SMART CITIES, SMART HOMES

Beyond BIM Level 2
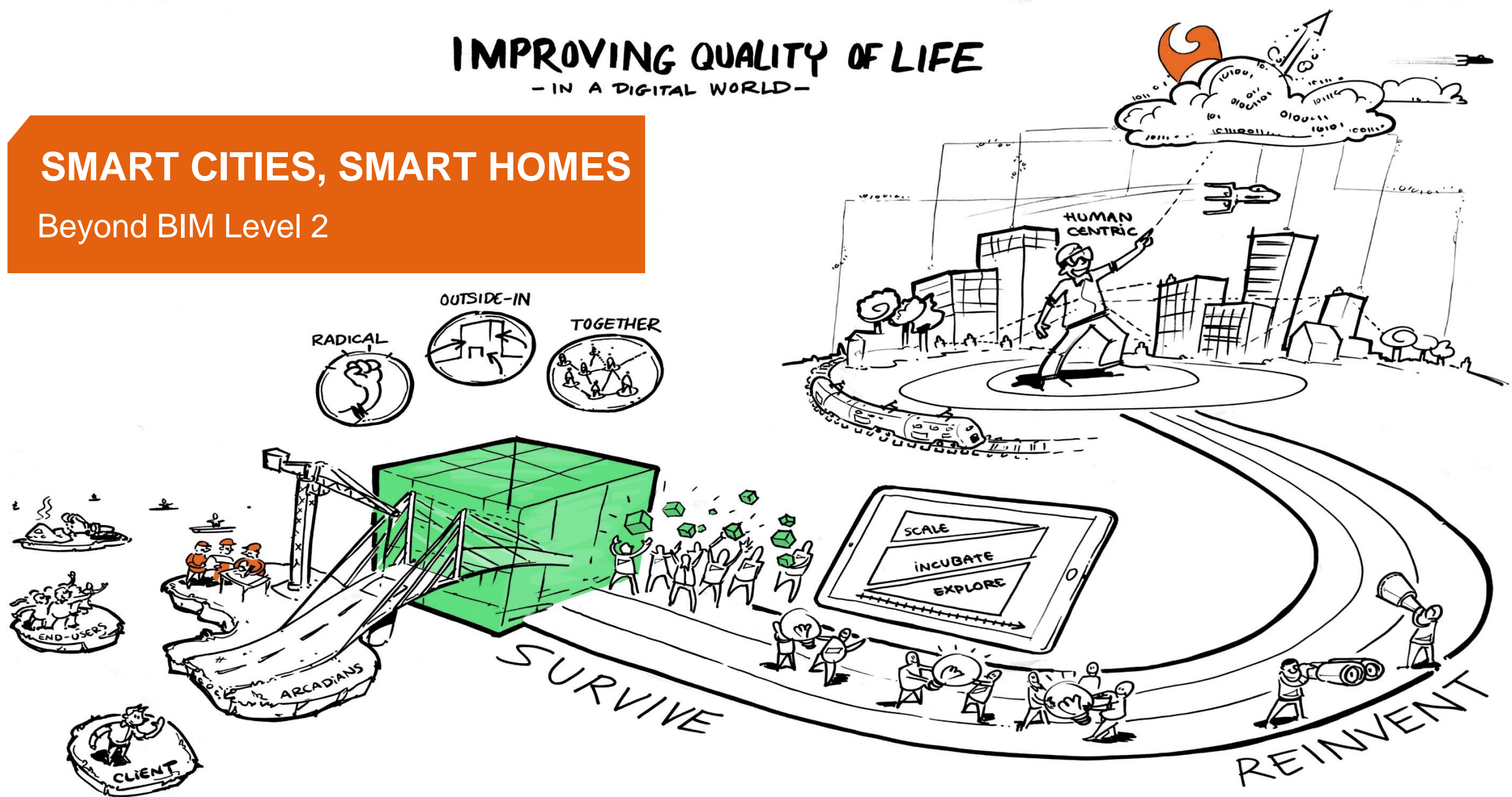
Context – Why BIM Matters

Extract from the NBS National BIM Report 2018 (published May 2018)

BIM Usage and Awareness

'BIM is now a necessity in modern construction projects.'

Almost three quarters of respondents are now using BIM, a 12% increase on last year. This is the highe... year-on-year growth since 20... Since 2016, the year of the m... a further 20% of the industry... has adopted BIM.

'change takes a long time to...

BIM is not yet universal: a qu... have yet to adopt BIM, and a... negligible 1% are unaware of it. But we've come a long way over the seven years that we've been monitoring BIM. Among the design community, BIM has gone from a niche practice to the norm.
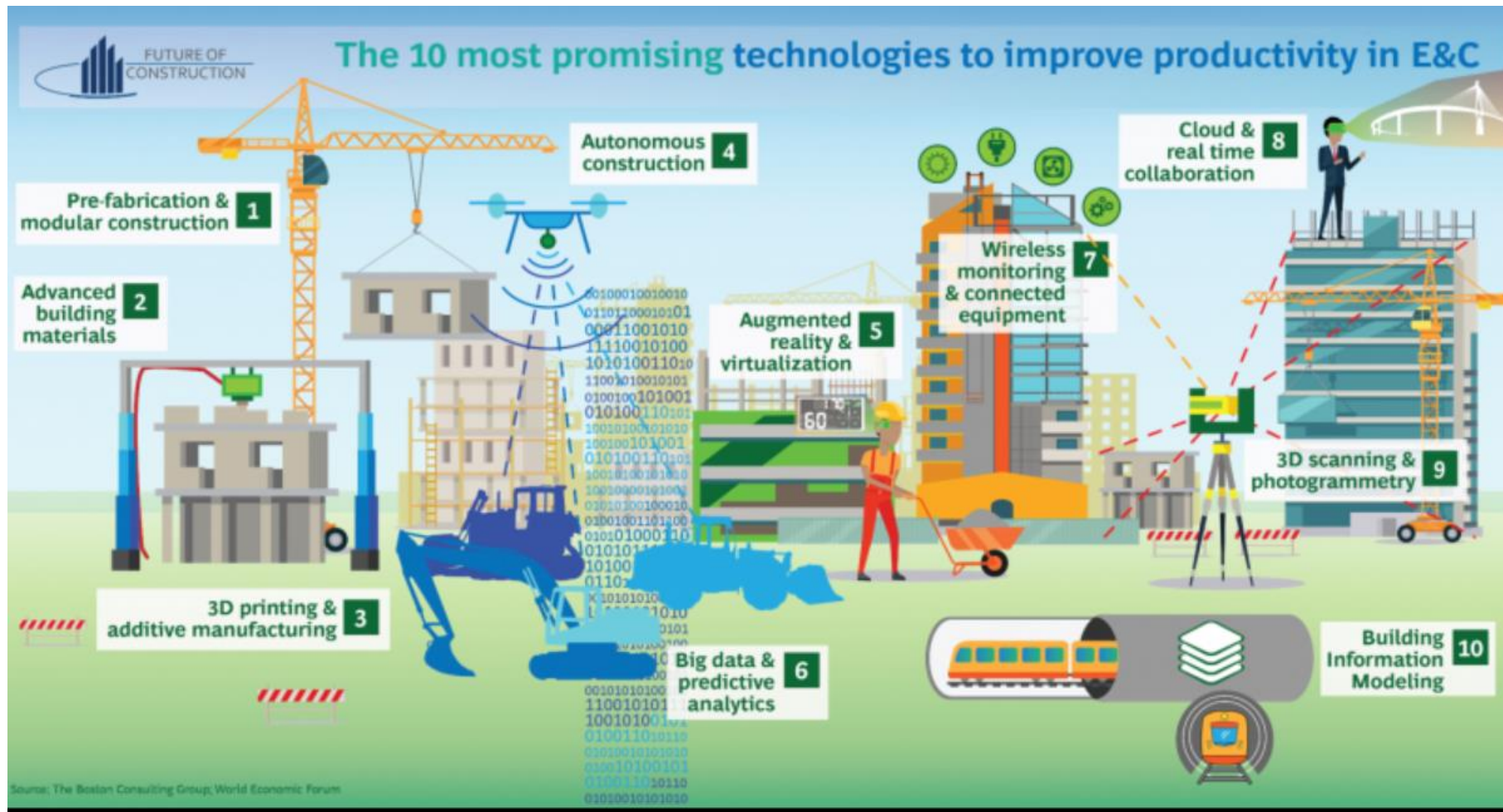
BIM Usage and Awareness

"It is no longer an advantage to know how to do BIM it is a disadvantage to not know."

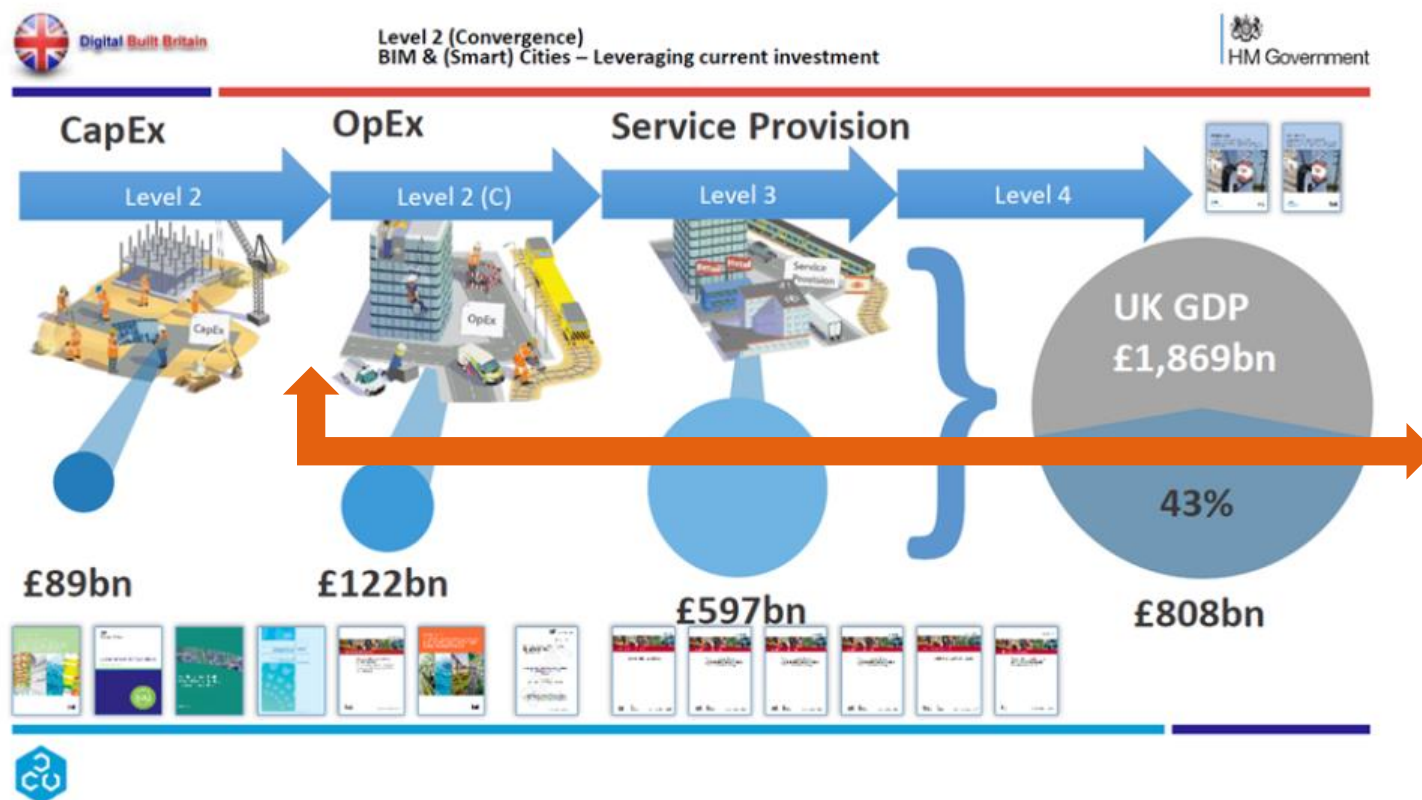|	
Aware and Using	74%
Just aware	25%
Unaware	1%

Context: Construction's Digital Future

The most promising technologies to improve the productivity in the construction industry are depicted in this infographic of the World Economic Forum's Future of Construction Initiative.

(March 2017)

BIM & Smart Cities

BIM Level 2C - Convergence

Source: Digital Built Britain

The Level 2 Convergence (2C) Programme builds the bridge and shows data pathways from the existing Level 2 world of construction connecting to the smart city world of services, consumers and the citizens.

BIM & Smart Cities

BIM Level 2C - Convergence

Ensuring **data value** can be maximised through the whole-life use requires those that are concerned with building and operating assets and those concerned with data measurement and the smart city community to work together.

This will prove how built assets will impact services and the citizens, and provide feedback to improve the planning and design process. It incorporates other plentiful information sources that exist in our **smart cities** using **IoT** and other methods to securely capture data.

Internet of Things (IoT) – the internetworking of physical devices, vehicles, **buildings** and other items; all embedded with electronics, software, sensors, actuators and network connectivity that enable these objects to collect and exchange data.

What is a Smart City?

This refers to the "effective integration of physical, digital and human systems in the built environment to deliver a sustainable, prosperous and inclusive future for its citizens." (BSI, 2014)
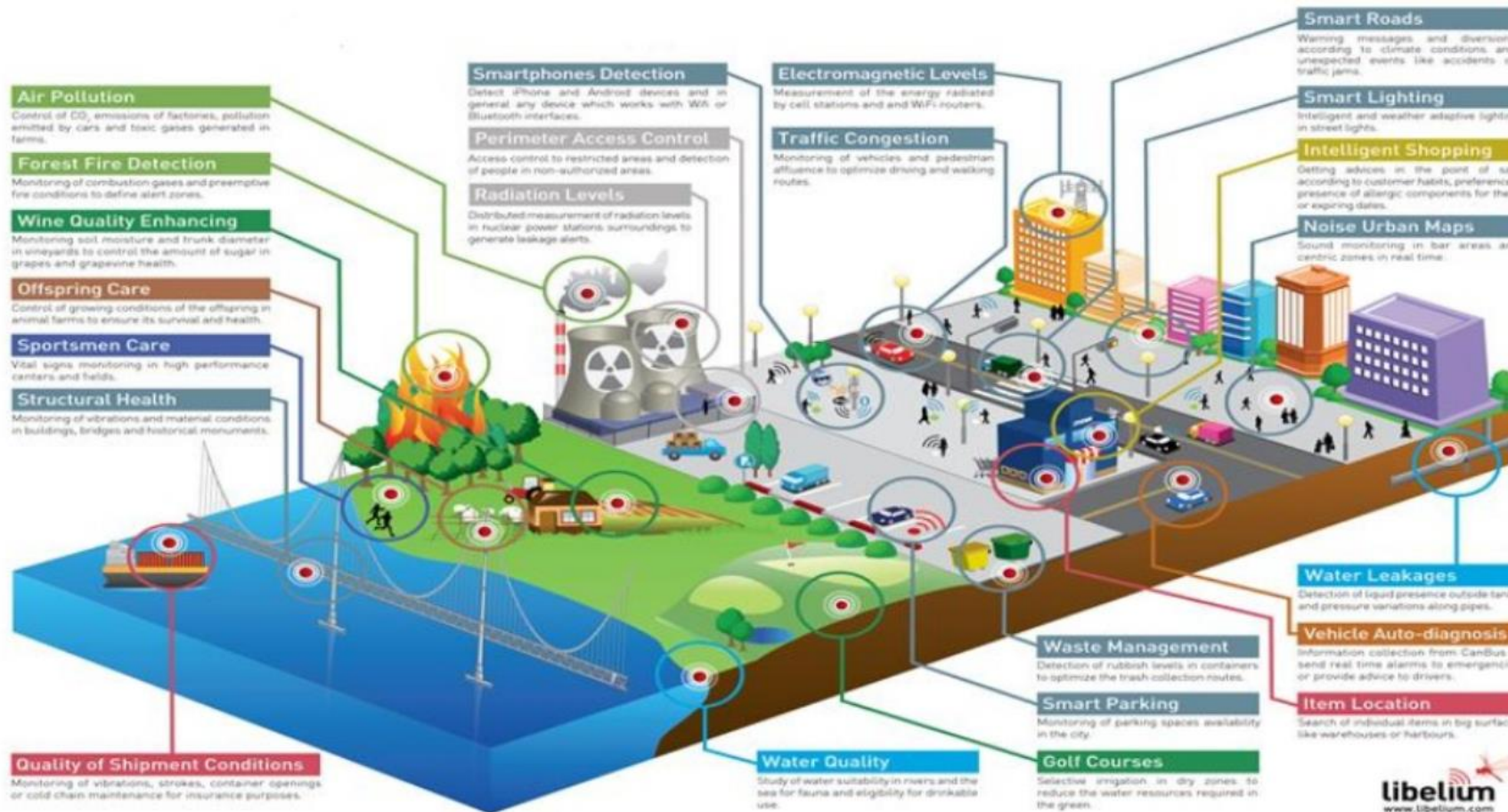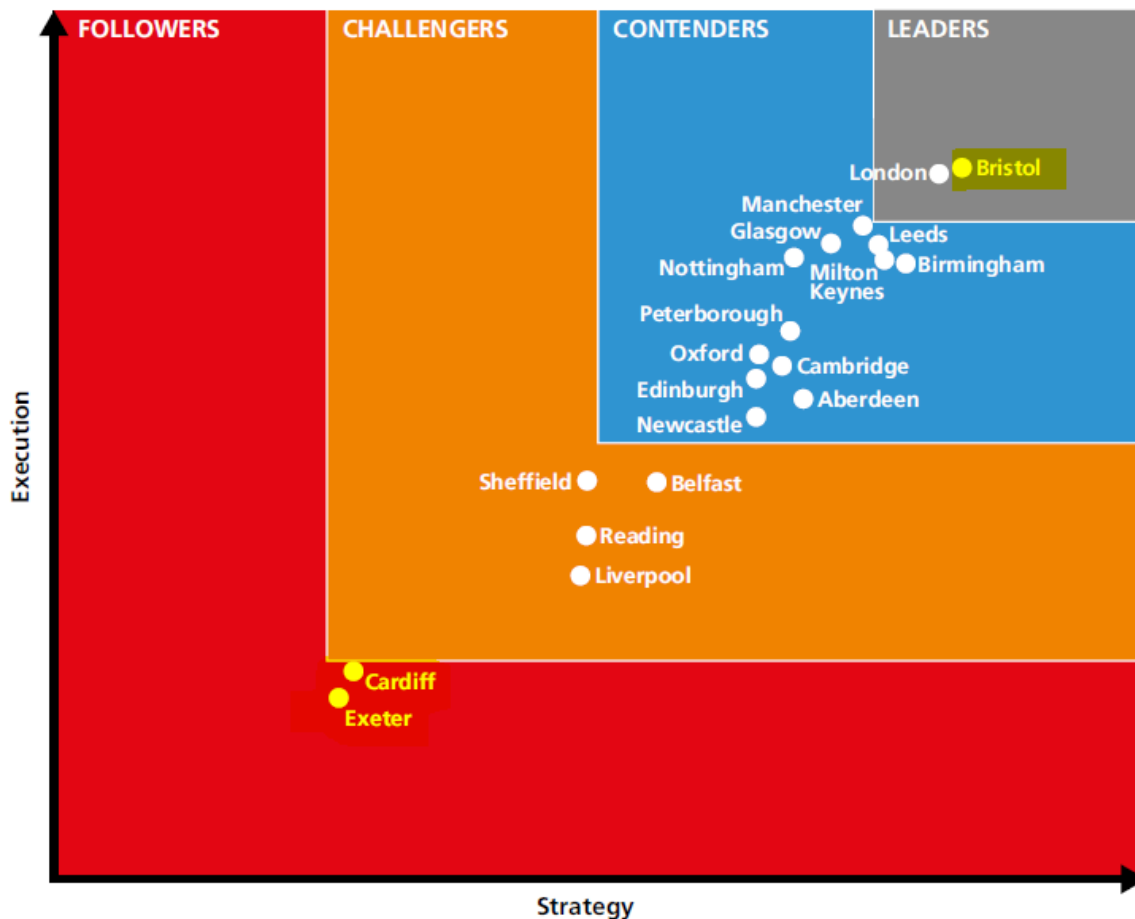

Key Smart City Targets:

- Citizen-centric

- Digitised and enhanced connectivity between people, places & things across the city

- Open and collaborative

- Big Data, Open Data

So, what data are we providing with new built houses and associated infrastructure?

Ambitions for Smart Cities

Chart 1.1 - UK Smart Cities Index 2017

(Source: Navigant Research)

UK SMART CITIES INDEX 2017

Assessment of Strategy and Execution
for the UK's Leading Smart Cities

23 October 2017
Commissioned by Huawei
from Navigant Consulting, Inc.

Big Data – large volume and complex and requires more advanced techniques and technologies in order to derive meaningful information and insights in real time.

Open data – accessible, digital, and free of restriction on use or distribution.
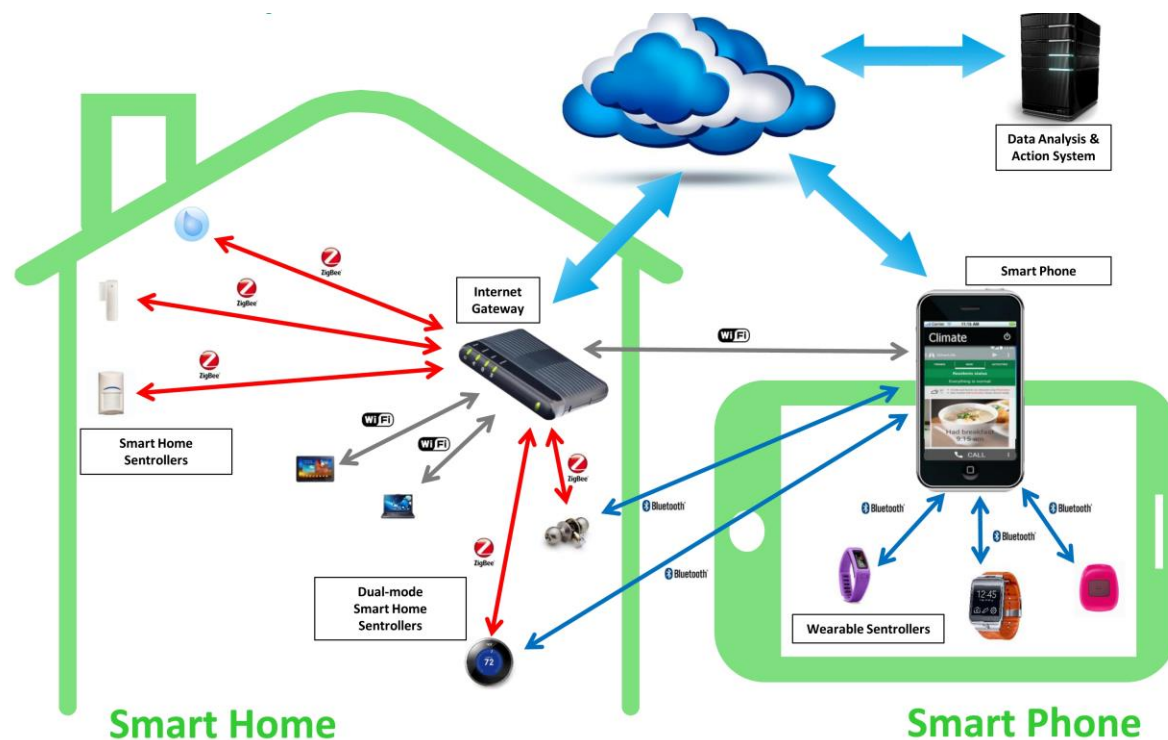
UK examples:

- Bristol is Open
- MK: Smart
- Future City Glasgow

Ambitions for Smart Cities

Smart Homes – Modern Society

Air pollution sensors

Building Management System linked to voice assistants

Control heating & lighting remotely (Hive, Nest, Tado, etc.)
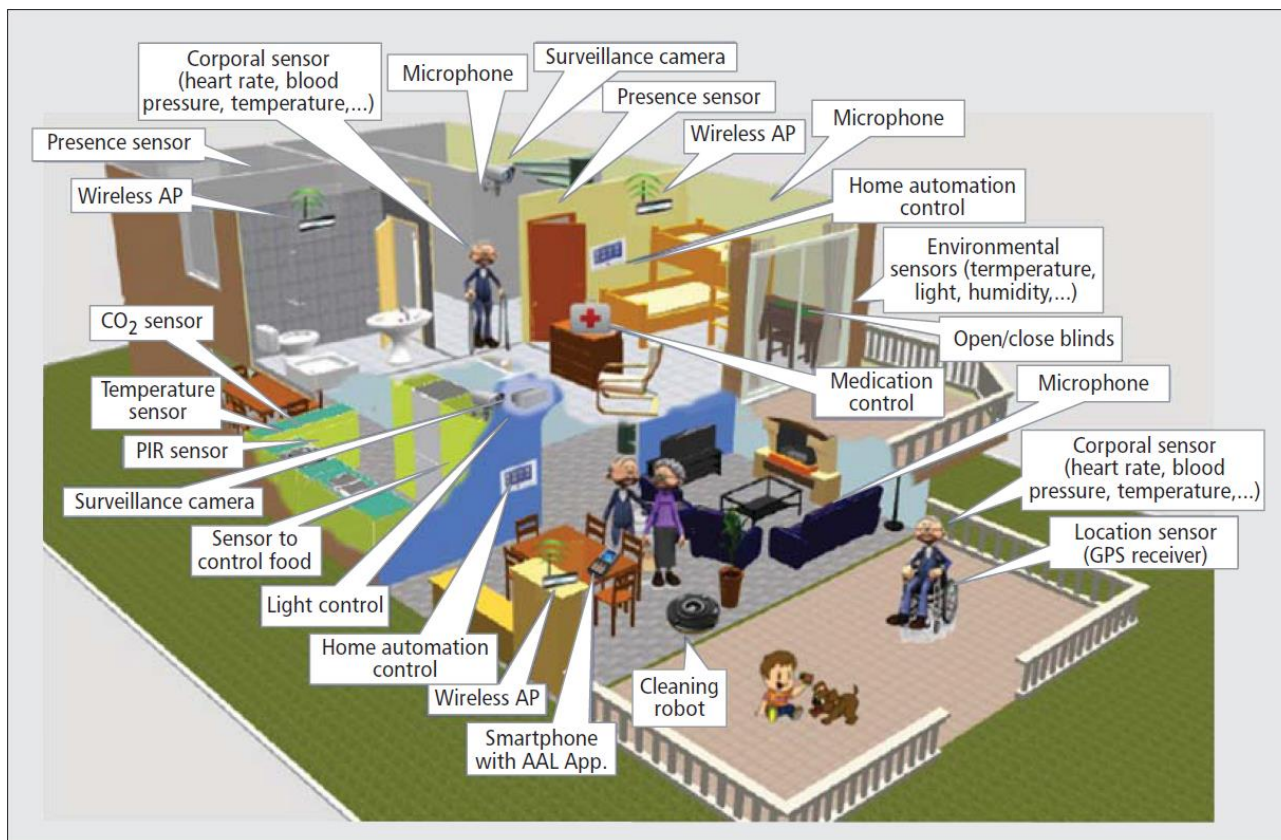
Switch on/off appliances remotely

"Out of house" settings

Alarm & security access via Smartphone

Easy working from home

Virtual home viewing
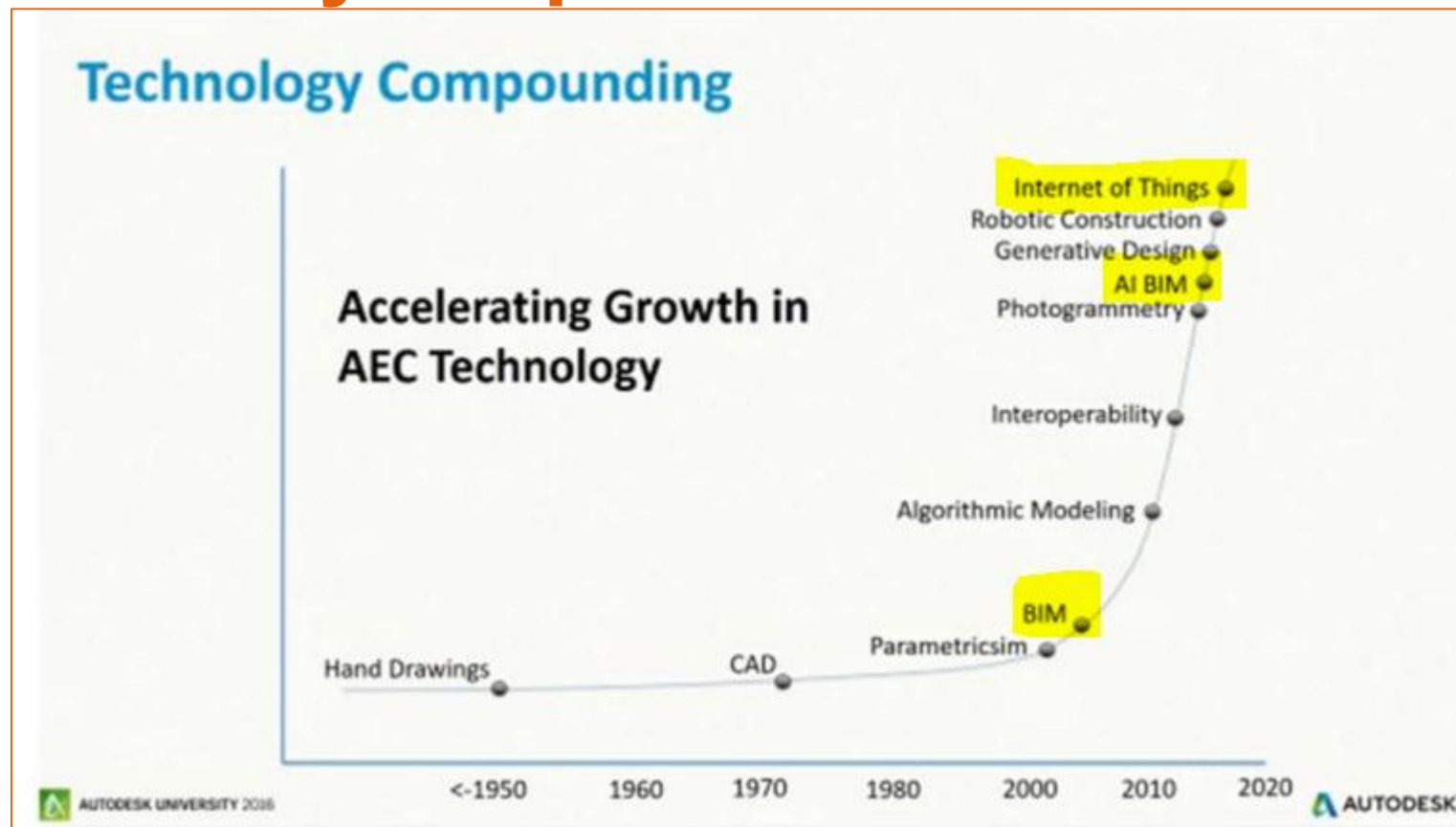
Smart Homes – Later Living

Assisted Living Technologies (ALT)
Collective term covering: Telecare, Digital Upskilling, and Wellness Support.

Electronic Assistive Technology (eAT)
Part of telecare through use of technological devices to promote independence and well-being through collecting data and transmitting to care providers who use it for monitoring and providing response when an agreed trigger point arises.

So, what's your point?

Technology Compounding

Accelerating Growth in AEC Technology

Internet of Things
Robotic Construction
Generative Design
AI BIM
Photogrammetry

Interoperability

Algorithmic Modeling

BIM
Parametricsim

Hand Drawings   CAD

<-1950   1960   1970   1980   2000   2010   2020

AUTODESK UNIVERSITY 2016   AUTODESK

BIM is only a 'digital foundation'

"The Future of BIM is Not BIM" Autodesk University 2016

"If the rate of change on the outside exceeds the rate of change on the inside, the end is near."

Threat from new entrants who are digitally focused & capable. Example – Waterfront Toronto, won by SideWalk Labs (part of Alphabet, Google parent company)

Our Vision

Housing a more effici

New construction meth
mixed-use, walkable n

Open digital infrastructure that inspires innovation.

At the core of a future city is a layer of digital infrastructure that provides ubiquitous connectivity for all, offers new insights on the urban environment, and encourages creation and collaboration to address local challenges.

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Improving quality of life