UK Dependence on GNSS & the Impact of its loss

Andy Proctor
Chair, UK Government PNT Group
@Innovateandy

Innovate UK
Presentation will cover

- UK Economic Impact Study
- UK Review of our critical service dependencies on GNSS
- Impact on NAVISP
- Why NAVISP matters to the UK
Motivation

- GNSS use widespread
- Known and increasing vulnerabilities
- Many technical studies about impact of vulnerabilities
- Previous work recommending impact assessments
- No UK economic impact study (gap in knowledge)
- Agreement our understanding of dependence is low
Research Objectives – Economic Impact

- Identify sectors using GNSS
- What is the economic benefit that GNSS technology and services bring to the UK?
- Estimate the economic impact to the UK (government and private sector) of a disruption to GNSS functionality of up to five days
- Identify the cost and effectiveness of mitigation strategies.

- High-level assessment of the impact of UK public funding of GNSS

What would be the economic impact on the UK through the loss, howsoever caused, of GNSS, for up to five days?
Establish Benefits Determine Impacts
Key Findings

• GNSS – Invisible Utility
• PNT derived £1.4bn of turnover and 4000 jobs (2014/15) in the UK
• Sectors generating 11.3% of UK GDP are supported directly by GNSS
Economic Benefits of GNSS

- Quantified economic benefits to the UK of GNSS have been monetised at £6.7bn per annum, comprised of £1.2bn in Gross Value-Added (GVA) benefits and £5.5bn in utility benefits (efficiency, safety, etc.)
- Conservative estimates
- Cannot monetise all benefits
- Consider this a LOWER BOUND
Impact of Loss of GNSS (for 5 days)

• The economic impact to the UK of a five day disruption to GNSS has been estimated at £5.2bn.
Impact of Public Funding

- Estimated societal benefits at between £4 and £5 per £1 of public investment.
- The UK has made a €1.5bn investment in GNSS since 2000.
  - Most of this investment (94%) impact in GNSS is strongly tied to the UK’s benefits from the European GNSS programmes (EGNOS and Galileo).
  - The UK’s €94.9 million downstream investments since 2000 have also unlocked significant benefits to end-users and the rest of society that would have been lost without UK funding.
- Report presents a strong case for continued public investment in GNSS.
Blackett Review of GNSS Dependence

- Key questions
  - Why do we use GNSS/PNT and how
  - What sources do we actually use
  - Standards, regulations, need for additional?
  - Resilience, existing or future
  - Future needs
- Process
- Summary of recommendations
Blackett Process

• ~35 Experts from the UK
• Supported by officials and invitees
• 4 meetings over 6 months
• Specialists writing on their own topic
• Chaired by the Prime Minister’s Science Advisor and endorsed by a Minister
Summary of Recommendations

- 12 unclassified recommendations
- Raise awareness (formally), throughout government and CNI
- Protect spectrum and address risks & interference issues
- Have a formal internal (government) advice system and deploy GNSS backup systems
- Address common terminologies, procurement approaches, legislation,
Our new Space Minister mentioned NAVISP in a speech last week.

Resilience a theme in NAVISP #2 applications
  – Not just UK, but other projects too

Already a NAVISP element #3 project being worked to address the issues raised

Use of NAVISP for strategic analysis of projects in UK
  – Wider reach and benefit

Challenges
  – Turning 4-5:1 into 7-8:1 (process, terms, speed)
  – Promotion of NAVISP, perception of ESA
  – Co-funding for [micro]SME’s and low investment companies
Thank You

Andy.Proctor@Innovateuk.gov.uk
@InnovateAndy