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United Kingdom PNT Update

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January 2018, Satellite-derived time and position: Blackett Review
Seminal review exploring UK dependency on global navigation satellite systems.

August 2018, UK announces national GNSS Programme
Launch of an 18 month study on designing and developing a UK GNSS as an independent satellite system.

December 2018, UK announces it will not use Galileo PRS
UK PM confirmed that the UK will not use Galileo PRS for defence or critical national infrastructure after Brexit.

2020 / 2021, Cabinet Office sponsored Draft UK PNT Strategy
Various working groups provide input to draft strategy and implementation plan

October 2020, Space-Based PNT Programme launched
Programme to explore innovative ways of delivering satellite navigation and timing services to the UK from space.

March 2021, Integrated Review

UK Government commits to strengthen the resilience of the PNT services on which CNI and economy depend.

July 2021, Senior Officials Meeting

Permanent secretaries across Government agree to establish a PNT Office
Secretary of State BEIS* formally offers to host Office in August 2021.

September 2021, National Space Strategy

Commits to evaluate the case for investing in resilient PNT capabilities

March 2022, Space-Based PNT Programme closed

As the PNT user requirements were not clear BEIS Secretary of State decides to close the programme.

July 2022, PNT Office Concept Demonstrator agreed

BEIS, MOD and Cabinet Office provide minimal funding for X-HMG PNT Team.

X-HMG PNT Team

A new X-HMG team to bring together all the evidence and synthesise into PNT policy

Core Challenge

Develop policy options to mitigate the risks from the loss of PNT

Key Components

1. Existing PNT Landscape

2. Resilience & Mitigation

3. PNT Risks and Threats

4. PNT User Requirements

5. Technology Solutions

6. International Cooperation

7. Quick Wins Options

Temporary X-HMG PNT Project Board

Community of Practice

Independent Expert Group (IEG)

All this work will call upon all the existing work undertaken since the Blackett Review.

The PNT community is understanding threats in a more comprehensive way that before

Is PNT from LEO a service or an augmentation?

For CNI, systems thinking, in the form of PNT system resilience needs addressing

PNT can learn from AI/ML to address multipath in challenging environments

The PNT community can learn from animal navigation research to adopt simpler and more effective algorithms

Trust, but verify

There is a lack of UK consensus leadership in the PNT community

Government strategies reference but do not stimulate PNT innovation

Call to action: Need to have a body to represent **all** aspects of the PNT community

Goal to bring together individuals and organisations interested in Position Navigation and Timing (PNT) technology, policy, funding, collaboration, and research



Its scope covers all aspects of PNT from vision-based navigation to quantum sensing and space systems.

Taking input from all aspects of the PNT “world” in areas such as policy and strategy development, technology development, economics, standards development and regulation, resilience, and security, plus liaising with equivalent groups around the world.

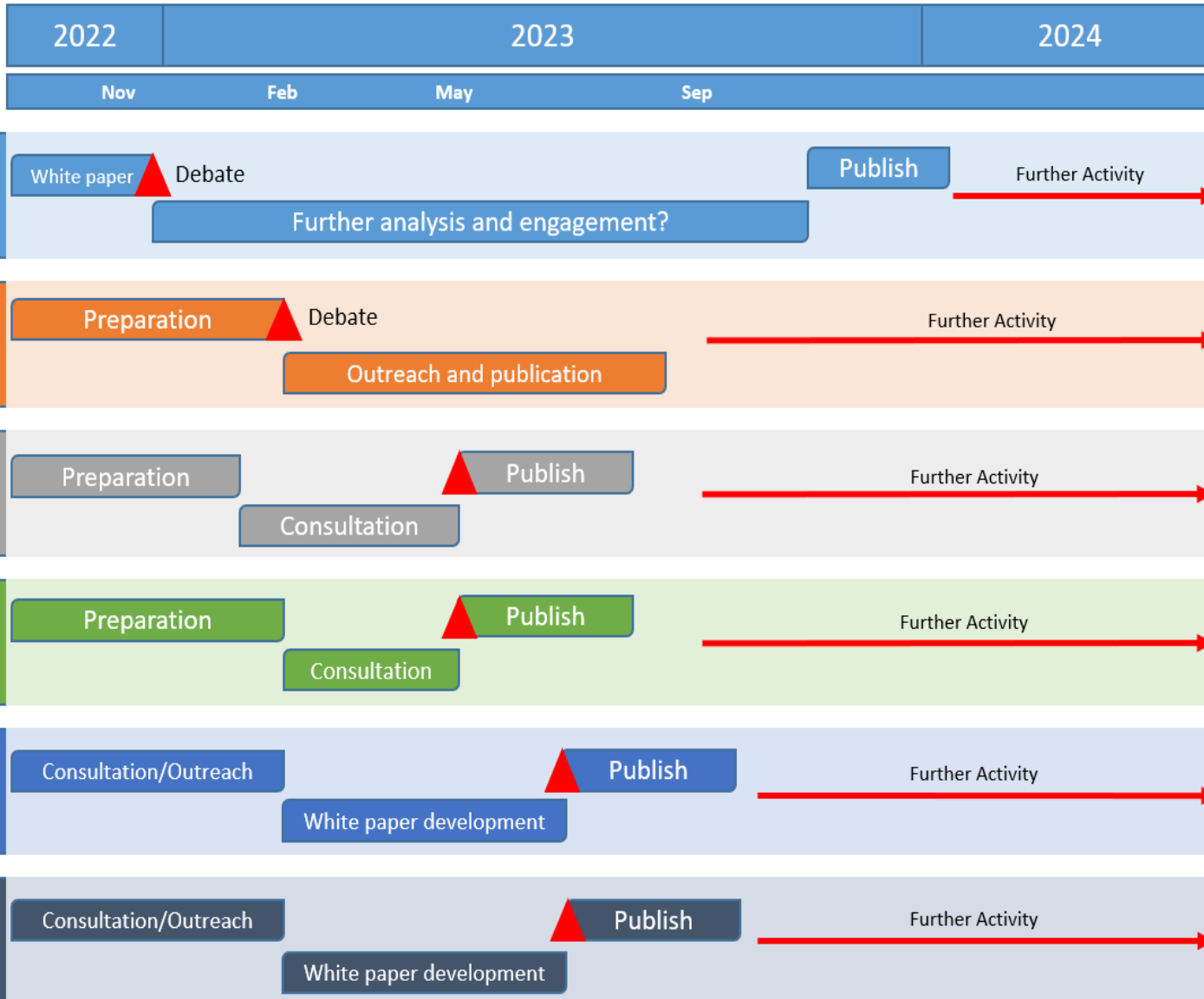


It will build on the existing body of knowledge by addressing aspects such as use cases, depth of analysis and independent positions.

It aims to provide a neutral place for the “PNT sector” under the banner of a Learned Society and without bias or favour, to share knowledge and develop positions on key issues and opportunities, and to provide expert-led advice.

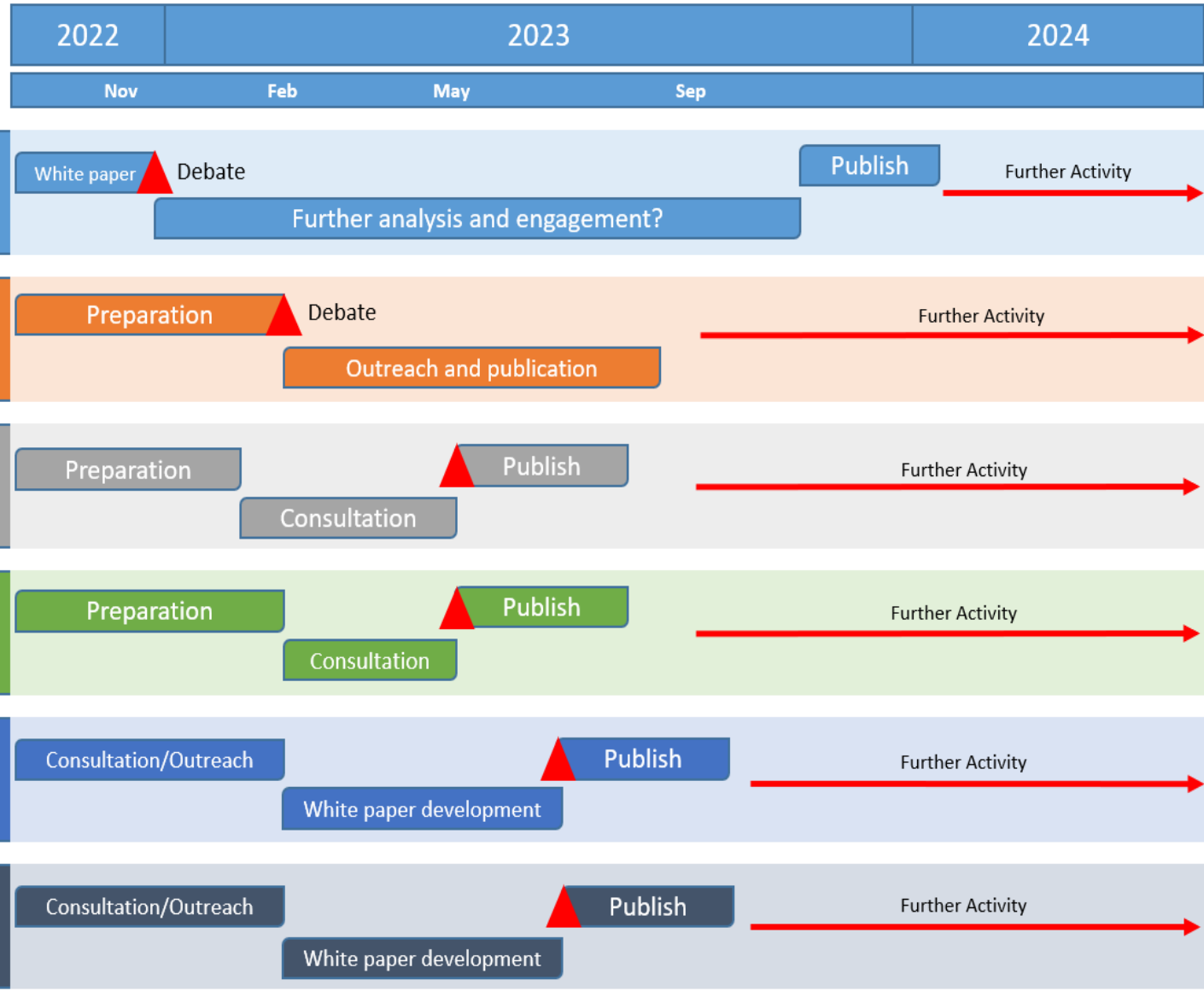


RIN UK PNT Advisory Group Activities and Timeline



RIN UK PNT Advisory Group

Economic Benefits of Resilient PNT in the UK



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Economic benefits of resilient PNT in the UK

Concept Paper for the Royal Institute of Navigation
UK PNT Leadership Seminar

October 2022

Abstract

Position, Navigation, and Timing (PNT) information is a crucial input into many technologies that underpin the modern economy. The most widespread source of this information is satellites in space, generically referred to as 'GNSS', or Global Navigation Satellite System – GPS is one example. The proliferation of GNSS as a source of PNT is usually attributed to its global availability and zero cost – but as reliance on GNSS has increased, so too has the exposure to its weaknesses. These weaknesses are increasingly apparent as the scale and sophistication of attacks on existing PNT systems grows.

The UK is well placed to capture a greater share of the growing market for resilient PNT and could, with sufficient public and private effort, reap the rewards of moving early to address the issue of resilience in PNT. This concept paper seeks to test the hypothesis that 'the UK can generate value and sustainable leadership from investing in resilient PNT, benefiting government, academia, industry and, ultimately, individuals'.

Image source: NASA, Artist's impression of a STEREO Spacecraft Viewing CME, https://www.nasa.gov/mission_pages/sunearth/missions/mission_stereo.html
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