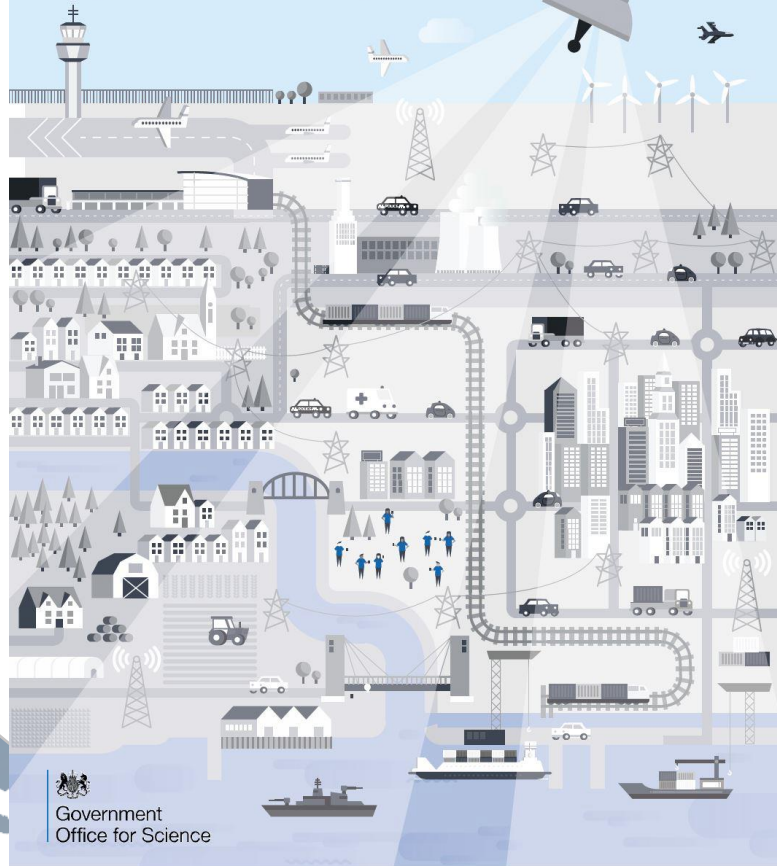


UK Blakett Review (GNSS) Update

Andy Proctor, Technical Director (GNSS)
UK Space Agency



Satellite-derived Time and Position: A Study of Critical Dependencies



Recap

- Why and how to we use GNSS?
- What sources do we *actually* use?
- What standards & regulations apply?
- Resilience, existing and future?
- 12 recommendations...

Recommendations recap



Improve understanding and awareness of dependence on GNSS



Change the way the Government approaches PNT and its guidance to critical services. Mitigating dependence



Improve and strengthen the legislative framework. Prepare for the future



Key Findings

- GNSS awareness out of step with dependence
- Knowledge of vulnerabilities and weakness of GNSS not widespread enough
- Resilience improvement is needed across all critical services (inc CNI) including philosophy of approach. No magic single solution.
- We must prepare now for future technologies, skills and product needs to secure future PNT services

- Protect spectrum and address risks & interference issues
- Have a formal internal (government) advice system and deploy GNSS backup systems where appropriate
- Address common terminologies, procurement approaches, legislation,

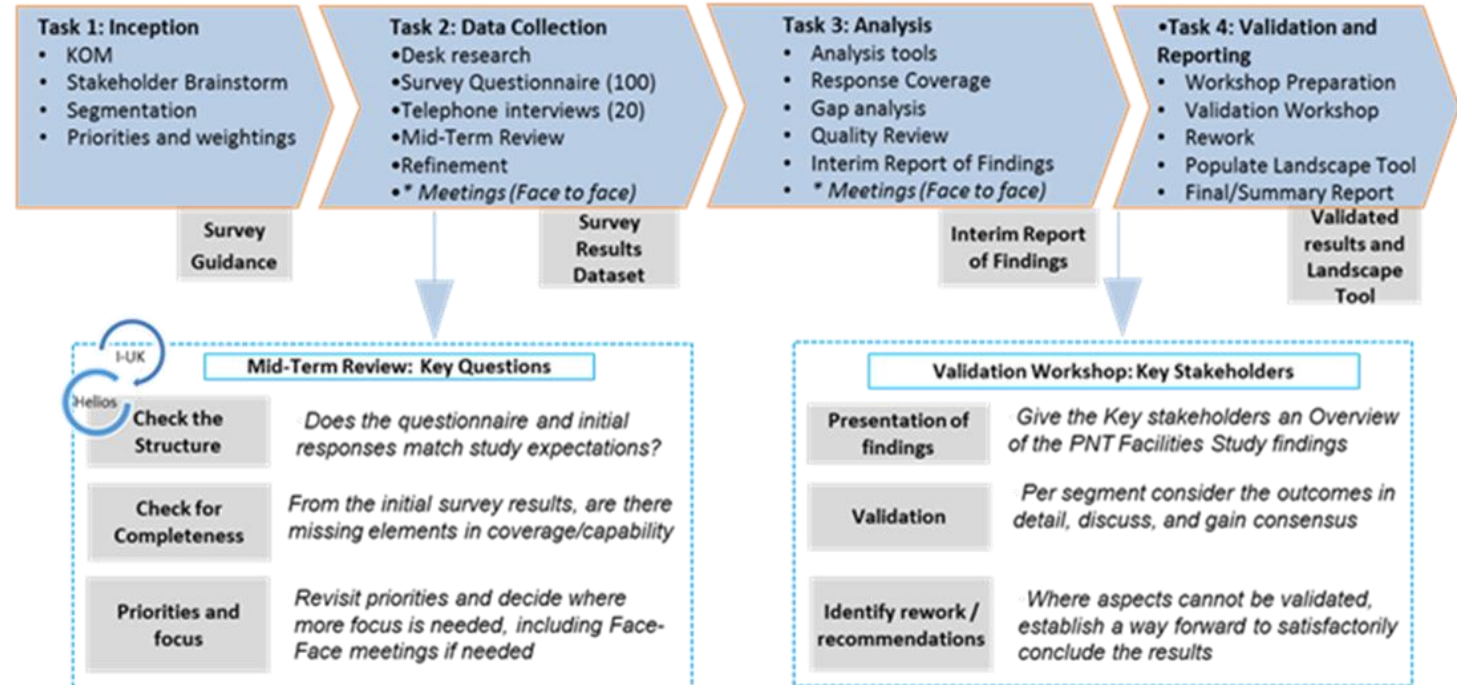
- The UK is well placed globally to actually do something about it

So what....

- First up: Recommendation #9
 - What are the UK's PNT facilities?
 - How do people access them?
 - Are they sufficient?

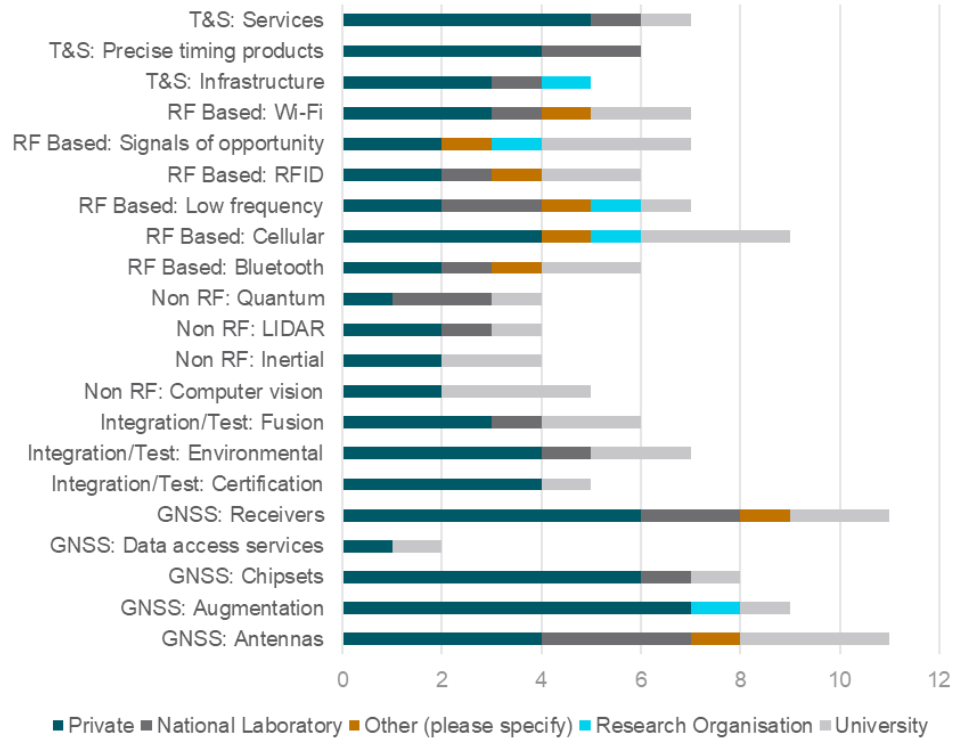
Overview of the PNT Facilities Study Methodology

A four-step approach from Inception to Validated Results

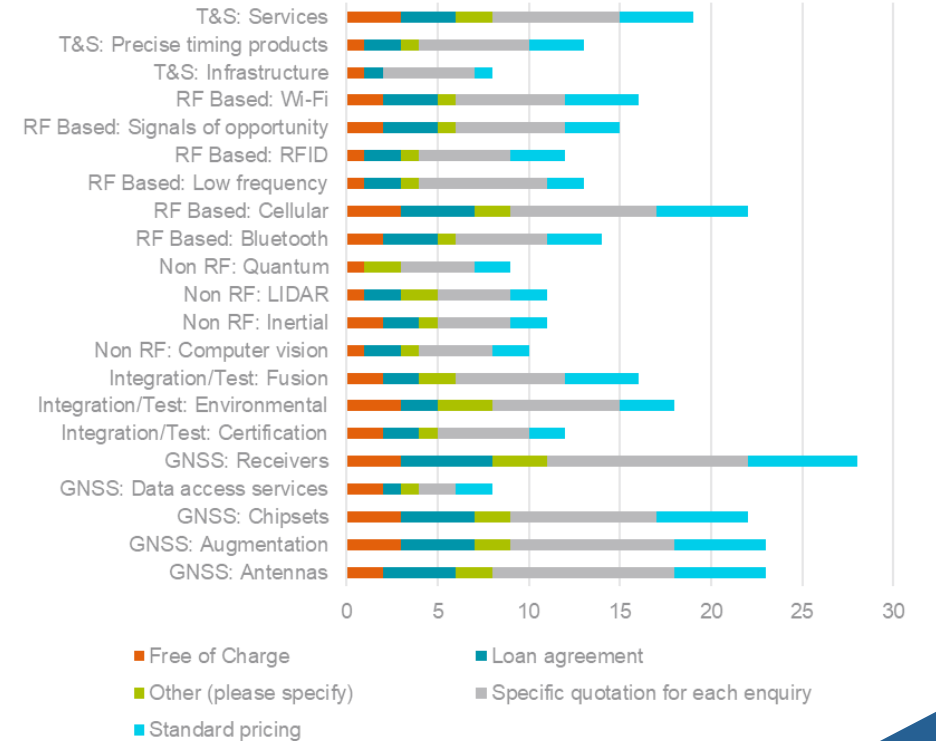


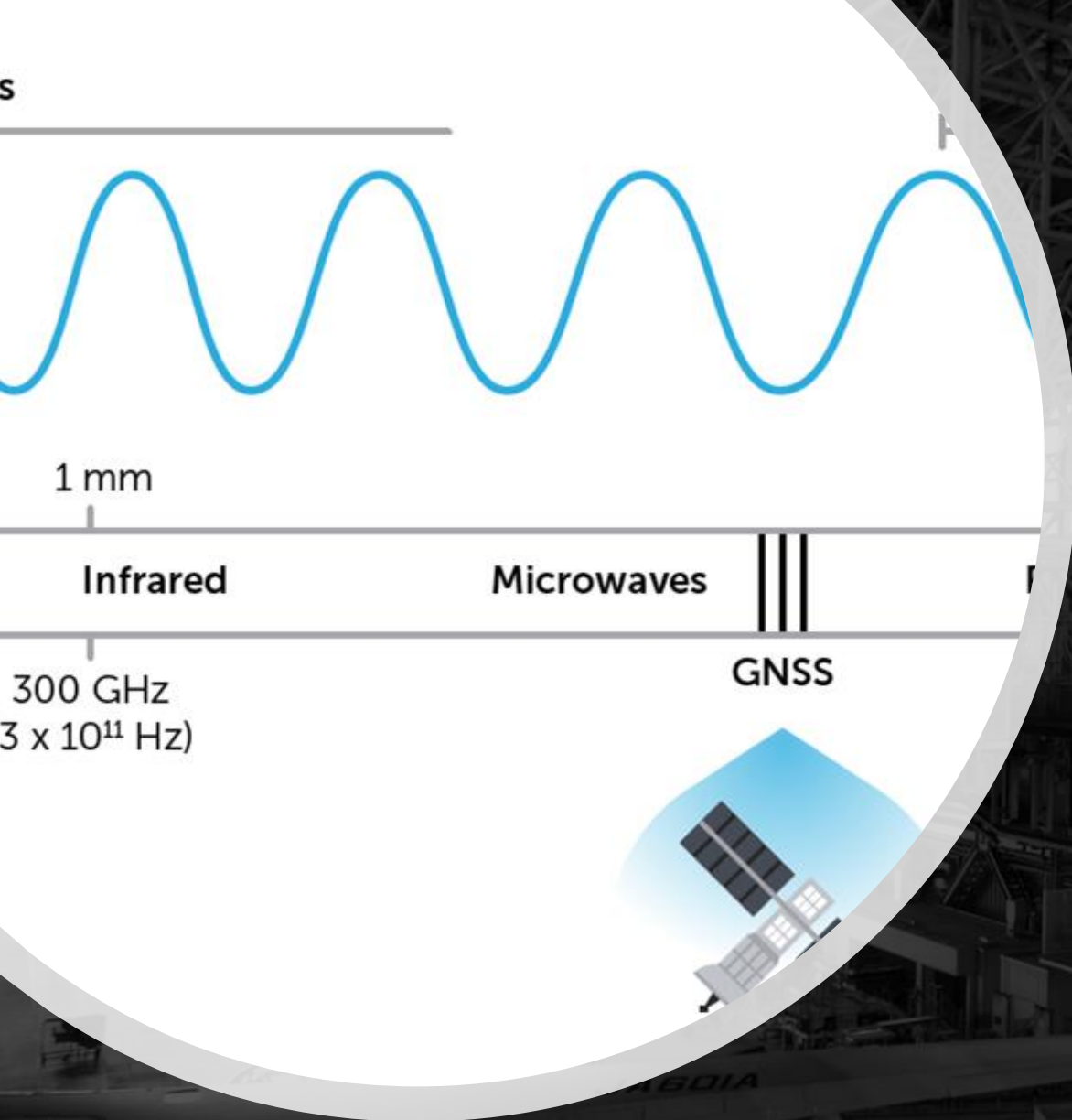
PNT Facilities Study

PNT technology coverage by facility provider type



Terms of accessing test facilities





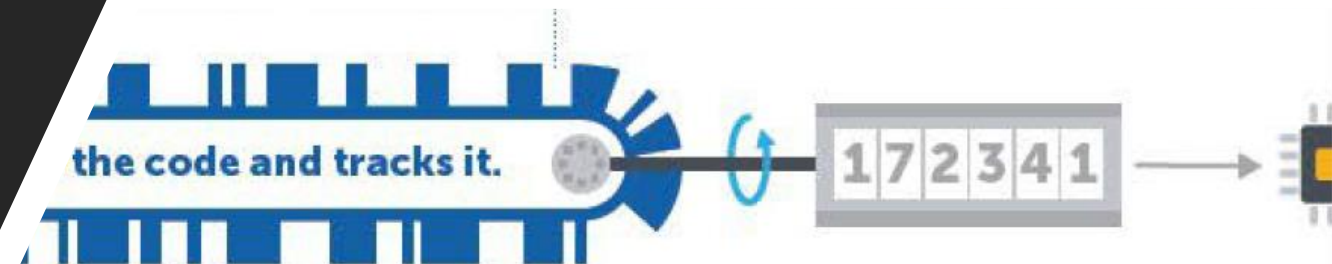
Publishing PNT Facilities

- Online facilities tool
- Publish report
- PR?
- When – not certain yet

PNT Technical Group

- Fully formed
- Academia, Industry & Government Partnership
- Currently addressing awareness, guidance standards and evidence
- Co-Chaired by Royal Institute of Navigation

	Time to first fix
	Time-to-acquisition time
	Operation in non-GNSS conditions, including timing outputs
	Long-term operation
	Operation in poor RF environments
	Operation under conditions of GNSS data/system errors
	Ability to flag when subject to interference
Continuity	Ability to switch between PNT sources, as necessary
	Continuous output, regardless of environmental conditions
Accuracy	Position and time accuracy within required parameters
	Accuracy specifications in harsh conditions



By multiplying the time of a signal's flight from a satellite by the speed of light, a receiver can determine the distance between it and the satellite. These distances to an offset in the receiver's time measurements are called pseudo ranges.

Blackett Review Implementation Group



Policy focused cross-government formal group



Chaired by the Cabinet Office



Reporting to the National Security Framework



VI Govern

Thank you
Questions?

@innovateandy

