

UK Animal and Plant Health Internet of Things



UK APH IoT

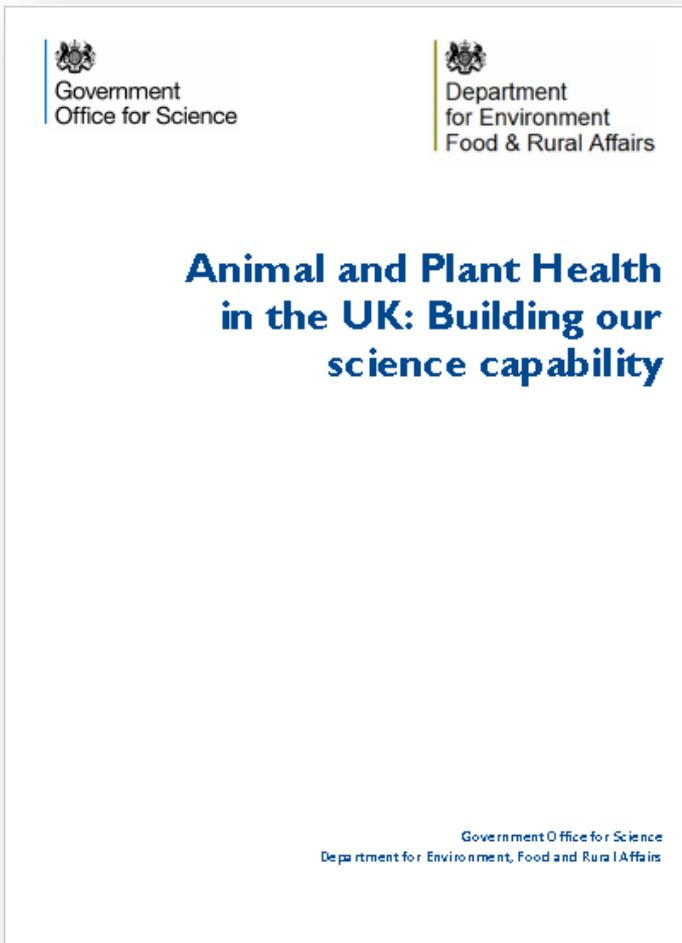
- Step change in scale
- Create a platform for connectivity and interoperability
- Interconnect sensors and data nodes to provide data allowing for successful early interventions.
- Create reference databases to allow farmers to make informed decisions
- UK well placed – global supplier of plant and animal genomics and already has the best architecture to combine meteorological and environmental data.

UK APH IoT Challenges

- Data silos and limited resources
- Old technologies in place for pest and pathogen detection
- Increased skills and expertise to ensure uptake
- Effective frame work

UCL Engineering and Rothamsted Research – a Goldmine of Talent!

- Seminal contributions and expertise in all Engineering disciplines and in Agriculture.
- Joint Stakeholders – all industry sectors, policy makers both nationally and internationally.
- PETRAS - £10M investment in IoT technologies and solutions
 - 9 universities, £23M overall investment, 47 partners in total
- Alan Turing Institute - £67M investment in Data Science
 - 5 universities, 3 £10M investments from industry



December 2014



January 2016



A Vision and High-Level Strategy for UK Animal and Plant Health Research to 2020 and beyond



The ambition:

By 2020, the UK will have created and harnessed new research knowledge and technology that will transform our ability to:

- Systematically predict, detect and understand key current animal and plant health problems and emerging threats in real time;
- Direct sophisticated and rapid responses to effectively and efficiently prevent and mitigate impacts on the agri-environment, ecosystems and landscapes.



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Why now?

- Sustainable intensification of agriculture requires a more effective and efficient approach to horizon scanning, risk management and impact mitigation.
- New knowledge, tools and technologies in biosciences and biotech and from adjacent disciplines provide opportunities to tackle challenges in novel ways.
- The UK has world-class expertise in a number of disciplines relevant to tackle these opportunities, from biosciences to informatics and engineering.
- Recent investments by the UK government will address barriers for progress in the field, e.g. Agrimetrics, PETRAS, Alan Turing Institute.



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Action 1:

To establish a UK Animal and Plant Health IoT that would embed, at its heart, a web of flexibly interconnected sensors and data nodes, alongside data from wider sources and advanced approaches to data management and analysis.

- **Enable fast, systematic detection, analysis, understanding and prediction of animal and plant health risks.**
- **Direct the timely application of the most effective interventions and facilitate their uptake.**
- **Protect and strengthen the UK's rural and land use economy and stimulate inward investment by industry.**



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Action 2:

To prioritise research investment and align strategic agendas and research programmes around 3 key themes:

- **Improved understanding of current and emerging pathogen and pest threats and how they may be controlled** – growing and maintaining world-class interdisciplinary science capability.
- **New technologies to detect and control pest and pathogens** – enhancing the UK's ability to develop, validate and use them.
- **Integrative approaches to monitor, model and manage endemic problems and emerging threats** – guiding precision intervention at local and landscape levels.



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The strategy highlights that interdisciplinary, systems and public-private partnership approaches are needed to enable progress and maximum impact.

In this context, UCL and Rothamsted Research are hosting today's event to:

- Bring together players from the Agri-Food, ICT and Engineering sectors
- Discuss the context in which IoT solutions have to work in agriculture
- Showcase examples of IoT solutions being developed for the sector
- Identify opportunities for interdisciplinary collaborations

