

Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM2	Price to DSIT	████████
Project Title	High Accuracy Elemental Analysis – Core Metrology	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	7 - application in established areas

Summary

This project aims to continue building on existing inorganic Mass Spectrometry capability to underpin high accuracy reference measurements for total elemental content, through the development of improved reference methods, calculations and processes. These approaches will impact science areas across the wider NML, improving the ability to produce reference values more efficiently and in quicker timeframes. Furthermore, maintenance and extension of capabilities and measurement services are required through ISO/IEC 17025 accreditation and Calibration and Measurement Capabilities (CMCs).

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM3	Price to DSIT	████████
Project Title	Core Isotope Ratio Metrology	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	8 - application in established areas

Summary

This project will deliver accredited isotope ratio analysis capabilities for absolute Carbon (C) isotope ratio measurements by Multicollector-Inductively Coupled Plasma Mass Spectrometry (MC-ICP-MS) and for bulk Hydrogen (H), C, Nitrogen (N) and Oxygen (O) isotope delta measurements by Elemental Analyser-Isotope Ratio Mass Spectrometry (EA-IRMS) and High-Temperature Conversion-Isotope Ratio Mass Spectrometry (HTC-IRMS). These capabilities will support existing NML Reference Material (RM) portfolio, allow the development of new certified reference materials (CRMs), provide measurement services for bulk isotope analysis and ensure that the NML remains at the forefront of international research into fundamental metrology through further refinement of our optimized regression model for the correction of instrumental mass bias during MC-ICP-MS measurements. A training programme will also be developed to ensure good practices for isotope ratio analysis by MC-ICP-MS and IRMS can be transferred effectively to stakeholders.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	21GRD09	Price to DSIT	████████
Project Title	MetroPOEM - Metrology for the harmonisation of measurements of environmental pollutants in Europe	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	30 September 2025
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	8 - application in established areas

Summary

This project provides the co-funding for the NML's participation in MetroPOEM (Metrology for the harmonisation of measurements of environmental pollutants in Europe) under the European Partnership on Metrology and aligns with activities under project CM3 (Core Isotope Ratio Metrology).

European Green Deal's ambition for zero pollution requires the development of highly sensitive techniques to detect ultra-low amounts of pollutants and to determine their isotope ratios. Mass spectrometry is a key method for determination of non-radioactive polluting elements and is of increasing importance for long-lived radionuclides. This project will bridge the gap between both methods and will establish new tools for tracing pollutants. Measurement uncertainties and detection limits will be significantly reduced using newly developed reference materials and SI-traceable measurement procedures with an immediate impact for tracking pollution sources by commonly available mass spectrometers.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM4	Price to DSIT	████████
Project Title	Accurate quantification of particle number concentration	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	7 - application in established areas

Summary

The aim of this project is to maintain and further extend the scope of ISO 17025 accreditation for particle number concentration measurements, to support the development and certification of in-house produced reference materials as well as provision of characterisation data for value assignment to materials produced by external customers under the NML designation.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM5	Price to DSIT	████████
Project Title	Organic Core Metrology to underpin calibration services and existing 17025 accreditation	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	8 - application in established areas

Summary

This project will maintain the core capabilities within the organic analysis area to preserve the NML's leading position in the organic metrological field. This will be accomplished by continued contribution to discussions at working groups and committees of relevant international organisations (OAWG, IFCC, JCTLM, ICHCLR, EQALM, EMN-TLM), and participation in CCQM comparison studies. The project also aims to advance our metrological tools (instrumentation, methods, processes and calculations), and maintain and advance our calibration and measurement capabilities (CMCs) and reference material portfolio.

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Project Number	CM6	Price to DSIT	████████
Project Title	Core protein metrology	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	8 - application in established areas

Summary

This project aims to maintain current ISO/IEC 17025-accredited services for traceable calibrator value assignment of smaller peptides (up to 5kDa in solid form and 30 amino acids in aqueous form) and to extend the scope of accreditation to include large peptides and small proteins (MW > 1000 g/mol). Advancing current capabilities for calibrator impurity determination underpinning traceable quantification of proteins is essential to support the In Vitro Diagnostic Medical Devices Regulation (IVDR) and External Quality Assessment (EQA) comparisons.

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Project Number	BM1	Price to DSIT	
Project Title	Reference Methods for value assignment of calibration standards for nucleic acid quantification and maintenance of UKAS accreditation	Co-funding target	
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	8 - application in established areas

Summary

This project will maintain the UK’s UKAS accredited calibration facility for digital PCR (ISO/IEC 17025) and development of Reference Measurement Procedures (RMPs) for nucleic acid measurements of complex DNA targets, such as those required for guiding cancer or antimicrobial treatment or evaluating the performance of gene editing, RNA viral genomes such as influenza, and messenger RNA expression to assess gene regulation in disease and biomanufacturing. Project outputs will influence CCQM Nucleic Acid Analysis Working Group (NAWG) activities and be considered for submission to the Joint Committee for Traceability in Laboratory Medicine (JCTLM) database.



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Project Number	BM2	Price to DSIT	████████
Project Title	Nucleic acid reference measurement systems for calibration and quality assurance	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2026
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Theme	Core Metrology	Sub-Theme	Core Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	7 - application in established areas

Summary

This project will develop reference measurement systems for nucleic acid analysis by applying reference measurement procedures for value assignment of primary and secondary reference and quality assessment materials (including more complex materials that require pre-processing before analysis). Where appropriate, a route towards SI traceability will also be established through improved measurement uncertainty calculation. This will provide routes to improve accuracy through better value assignment of reference and EQA materials, allowing stakeholders to demonstrate better competencies and metrological traceability to meet local regulatory requirements (e.g. UKCA mark).

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Sub-theme 1.3: Developing Capabilities

Project Number	CM7	Price to DSIT	████████
Project Title	Developing and advancing metrological capabilities for purity assignments	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Purity & Calibration	Measurement Readiness Level	5 - application in emerging areas

Summary

This project focuses on developing and advancing metrological capabilities within the Purity & Calibration Team for purity analysis to support NML science areas and stakeholder needs. This will include extending the scope of capabilities to larger molecules, multicomponent samples, impurity quantification, sample-limited compounds, engineered nanoparticle characterisation as well as difficult to measure elements. The measurement issues associated with these applications are complex and thus a multidisciplinary approach is likely to be required to address them.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	23NRM02	Price to DSIT	██████
Project Title	SMURFnano - Standardised measurements of surface functionalities on nanoparticles	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Purity & Calibration	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in SMURFnano (Standardised measurements of surface functionalities on nanoparticles) under the European Partnership on Metrology and aligns with activities under project CM7 (Developing and advancing metrological capabilities for purity assignments).

Engineered nanoparticles have great application potential in fields such as medicine, sensing, catalysis, energy storage, and opto-electronics. The utility and performance of engineered nanoparticles is largely determined by their surface chemistry. However, documented standards to measure such surface chemistry and functionality do not currently exist. Such standards for measuring the surface functionality of nanoparticles are required to support industrial development, quality control and to meet regulatory requirements. Therefore, this project will address this issue by developing (i) fit-for-purpose, validated, and standardised methods, and (ii) reference data and reference materials, for the measurement of the surface chemistry of nanoparticles using advanced measurement methods (X-ray photoelectron spectroscopy (XPS); secondary ion mass spectrometry (SIMS); quantitative Nuclear Magnetic Resonance (qNMR) as well as more cost-efficient, non-surface specific methods (optical and electrochemical methods)).

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM8	Price to DSIT	████████
Project Title	High Accuracy Elemental Analysis – Developing Metrology	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project aims to expand capabilities for high accuracy elemental analysis by further development and validation of measurement strategies for accurate multi-element analysis in very small samples of relevance to clinical diagnosis. Additionally, the challenge of complex sample types and elements with analytical difficulties (e.g. fluorine and other elements in batteries, etc) requires continued work to address the needs of modern society and achieving goals such as the UN Sustainability Development Goals, EU Green Deal, Circular Economy etc. New technologies offer the potential to solve these challenges, therefore improving the ability of the NML to provide relevant reference values needed to support industry with research innovation.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM9	Price to DSIT	████████
Project Title	Developing Metrology for Isotope Ratio Measurements to support isotope tracing analysis in health and environmental sciences	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project will develop best practices in hyphenation of separation techniques to isotope ratio mass spectrometers (both IRMS and MC-ICP-MS) for the measurement of biomarkers of metabolic disorders and neurodegenerative diseases such as Wilson's disease that can aid diagnosis. It will also investigate the potential for orthogonal techniques to provide confirmatory isotope ratio data for both absolute isotope ratios and compound-specific isotope delta values.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Project Number	21GRD10	Price to DSIT	████████
Project Title	quantiAGREMI - On farm quantification of ammonia and greenhouse gas emissions from livestock production	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████	End Date	30 October 2025
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in quantiAGREMI (On farm quantification of ammonia and greenhouse gas emissions from livestock production) under the European Partnership on Metrology and aligns with activities under project CM9 (Developing Metrology for Isotope Ratio Measurements to support isotope tracing analysis in health and environmental sciences).

Many current food production practices still result in air, water and soil pollution, contributing to biodiversity loss, climate change and poor air quality. Increasing global food demand drives ruminant livestock numbers, rapid land use change and nitrogen (N) fertilizer use, accelerating greenhouse gas (GHG) emissions. The aim of this research is to provide a SI-traceable field measurement infrastructure for accurate determination of animal houses emissions as well as nitrogen footprints. Thanks to that, mitigation measures can be assessed to reduce emissions and improve inventories.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Project Number	CM10	Price to DSIT	████████
Project Title	Metrology for particle additives in regulated consumer products and accidental pollutants	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project will develop and validate robust measurement methods to quantify particles that are intentionally added to consumer products in sectors such as healthcare, personal care and food, and novel classes of accidental but persistent food and environmental pollutants (i.e. nano- and micro-plastics including tyre wear particles) in response to the needs of relevant stakeholders such as industry, testing laboratories and policymakers.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	21GRD07	Price to DSIT	████████
Project Title	PlasticTrace - Metrological traceability of measurement data from nano- to small-microplastics for a greener environment and food safety	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	30 September 2025
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in PlasticTrace (Metrological traceability of measurement data from nano- to small-microplastics for a greener environment and food safety) under the European Partnership on Metrology and aligns with activities under project CM10 (Metrology for particle additives in regulated consumer products and accidental pollutants).

PlasticTrace aims to address the urgent need for development and harmonisation of methods for the chemical identification, physical characterisation and quantification of released small micro/nanoplastics (SMPs/NPs) in drinking water, food and environmental matrices, as required by the EU's Circular Economy Action Plan (CEAP). In this context, hyphenated and complementary analytical approaches will be developed, optimised, compared and harmonised, leading to the establishment of metrological traceability of measurements through robust validation studies. Novel and environmentally relevant SMP/NP reference materials will be developed within the project. International cooperation with key stakeholders globally will be considered as the basis for a European Metrology network.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	22HLT04	Price to DSIT	████████
Project Title	MetrINo – Metrology for innovative nanotherapeutics	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in MetrIno (Metrology for innovative nanotherapeutics) under the European Partnership on Metrology and aligns with activities under project CM10 (Metrology for particle additives in regulated consumer products and accidental pollutants).

Europe is facing significant healthcare challenges driven by an ageing population coupled with an increase in chronic diseases like cancer, diabetes, heart disease, and brain conditions. These conditions require diverse and complex treatments, which increase healthcare costs. Nanomedicine and nano-enabled medical devices therapeutics (defined here as nanotherapeutics) are vital for tackling health and societal challenges, providing versatile technical solutions. This project responds to the immediate metrological needs expressed by industry, regulatory agencies, and policymakers to develop and validate traceable measurement methods and reference materials (RMs) candidates for the assessment of the critical quality attributes (CQAs) of nanotherapeutics. The project will focus on clinical formulations, including synthetic lipid-based nanotherapeutics, including lipid nanoparticles (LNPs) for RNA delivery and liposomes, and metal oxide nanoparticles (MONPs) used for localised cancer treatment, gene therapy, vaccines (COVID-19) or as contrast agents. By providing fit for purpose methodologies, standardised methods and RM candidates to regulators and industrial stakeholders, the project will support their clinical translation, providing more efficacious nanotherapeutics with fewer side effects to improve the patient's quality of life and enhancing the competitiveness of the European health technology industry.

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Project Number	CM11	Price to DSIT	████████
Project Title	Methodology for Metallomics and high accuracy speciation supporting the clinical and health sectors and underpinning forthcoming legislation	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████████████████ ████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	6 - application in emerging areas

Summary

This project will extend existing speciation methodology to add traceability to the quantification and characterisation of clinically relevant species such as metallodrugs and metalloprotein biomarkers, which are crucial for the clinical diagnosis and treatment of metal metabolism disorders and diseases such as cancer.

The project will also focus on addressing critical issues in speciation analysis of particular regulated species in food and consumer samples. It will expand and improve the current methodology for inorganic As (toxic As) to other matrices with higher complexity and/or low As levels in accordance with the UK and EC regulations (e.g. EC2015/1006) and will further improve existing methodology on Cr speciation to address not only free inorganic Cr species but also hydrophobic and particulate Cr fractions in consumer products.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM12	Price to DSIT	████████
Project Title	Quantitative methodology for multielement imaging and time-resolved analysis	Co-funding target	██
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Inorganic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project will develop improved quantitative methodology for multielement imaging and time resolved analysis (TRA) of biological samples (tissues and single cells) and solid-state materials using inductively coupled plasma mass spectrometry (ICP-MS) to support clinical and industrial stakeholder needs.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM13	Price to DSIT	████████
Project Title	Developing Core Organic Analysis Capabilities in Clinical Metrology	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	██████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project will develop new capabilities (including methodology for smaller sampling and multiplexing) and apply current capabilities to new measurand classes to support emerging global challenges in healthcare, such as the shift towards novel/micro sample formats (e.g., dried blood spot (DBS) and micro-sampling devices), increased requirements for traceability within clinical measurements ([EU regulation 2017/746](#)) and the emergence of novel therapeutics (e.g., oligonucleotides) available for clinical use.

[illegible]

Category	Percentage
U.S. should take action	95%
U.S. should not take action	5%

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[REDACTED]	[REDACTED]	[REDACTED]
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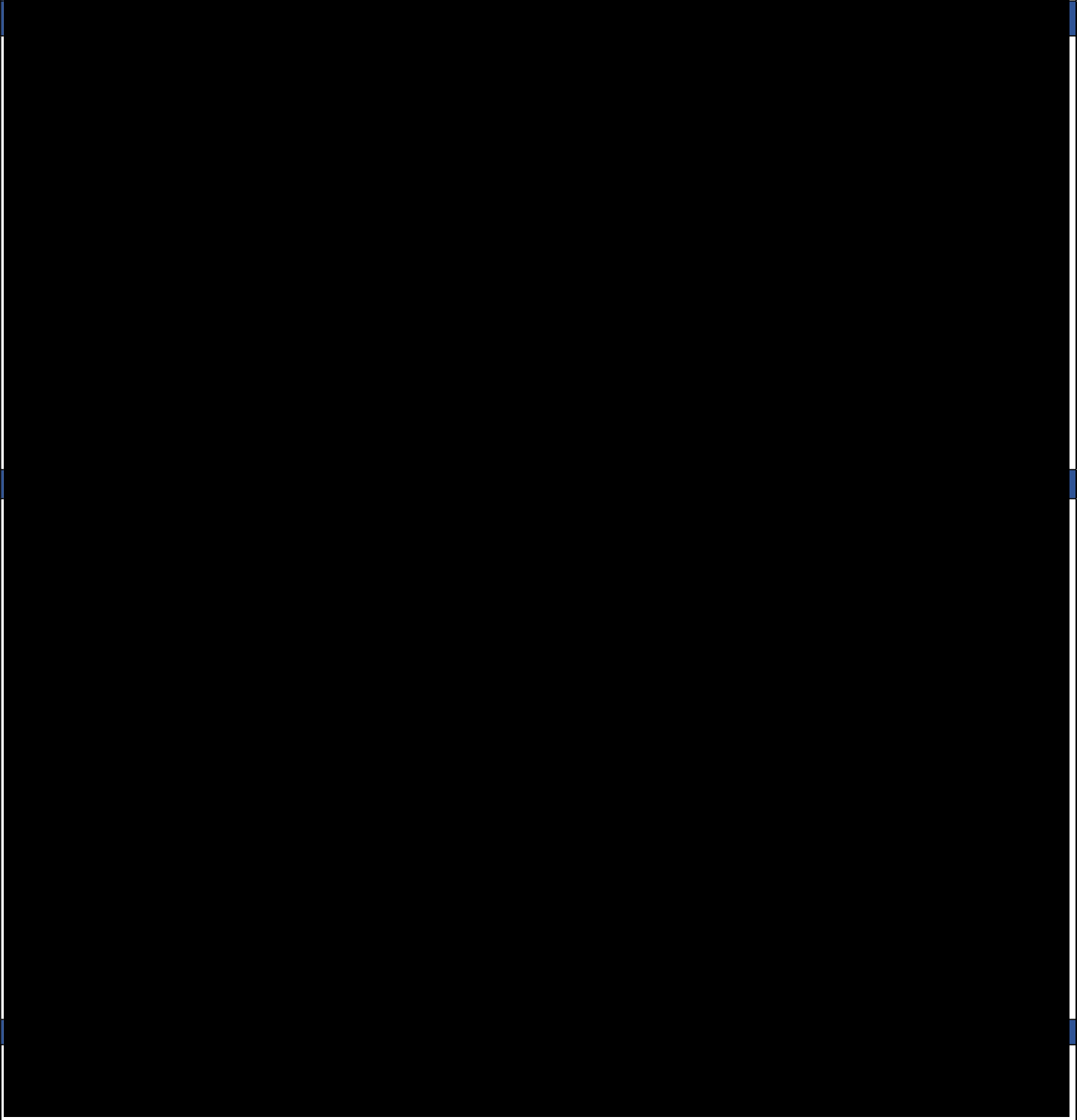
Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	23IND02	Price to DSIT	
Project Title	COMET - Manufacturing of commutable calibrators and quality control materials for standardisation and post-market surveillance of IVD tests	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities / Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	8 - application in established areas / 5 - application in emerging areas



Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM14	Price to DSIT	████████
Project Title	Organic Mass Spectrometry Analysis for Improved Sustainability	Co-funding target	██████████)
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2029
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Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project will support the development of the underpinning measurement infrastructure to identify and quantify critical chemical pollutants where there exists growing evidence of their potentially harmful effects on environmental quality (by way of production/waste streams), food safety and human health (from, for example, microplastics, PFAS, antibiotics), and consumer product safety [polymers in liquid formulations (PLFs)]. The project will also extend the applicability of ambient/direct mass spectrometry to quantification of low concentrations of environmental contaminants through further method development for improved sensitivity/selectivity and the introduction of internal standardisation calibration approaches.

[illegible]

Government	Percentage
Current government	100%
Previous government	0%

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	23IND13	Price to DSIT	██████
Project Title	ScreenFood - Metrology for food safety in the circular economy: targeted and screening methods for contaminants in food and recycled packaging	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in ScreenFood (Metrology for food safety in the circular economy: targeted and screening methods for contaminants in food and recycled packaging) under the European Partnership on Metrology and aligns with activities under projects CM8 (High Accuracy Elemental Analysis – Developing Metrology) and CM14 (Organic Mass Spectrometry Analysis for Improved Sustainability).

To ensure a high level of food safety throughout production and distribution, it is crucial to improve and harmonise analytical techniques for contaminant quantification. This constitutes the basis for reliable data regarding food product compliance with regulations and for resolving disputes and minimising financial losses within the food industry. The project will develop reference methods and reference materials for quantifying contaminants in both food and food packaging, with a specific emphasis on recycled materials. These metrological tools will aid industries in guaranteeing the delivery of safe food and sustainable packaging while adhering to regulatory requirements.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	CM15	Price to DSIT	████████
Project Title	Advancing Protein Quantification and Characterisation Technologies	Co-funding target	██████████
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	6 - application in emerging areas

Summary

The aim of this project is to enhance NML capabilities for protein characterisation and quantification within challenging biological matrices by developing innovative strategies for measuring low-abundance proteins (utilising antibodies and extending to single-cell protein analysis), expanding capabilities for structural protein characterisation (including single-molecule detection techniques for analysing large biomacromolecules and complexes) and enhancing complex data analysis and measurement uncertainty calculations for protein quantification and structural analysis.

By advancing the understanding of protein structure, isoforms and post-translational modification (PTMs), along with their impact on quantification methods, the project aims to facilitate more accurate protein analysis across various applications, including disease diagnostics, biomarker discovery, biopharmaceutical product characterisation, food monitoring, and serological assays. Ultimately, this project aims to support In Vitro Diagnostic (IVD) manufacturers, External Quality Assurance (EQA) providers and stakeholders in industry and academia by providing essential tools for improved outcomes and informed decision-making.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	22HLT07	Price to DSIT	████████
Project Title	NEuroBioStand - Standardisation of measurements of neurodegenerative disease biomarkers	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	██████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	6 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in NEuroBioStand (Standardisation of measurements of neurodegenerative disease biomarkers) under the European Partnership on Metrology and aligns with activities under project CM15 (Advancing Protein Quantification and Characterisation Technologies).

Neurodegenerative disorders (NDDs) affect over nine million Europeans and constitute a large economic burden to society. NDD biomarkers have transformed the research landscape by linking diseases to pathological processes and assisting drug development. NDD biomarkers improve the accuracy of diagnosis and prognosis with the use of non-invasive tools. However, their implementation in clinical practice is hampered by a lack of standardisation. This project will build on the knowledge and experience of EMPIR projects 15HLT04 NeuroMet, 18HLT09 NeuroMET2 and 18HLT10 CardioMet and the International Federation of Clinical Chemistry (IFCC) programme to standardise biomarker measurements, harmonise measurements across assay manufacturers as well as develop and implement new biomarkers.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	23FUN06	Price to DSIT	████████
Project Title	ProMET - Fundamental protein metrology to support the definition of measurands, analytical targets, and their associated measurement uncertainty	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Organic Analysis	Measurement Readiness Level	6 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in ProMET (Fundamental protein metrology to support the definition of measurands, analytical targets, and their associated measurement uncertainty) under the European Partnership on Metrology and aligns with activities under project CM15 (Advancing Protein Quantification and Characterisation Technologies).

Proteins are dynamic and heterogeneous biomolecules whose accurate quantification is key in sectors such as food, health and biopharma. Unravelling protein structures, their interactions, and the relationship to function are critical for accurate and comparable protein measurements. However, the metrology community has only recently started to address the developments for measurements of the higher-order structures of proteins. In addition to this, the definition of the measurand is complex for heterogeneous molecules such as proteins which are measured by different techniques. This project will investigate overall protein structures and their influence on measurements and protein function. The project will also develop a metrology framework and guidelines to better define the measurands, analytical targets and estimate measurement uncertainty for proteins.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	BM3	Price to DSIT	████████
Project Title	Improved SI-traceability when conducting bioanalytical quantification of biomolecules	Co-funding target	████████████████
		Start Date	01 April 2025
Project Lead	██	End Date	31 March 2026
	██		
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Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	6 - application in emerging areas

Summary

This project enhances the National Measurement Laboratory's (NML) current capability by more precisely defining reference method uncertainty of biological measurement through an improved understanding of the methodological sources of both systematic and random error. The improvements will focus on refining the methods used for analyte quantification, as well as estimation of the associated denominator, i.e. more accurate definition of the volume or mass. A key component of this project will be the development of molecular methods to more effectively characterise key properties of reference materials and biological specimens such as size, structure, heterogeneity and commutability to better inform reference measurement systems in bioanalytical testing. Additionally, this project will examine these biomolecules in the context of the whole biological entities they are associated with, often measured as surrogates (e.g. viral, bacterial or tumour DNA used to detect the presence of microbes or cancer cells).

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	22HLT06	Price to DSIT	████████
Project Title	GenomeMET - Metrology for genomic profiling to support early cancer detection and precision medicine	Co-funding target	██
		Start Date	01 April 2025
Project Lead	████████████████	End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Core Capabilities / Developing Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	8 - application in established areas / 5 - application in emerging areas

Summary

This project provides the co-funding for the NML's participation in GenomeMET (Metrology for genomic profiling to support early cancer detection and precision medicine) under the European Partnership on Metrology and aligns with activities under projects BM1 (Reference Methods for value assignment of calibration standards for nucleic acid quantification and maintenance of UKAS accreditation), BM3 (Improved SI-traceability when conducting bioanalytical quantification of biomolecules) and BM5 (Metrology for bioanalytical targets to demonstrate accuracy and competency to support innovation in centralised and decentralised laboratory testing).

Cancer is a major burden on European society. Advances in genomics, driven by technologies such as Next Generation Sequencing (NGS) are transforming cancer care, enabling earlier and more accurate diagnosis, guiding therapy selection and driving development of targeted therapies (precision medicine) which improves patient outcomes and health system effectiveness. However, the quality and comparability of genomic profiling currently varies significantly and development of standards and metrological means to support the field are in their infancy. This project aims to address these needs by applying metrological principles to develop reference measurement systems (RMS) to support cancer genomic diagnostics in compliance with the In-vitro Diagnostic Device Regulation (IVDR EU 2017/746).

Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	BM4	Price to DSIT	
Project Title	Developing metrology for critical quality attributes when conducting cell measurements	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	5 - application in emerging areas

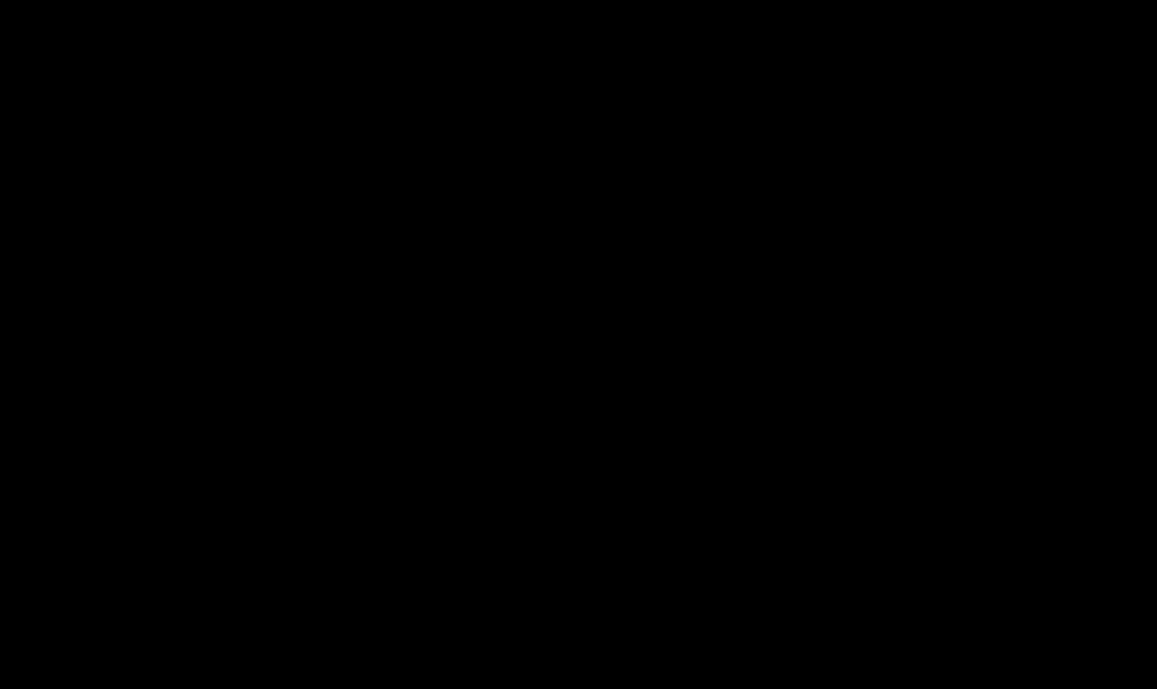
Summary

This project improves cell-based measurements by developing and demonstrating analytical reference tools and prototype materials to improve the characterisation of critical quality attributes (CQAs) and uncertainty estimation. Building upon current efforts to address measurement challenges in cellular identification and quantification, this project will utilise existing bio-imaging capabilities and explore the development of novel methods in imaging-flow cytometry and microscopy as reference methods to further enhance traceability in cell measurements. Project outputs will support instrument manufacturers, UK biotechnology companies applying these methods and regulatory bodies.

[illegible]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]



Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	BM5	Price to DSIT	████████
Project Title	Metrology for bioanalytical targets to demonstrate accuracy and competency to support innovation in centralised and decentralised laboratory testing	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2026
	████████████████████████████		
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Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	5 - application in emerging areas

Summary

This project provides improved metrological support to aid innovation in bioanalytical testing. Developments in life science technologies are rapidly expanding to impact applied testing across a wide range of areas, from decentralised/point of contact devices to advanced genomic solutions. However, a significant challenge exists because agreed routes to demonstrate compliance to a specified criteria (such as limit of detection) are limited when considering many bioanalytical testing formats, and especially for novel test modalities. This project will directly address this gap by investigating routes to provide new and improved strategies to allow test providers, users and those tasked with their regulation, to evaluate methodological performance. Additionally, the project will utilise the NML's new DNA synthesis capacity to explore the rapid roll out of testing controls when required to support acute critical national priorities that involve biological agents.

Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	BM6	Price to DSIT	████████
Project Title	Developing metrology for nucleic acid analysis to support Net Zero targets	Co-funding target	██
		Start Date	01 April 2025
Project Lead	████████████████████	End Date	31 March 2026
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Theme	Core Metrology	Sub-Theme	Developing Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	5 - application in emerging areas

Summary

Net Zero targets are essential for reducing emissions and addressing climate change. This project will explore routes to ensure the accuracy and reproducibility of key measurements needed to improve confidence in emerging bio-approaches used to monitor the environmental impact of climate change and solutions to mitigate and adapt to climate change, thereby supporting the global transition to a low-carbon future. The project aims to establish a reference measurement infrastructure consisting of reference methods with defined sources of error to improve confidence when using advanced molecular methods to support Net Zero targets.

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]

Theme 2: Emerging Metrology

Project Number	EM1	Price to DSIT	████████
Project Title	Standards and metrology to support ATMP development and translation	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead	████████	End Date	31 March 2026
Theme	Emerging Metrology	Sub-Theme	Emerging / New Capabilities
Project Team	Molecular & Cell Biology	Measurement Readiness Level	2 - new capability

Summary

This cross-team multi-disciplinary project will drive development and validation of reliable methodology for assessing critical quality attributes (CQAs) of Advanced Therapeutic Medicinal Products (ATMPs) such as cell and gene therapies. The international documentary Standards, higher metrological order methods and materials developed will underpin standardisation and future regulations.

Combined schedules – Chemical and Biological Metrology [subject to contract]

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Combined schedules – Chemical and Biological Metrology [subject to contract]



Combined schedules – Chemical and Biological Metrology [subject to contract]

Theme 3: Management, Engagement & Strategic Partnerships

Project Number	PM1	Price to DSIT	████████
Project Title	Partnership programmes, strategic partnerships & networks	Co-funding target	██
		Start Date	01 April 2025
Project Lead	████████████████████ ██████	End Date	31 March 2026
Theme	Management, Engagement & Strategic Partnerships	Sub-Theme	n/a
Project Team	Science & Partnerships	Measurement Readiness Level	n/a

Summary

The ongoing success of the Chemical and Biological Metrology (CBM) programme relies on engaging with stakeholders to intensify collaboration, review needs and drivers to feed into the formulation of new work and ensure the capabilities and expertise within the NML are leveraged and accessible across the research, development and infrastructure landscape to support the UK economic productivity and growth. In order to realise the true impact of metrology on productivity, better connectivity is required at a local scale, especially to high GVA industrial sectors, e.g. through targeting opportunities in Devolved Administrations and city-regions to actively support technology translation. This project describes the collaborative and strategic Regional partnerships, as well as other partnership programmes and networks supported by and reported through the CBM programme.

Combined schedules – Chemical and Biological Metrology [subject to contract]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
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Combined schedules – Chemical and Biological Metrology [subject to contract]

[REDACTED]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	PM2	Price to DSIT	
Project Title	Programme Communications	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Management, Engagement & Strategic Partnerships	Sub-Theme	n/a
Project Team	Science & Partnerships	Measurement Readiness Level	n/a

Summary

This project will ensure effective communication of the activities of the Chemical and Biological Metrology (CBM) programme to increase awareness of the profile of NML activities, maximise stakeholder awareness, promote knowledge exchange and, as a result, encourage greater engagement and influence, making better and more effective use of the NML as part of the UK measurement infrastructure to increase value for money for UK government.

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[REDACTED]

1	[REDACTED]	
	[REDACTED]	
2	[REDACTED]	
	[REDACTED]	
3	[REDACTED]	
	[REDACTED]	
4	[REDACTED]	
	[REDACTED]	
5	[REDACTED]	
	[REDACTED]	
6	[REDACTED]	
	[REDACTED]	
7	[REDACTED]	
	[REDACTED]	
8	[REDACTED]	
	[REDACTED]	

Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]

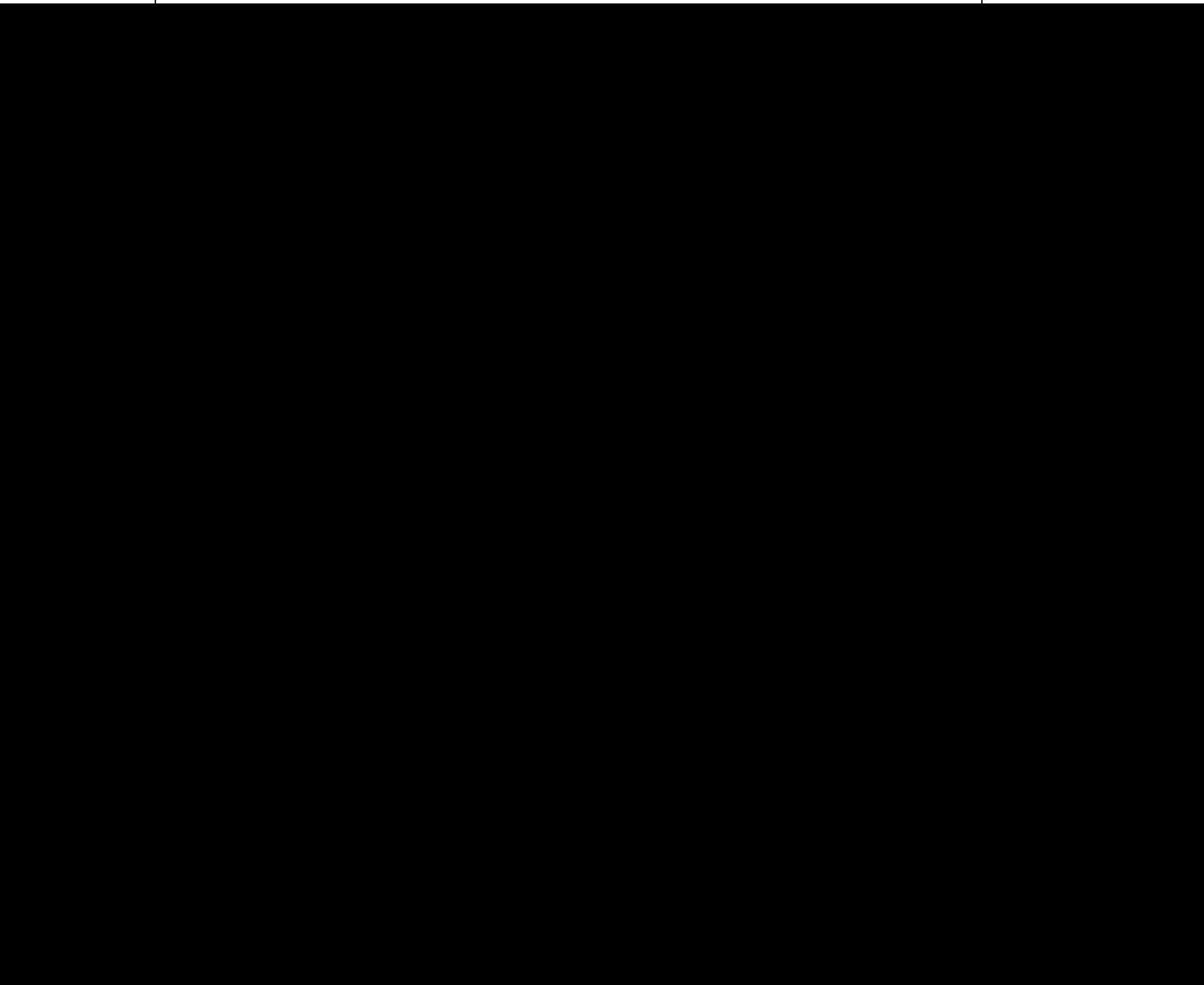
Project Number	PM3	Price to DSIT	
Project Title	Impact Monitoring and Evaluation	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Management, Engagement & Strategic Partnerships	Sub-Theme	n/a
Project Team	Science & Partnerships	Measurement Readiness Level	n/a

Summary

This project will collate a coherent body of evidence to support the NML's position as a strategic national asset with international impact and leadership, and the UK's "go to" facilities for chemical and bio-measurement across a range of complex scientific challenges ([International Review of Science 2023](#)).

Through a mixed approach of quantitative and qualitative assessment of the CBM technical projects' outputs, their uptake and overall benefits, it will build a strong and comprehensive impact evidence portfolio, thus providing the means for evidencing the added value of government spending. To maximise the efficiency of uptake, along with introducing consistent approaches on aiming for impact, the project will also focus on improving impact literacy across NML's scientific staff.

Combined schedules – Chemical and Biological Metrology [subject to contract]



Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	PM4	Price to DSIT	
Project Title	Stakeholder engagement	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Management, Engagement & Strategic Partnerships	Sub-Theme	n/a
Project Team	Science & Partnerships	Measurement Readiness Level	n/a

Summary

The continued success of the Chemical and Biological Metrology (CBM) programme relies on engaging with stakeholders to intensify existing collaboration, review needs and drivers to feed into strategic direction and establishing new relationships and opportunities.

Combined schedules – Chemical and Biological Metrology [subject to contract]

1. The first step in the process of creating a business plan is to conduct a thorough market research. This involves identifying the target market, understanding the needs and preferences of the customers, and analyzing the competitive landscape. Market research can be conducted through various methods, including surveys, interviews, and focus groups. The goal is to gather valuable insights that will inform the business strategy and help in making informed decisions.

2. Once the market research is complete, the next step is to define the business goals and objectives. These should be specific, measurable, achievable, relevant, and time-bound (SMART). The goals should outline the long-term vision of the business, while the objectives should focus on the short-term targets. This step is crucial as it provides a clear direction and purpose for the business plan.

3. The third step is to develop a detailed business strategy. This involves identifying the key areas of focus, such as marketing, sales, and operations, and outlining the specific actions to be taken in each area. The strategy should be tailored to the unique characteristics of the business and the market. It should also consider potential risks and opportunities, and provide a clear roadmap for achieving the business goals.

4. The fourth step is to create a financial plan. This involves estimating the costs of the business, determining the revenue streams, and projecting the financial performance over a period of time. The financial plan should include a budget, a cash flow statement, and a profit and loss statement. It is important to be realistic in the financial projections and to have a contingency plan in place for unexpected expenses.

5. The final step is to write the business plan. This involves putting all the information gathered in the previous steps into a coherent and professional document. The business plan should be written in a clear and concise manner, using simple language and avoiding jargon. It should be well-organized and easy to read, and it should provide a comprehensive overview of the business and its future prospects.

Combined schedules – Chemical and Biological Metrology [subject to contract]

[REDACTED]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project Number	PM5	Price to DSIT	
Project Title	Programme Management & Formulation	Co-funding target	n/a
		Start Date	01 April 2025
Project Lead		End Date	31 March 2026
Theme	Management, Engagement & Strategic Partnerships	Sub-Theme	n/a
Project Team	Programme Management	Measurement Readiness Level	n/a

Summary

This project supports NML management and co-ordination activities necessary to ensure that the Chemical and Biological Metrology (CBM) programme is delivered effectively. It also supports the formulation of future project work to be delivered under the programme, as well as activity required to maximise impact of the National Measurement System (NMS) through leveraging additional funding.

11/11/2019

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(b) (7)(C), (b) (7)(D)

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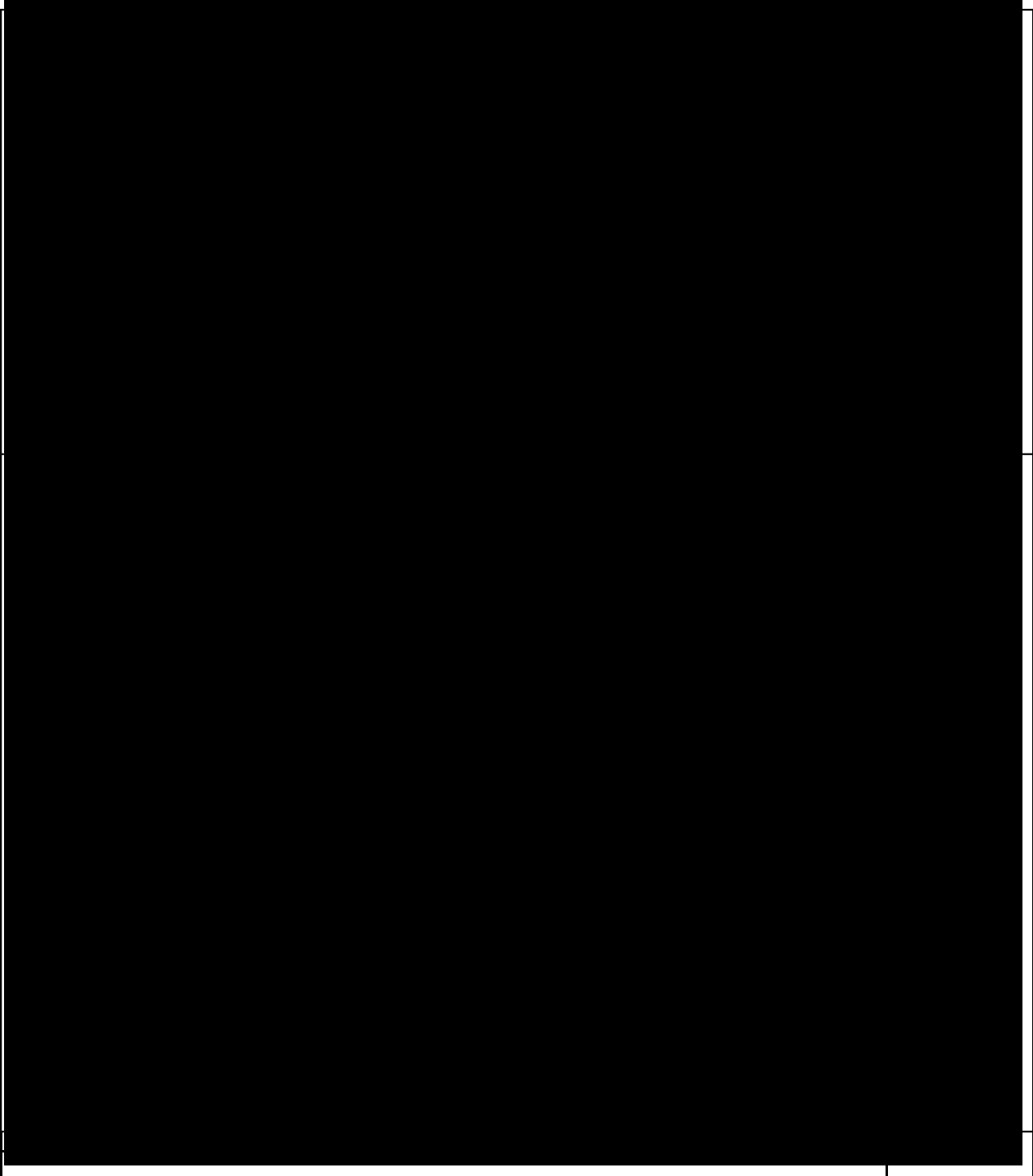
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Combined schedules – Chemical and Biological Metrology [subject to contract]

Combined schedules – Chemical and Biological Metrology [subject to contract]

Project title:	Integrated Security Fund project on Engineering Biology

Combined schedules – Chemical and Biological Metrology [subject to contract]



Schedule 3 (Charges)

1. How Charges are calculated

1.1 The Charges:

1.1.1 shall be calculated in accordance with the terms of this Schedule;

2. The pricing mechanisms

The Milestone Charges set out in Annex **Error! Reference source not found.** of Schedule 8 (Implementation Plan), or an amount as otherwise agreed in writing by the Parties, shall be used for the calculation of Charges in this Contract.

3. When the Supplier can ask to change the Charges

- 3.1 The Charges will be fixed for the first 1 years following the Start Date (the date of expiry of such period is a "**Review Date**"). After this Charges can only be adjusted on each following yearly anniversary (the date of each such anniversary is also a "**Review Date**").
- 3.2 The Supplier shall give the Buyer at least three (3) Months' notice in writing prior to a Review Date where it wants to request an increase. If the Supplier does not give notice in time then it will only be able to request an increase prior to the next Review Date.
- 3.3 Any notice requesting an increase shall include:
 - 3.3.1 a list of the Charges to be reviewed;
 - 3.3.2 for each of the Charges under review, written evidence of the justification for the requested increase including:
 - (a) [a breakdown of the profit and cost components that comprise the relevant part of the Charges;]
 - (b) [details of the movement in the different identified cost components of the relevant Charge;]
 - (c) [reasons for the movement in the different identified cost components of the relevant Charge;]
 - (d) [evidence that the Supplier has attempted to mitigate against the increase in the relevant cost components; and]
 - (e) [evidence that the Supplier's profit component of the relevant Charge is no greater than that applying to Charges using the same pricing mechanism as at the Effective Date.]
- 3.4 The Buyer shall consider each request for a price increase. The Buyer may grant Approval to an increase at its sole discretion.
- 3.5 [Any Approval granted by the Buyer pursuant to Paragraph 3.4 shall be on the condition that the change to the Charges will not result in the Supplier Profit Margin exceeding the Maximum Permitted Profit Margin.]
- 3.6 Where the Buyer approves an increase then it will be implemented from the first (1st) Working Day following the relevant Review Date or such later date

Combined schedules – Chemical and Biological Metrology [subject to contract]

as the Buyer may determine at its sole discretion and Annex **Error! Reference source not found.** shall be updated accordingly.

4. Other Events that allow the Supplier to change the Charges

- 4.1 The Charges can be varied (and Annex **Error! Reference source not found.** of Schedule 8 will be updated accordingly) due to:
 - 4.2 a Specific Change in Law in accordance with Clauses 28.7 to 28.8;
 - 4.3 a request from the Supplier, which it can make at any time, to decrease the Charges;
 - 4.4 verification of the Allowable Assumptions in accordance with Paragraph **Error! Reference source not found..**

Annex 1 – Rates and Prices

1 Charges

Pricing documented in Schedule 2 with full description of services

Yearly Invoice Forecast for Chemical and Biological Metrology Programme 2025-2026

Theme/Project Title	DSIT Reference	
Core Metrology	Theme 1	
Emerging Metrology	Theme 2	
Management, Engagement & Strategic Partnerships	Theme 3	
Integrated Security Fund project on Engineering Biology		

Schedule 7 (Staff Transfer), Crown Copyright 2025, [Subject to Contract]

Schedule 4 (Tender) – Not applicable

Not applicable.

Schedule 7 (Staff Transfer), Crown Copyright 2025, [Subject to Contract]

Schedule 5 (Commercially Sensitive Information) – Not applicable

Not applicable.

Schedule 6 (Intellectual Property Rights)

Part A: Intellectual Property Rights (no ICT Services)

Option 3

1. General Provisions and Ownership of IPR

- 1.1 Any New IPR created under this Contract is owned by the Supplier.
- 1.2 Each Party keeps ownership of its own Existing IPR.
- 1.3 Where either Party acquires, by operation of law, ownership of Intellectual Property Rights that is inconsistent with Paragraphs 1.1 and 1.2, it must assign in writing the Intellectual Property Rights concerned to the other Party on the other Party's request (whenever made).
- 1.4 Neither Party has the right to use the other Party's IPR, including any use of the other Party's names, logos or trademarks, except as expressly granted elsewhere under this Contract or otherwise agreed in writing.
- 1.5 Except as expressly granted elsewhere under this Contract, neither Party acquires any right, title or interest in or to the IPR owned by the other Party or any third party.
- 1.6 Unless otherwise agreed in writing, the Supplier and the Buyer will record any New IPR and keep this record updated throughout the Contract Period.
- 1.7 If the Supplier becomes aware at any time, including after the earlier of the End Date or date of termination, that, in respect of any Deliverable, the Buyer has not received the licences to Supplier Existing IPRs or Third Party IPRs required by Paragraphs 2 and 6, the Supplier must, within 10 Working Days notify the Buyer:
 - 1.7.1 the specific Intellectual Property Rights the Buyer has not received licences to; and
 - 1.7.2 the Deliverables affected.
- 1.8 For the avoidance of doubt:
 - 1.8.1 except as provided for in Paragraphs 2.2.2b)(iii)(A) or 6.1.2b) and 6.1.2c), the expiry or termination of this Contract does not of itself terminate the licences granted to the Buyer under Paragraphs 2 and 6;