

*A UK Government activity overview of
emerging PNT Services & capabilities*

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Innovate UK

InnovateUK – The UK's Innovation Agency



return to the economy

7,600



organisations supported



of GVA for every £1 invested



> **7 jobs** created for every business invested in

Cross-Government PNT group

- Founded 2014 (InnovateUK/MoD)
- Almost all departments represented
 - Government & regulators only
 - Balanced
- Internal and industry briefings
- Information and knowledge exchange forum
- Not a *Working* group in the traditional sense
 - Not output based
 - No *formal* advice at this time

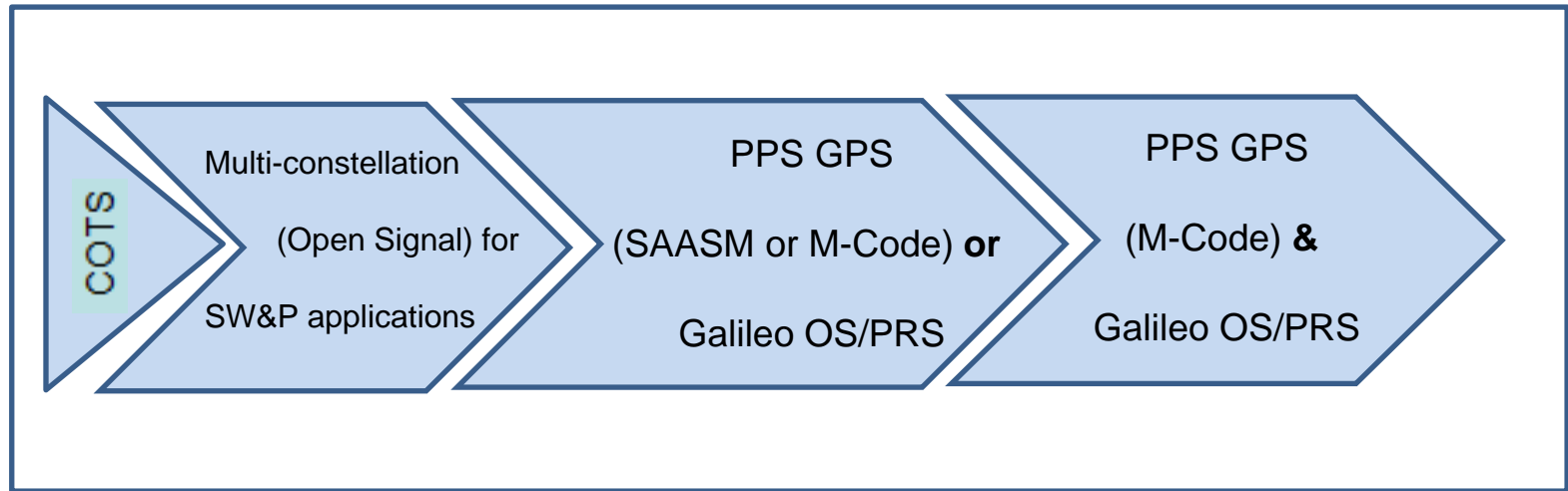
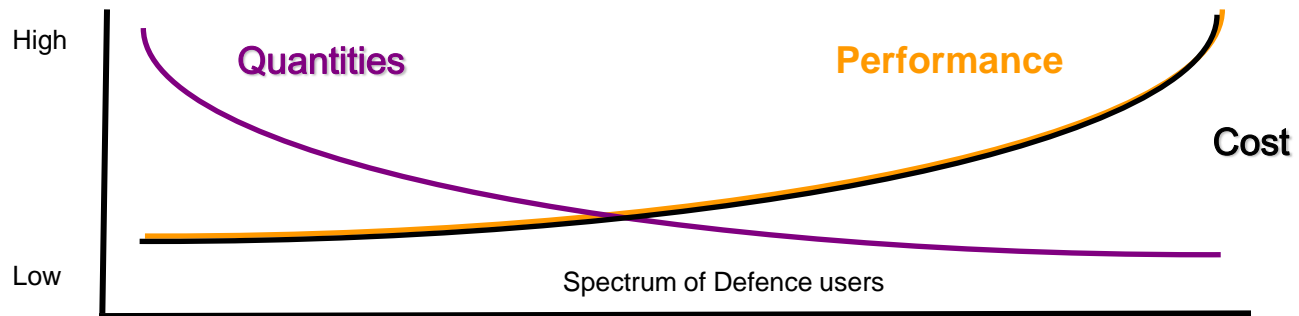


Galileo Status

- 14 Satellites launched (4 more November)
- 9 Satellites operational¹ (about to be 11)
- 2 satellites in anomalous orbit
 - +1 anomalous
- Initial Services 2016, FOC 2020 (plan)
- EGNOS operational
 - V3 Upgrade planned to include Galileo



The MoD's RGNS Project



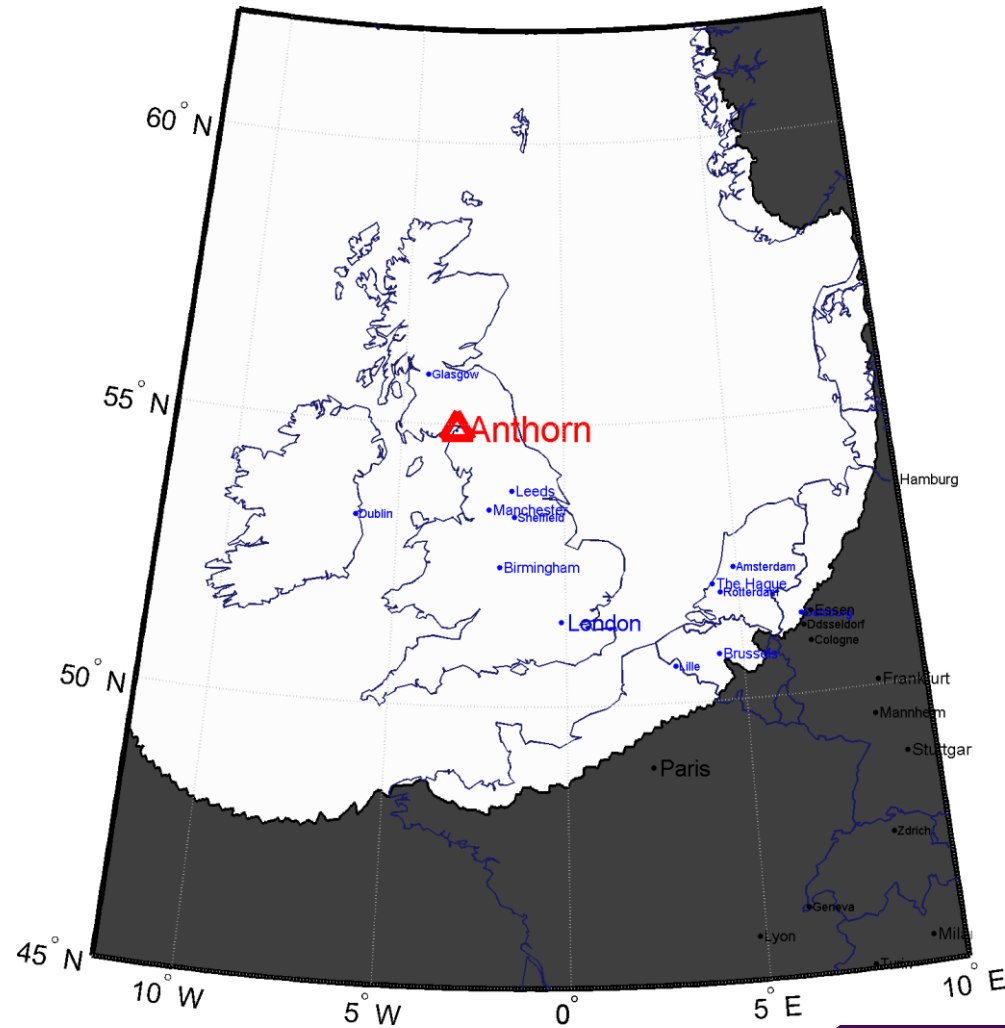
European Loran Infrastructure @ 31 Dec 2015

- France 2 TX **CLOSED**
 - Lessay, Soustons **CGB CLOSED**
- UK 1 TX
 - Anthorn **Providing timing for the whole of the UK and Ireland**
- Denmark 1 TX
 - Ejde **TO CLOSE**
- Germany 1 TX
 - Sylt **TO CLOSE**
- Norway 4 **CLOSED**
 - Vaerlandet, Boe, Jan Mayen, Berlevåg



UK-only Timing & Data Capability

- UTC Timing from a single UK Transmitter
- 500ns (indoors)
- Robust Data Capability
- Some sectors have a **CRITICAL** dependence upon timing



The UK Quantum Technologies Programme

- A 5 year programme with a 10 year vision.
 - Now over £350m spend
- Delivering new devices and new businesses from world leading UK research
- Industry, academia and public bodies working together to create opportunities for UK wealth creation.



Autumn statement 2013

£270M

UK Government investment in
quantum technologies research

Some other current UK activities that include PNT

- Connected and Autonomous Vehicle funding
 - £100m over 5 years
- Low emission freight and logistics trial (£24m)
 - Focus on freight carrying, logistics, utilities or emergency vehicles
- Low emission vehicle systems (£24m)
 - Supports business lead R&D projects developing technology for the automotive industry
- Enabling technologies funding (£15m)
- ESA Navigation Innovation and support programme
 - Up to £100m over 5 years



Centre for Connected
& Autonomous Vehicles



Office for
Low Emission
Vehicles



Department for
Business, Energy
& Industrial Strategy



Summary

- InnovateUK at the heart of technology innovation in the UK
- Cross-government group to understand common issues and share
- UK involvement in Galileo and ESA navigation programmes
- eLoran is an activity work item
- Large Quantum and transport programmes to compliment



Thank You

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