant and former head of cities AMO, Siemens

Henry Pethybridge, director of WiredScore Home, WiredScore

WIRED SCORE
HOME

WiredScore Home
The future of technology in buildings

WiredScore Globally

500m+
Square Feet

5m+
People working
in Wired Certified
buildings

2000+
buildings
certified

6
countries
launched

Connectivity is transforming our lives.

🕐 **8 hours**
spent everyday consciously online.

▭□ **7**
connected devices each

📊 **90%**
of the worlds data was created in the last 2 years

WIRED SCORE HOME

What do your renters care about?

Our rating scheme is based on renter feedback

Reliability

Speed

Instant Connectivity

Connectivity Everywhere

Smart Technologies

Wired Certification has 6 components

Masterplanning

Point of Presence

Service

Infrastructure

Monitoring

Innovation

Certification levels.

The Value of **WiredScore**

1 Improved Design

2 Proactive Asset Management

3 Attract and Retain Renters

4 Enhanced Brand

Thank You

Henry Pethybridge
+447791763909
henry@wiredscore.com

f 🐦 in

wiredscore.com/uk/home/

WIRED SCORE
H O M E