

## Advancing airborne autonomy

Commercial drones saving money  
and saving lives in the UK

# The UK's commercial drone opportunity

**Gordon Baker**

Department for Science, Innovation and  
Technology

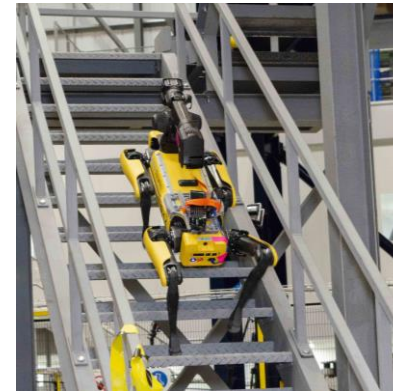


# Drones in the wider innovation/ emerging technology landscape



- Responding to societal need: macro-level pandemics, climate change but also micro-level safety, productivity, labour shortages.
- Automation: robotics (incl drones) part of a new Cyber-Physical Infrastructure (CPI)
- New Department for Science, Innovation & Technology: raising ambition

❖ Forecast: £150bn potential impact of RAS deployment in service sectors by 2035, but only £6bn on current adoption trends.



# The drone opportunity

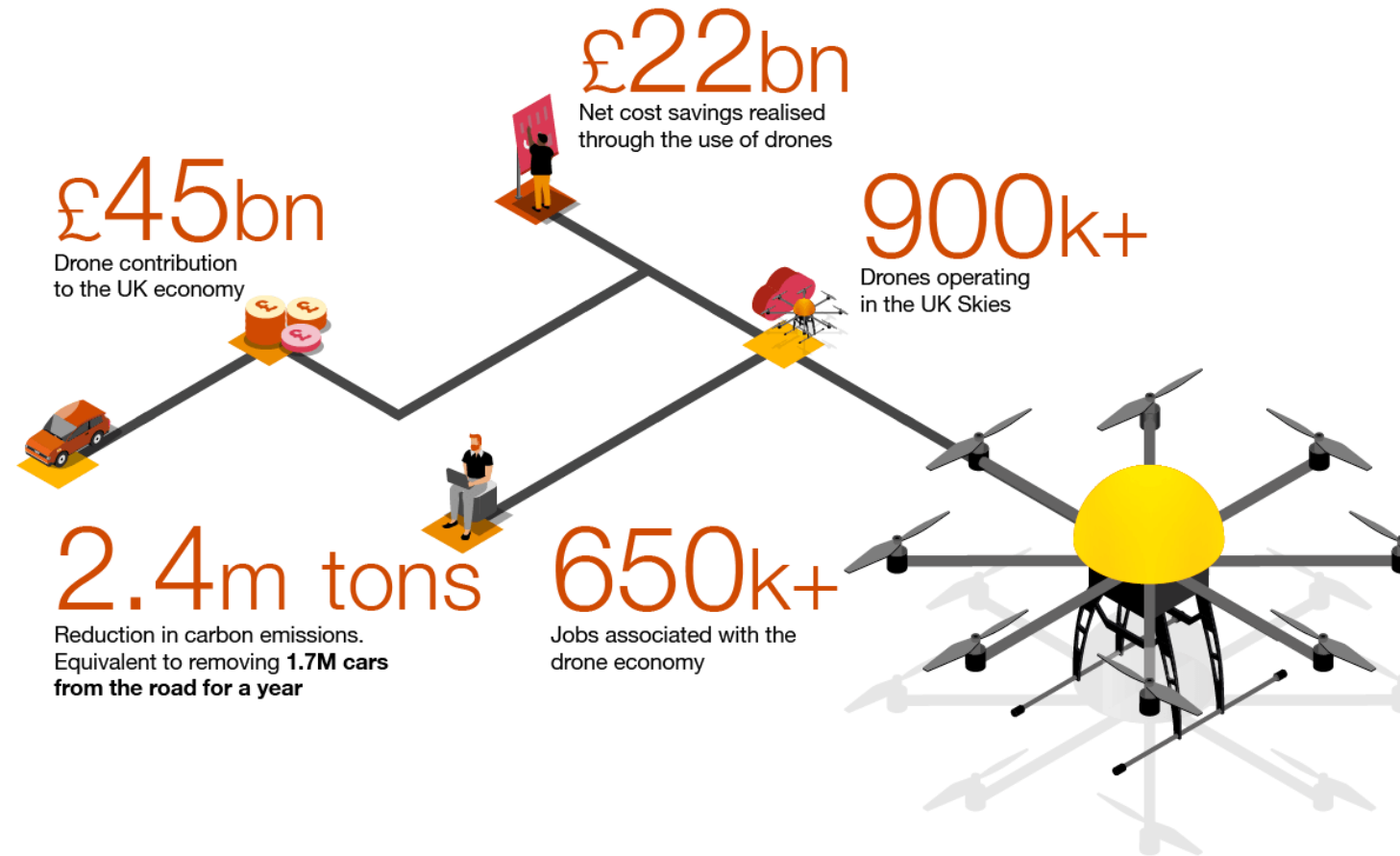
## 2030 UK drone opportunity

Advancing airborne autonomy vision:  
*“commercial drones will be commonplace in the UK by 2030 in a way that safely benefits society and the economy”*

### Looking ahead:

- Regulation: SORA, Remote ID, UTM
- End user uptake: cost and quality; training and skills, standards, outreach

... A joint challenge for Government and the sector.



# Drones are unlocking benefits across the UK

## Survey & Inspection

- Power networks**
  - live cable inspection
  - 16 week task in just 3 days
- Nuclear**
  - condition monitoring
  - £100k saved
- Road**
  - digital twins
- Rail**
  - design to demolition
  - bridges, overhead wires, towers
- Wind & Solar**
  - 3,500 rail flights in 2021
- Water**
  - underground pipe leak detection
  - predict & prevent faults
- Oil & gas**
  - methane emission monitoring

Real estate  
up to 45% lower OPEX



## Environment

monitor flood defences



## Coastguard



Search & rescue

unsafe structures

live imagery to control rooms

## Police & Fire

## Ambulance

faster, cheaper



## Health

75,000 flights to 13,000 homes in Irish delivery trials

medicines, blood and lab samples

increased operational efficiency

less carbon emissions

## Emergency response

## Delivery

quieter & emission-free

## Mail

100kg up to 1000km



AIRSPACE MANAGEMENT SERVICE PROVIDERS

AIRSPACE AUTHORITIES

COMMUNICATIONS PROVIDERS

DRONE USES

DRONE OPERATORS

SECURITY

LAW ENFORCEMENT

SAFETY

INSURANCE & LIABILITY

REGULATORS & LEGISLATORS

GOVERNMENT & POLICY MAKERS

HOME

BUSINESS

AUTONOMOUS OPERATION

CONNECTIVITY

TELECOMS

SUPPORT DIRECTION

INFO DATA VISION

WORK

TRANSPORT

PUBLIC PERCEPTION

MANUFACTURING

INDUSTRY COLLABORATION

CUAS

STANDARDS

TESTING

SOFTWARE & SYSTEMS

LAWS COMPLIANCE

REGS & RULES

E-COMMERCE

HOW DO I GET MY PRESCRIPTION DELIVERED?

TARGETED USE OF PESTICIDES HAVE SEEN CROP YIELD UP 20%

ALERT, ILLEGAL FISHING ACTIVITY DETECTED

CAN I APPROVE THIS DRONE'S FLIGHT PATH?

APPROACHING DRONE DELIVERY HUB

DRONE RUNWAY INSPECTION COMPLETE, CLEAR TO TAKE OFF

MAINTENANCE REQUIRED OVER ON SECTION ELEVEN

CONFIRM DRONE ENTERED NO-FLY ZONE 12:14 EXITING 12:11

INVESTIGATE

UNIDENTIFIED DRONE NOW DISABLED

HOW DO WE EXPLOIT DATA FORENSICS FOR USE AS EVIDENCE?

WHAT POLICE POWERS ARE REQUIRED TO ENSURE SAFE USE OF DRONES

HOW DO WE DELIVER FEEDBACK SAFE AUTONOMOUS SYSTEMS

OVER 250 GRAMS MUST IMPLEMENT REMOTE ID

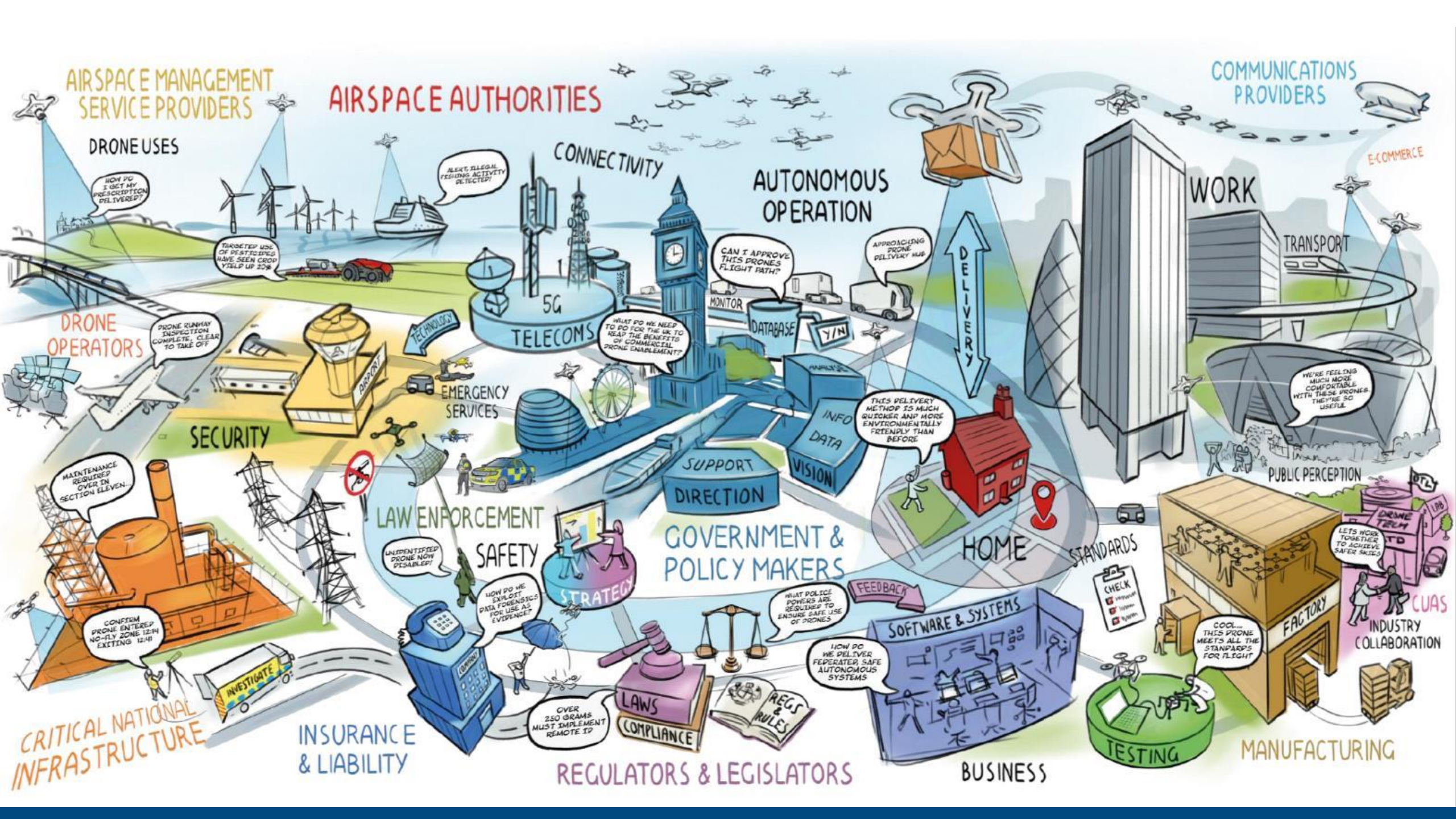
THIS DELIVERY METHOD IS MUCH QUICKER AND MORE ENVIRONMENTALLY FRIENDLY THAN BEFORE

WE'RE FEELING MUCH MORE COMFORTABLE WITH THESE DRONES THEY'RE SO USEFUL

LET'S WORK TOGETHER TO ACHIEVE SAFER SKIES

COOL... THIS DRONE MEETS ALL THE STANDARDS FOR FLIGHT

CRITICAL NATIONAL INFRASTRUCTURE



# Looking forward

**Policy:** DfT Flightpath; Advancing Airborne Autonomy

**Funding:** £125m Future Flight. 17 projects underway + CAA support. Networks.

## Pro-innovation regulation

- RHC, FAIWG, Ofcom, BVLOS Ops Forum

## Unlocking commercial growth

- Driving uptake: drones as business as usual

