All information regarding future IHI Call topics is indicative and subject to change. Final information about future IHI Calls will be communicated after approval by the IHI Governing Board.

Topic 1: Validation of human-relevant novel approaches to accelerate the discovery and pre-clinical development of innovative medicinal products and health technologies

Expected outcomes

Actions under this topic must contribute to all of the following outcomes:

- Industry and innovators will benefit from the development and validation of at least one novel human-relevant methodology, platform, framework or artificial intelligence (AI) model (including new approach methodologies - NAMs) with well-defined application context to support the discovery and pre-clinical development of innovative medicinal products and/or health technologies for areas of unmet public health need.
- Industry and innovators will benefit from the generation of novel robust, predictive, reproducible, and scalable approaches (e.g. methods, standards, protocols, datasets, and/or AI tools) which are fit-for-purpose for the industrial context and suitable to inform regulatory decision-making, while contributing to the 3Rs principles[1] and a reduction in clinical attrition or development failure, where relevant.
- Industry and all stakeholders interested in the development of human-relevant novel approaches will benefit from the creation of collaborative networks amongst researchers in this field and the sharing of best practices.

Scope

Although Member States are required by Directive 2010/63/EU[2] to replace animal procedures in research and regulatory testing with alternative approaches when available, their development, validation, acceptance, and uptake have progressed slowly. In addition, the demonstration that their results are reliably predictive of human outcomes is still a critical challenge, limiting their industrial and regulatory adoption.

Over recent decades, innovative medicinal product development has evolved from broad, empirically driven approaches towards more targeted, mechanism-based and technology-enabled strategies focused on areas of unmet public health need. Better understanding of human disease mechanisms and advances in biomarkers, innovative therapeutic modalities, data science, and translational tools create opportunities that can address conditions that were previously difficult to treat or considered untreatable. However, persistently high clinical attrition or development failure emphasises the need for more predictive, human-relevant approaches. These approaches should improve confidence in pre-clinical assessments of innovative medicinal products and health technologies earlier in the development process.
This topic aims to accelerate the development, validation and uptake of human-relevant approaches (including NAMs) for the discovery and pre-clinical assessment of the safety, efficacy or performance of innovative human medicinal products and/or health technologies, including better understanding of disease/treatment mechanisms. Proposals should aim to further progress approaches with strong evidence of human relevance, including those with breakthrough potential.

INDICATIVE TEXT

[1] 3Rs' principles refer to the replacement, reduction and refinement of animals in research, which is a requirement of EU legislation (Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes)

[2] Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes

Actions funded under this topic should support regulatory decision-making through the generation of robust evidence on the developed approaches. For example, for medicines, this would mean a clearly-defined regulatory context of use to support regulated research and development, and regulatory assessment of innovative medicines.

By enhancing the human relevance, predictivity and regulatory utility of preclinical activities, the proposed approaches should help de-risk clinical development. In particular, they should support more informed decisions regarding candidate or technology selection and study design, while facilitating timely progression into first-in-human clinical trials, clinical investigations, or other relevant clinical evidence generation and, ultimately, help to reduce avoidable clinical attrition or development failure. Actions should also support the implementation of the 3Rs principles by decreasing or replacing the animals used in health R&D, and/or complementing necessary animal experimentation by improving the human biological relevance of their outcomes.

Accordingly, applicants must assemble a collaborative public-private partnership consortium reflecting the integrative and cross-sectoral nature of IHI JU, and address the following objectives:

- Evidence-based, human-relevant approaches for one or more of the areas below are developed and validated:
  - discovery and/or;
  - pre-clinical assessment of either the safety, efficacy or performance of innovative medicinal products and health technologies (including mechanistic modelling/visualisation systems to improve the understanding of diseases and therapeutic processes or specific cellular or molecular effects) for toxicology, pharmacology and/or better prediction of treatment outcomes.

  Examples of approaches include but are not limited to: large-scale platforms, *in-vitro* technologies, organ-on-chip systems, organoids, bio-printed human tissue equivalents, and AI-driven computational models.

- A multistakeholder collaborative framework is designed to enable sharing and dissemination of best practices regarding the development and validation of human-relevant novel approaches for the discovery and pre-clinical assessment of innovative medicinal products and health technologies to foster uptake by the wider scientific community.

To achieve the objectives, the applicants should consider all the following points:

- Robust performance criteria, benchmark datasets and validation frameworks to demonstrate that the proposed approaches are fit-for-purpose for use in the industrial (pharmaceutical, medtech and biomedical) context and suitable for informing regulatory decision-making should be included.
- The expected impact on translational predictivity, research and development timelines, attrition rates, and reduction of animal use should be quantitatively addressed, as relevant.
- An evidence package through multi-partner and/or multi-site validation (e.g. pharmaceutical/biotech/biomedical or contract research organisation (CRO) laboratories) should be generated to demonstrate the reproducibility, transferability and predictive utility of the proposed approaches across different settings.
- To enable collaborative model development and validation, confidentiality-preserving experimental and computational federated data or distributed approaches should be (further) developed as relevant, based on already available solutions (e.g. eTransafe[3], ASPIS cluster[4]).

[3] https://pmc.ncbi.nlm.nih.gov/articles/PMC7999019/

[4] https://aspis-cluster.eu/

INDICATIVE TEXT

- Standardised tools and datasets and other enabling resources should be established to facilitate interoperability, comparability and broad uptake by the research and innovation community.

- A sustainability and adoption plan, including a credible pathway to industrial uptake, ensuring the maintenance and use of project outputs after project completion, including – where relevant – plans supporting implementation and transferability across organisations and use settings should be defined.

Applicants are expected to develop a regulatory strategy to support the regulatory qualification and acceptance of the project's outputs where appropriate. This strategy should include a plan for evidence generation and for timely engagement with regulators (e.g. national competent authorities, European Medicines Agency (EMA) Innovation Task Force, qualification advice).

Applicants are also expected to explore and/or implement synergies and complementarities with relevant initiatives/projects, at national, European and international level, thus avoiding unnecessary overlap, and duplication of efforts and funding.

Expected impacts

Actions under this topic are expected to achieve the following impacts:

- Increased competitiveness of the European health industry due to the uptake of high quality novel approaches that accelerate the discovery and pre-clinical development of innovative medicinal products and health technologies.

- Accelerated innovation due to the establishment of multi-stakeholder networks in pre-clinical human-relevant translational science with consolidated expertise, standardised approaches, and shared infrastructures.
- European leadership in the discovery and development of innovative medicinal products and health technologies by reducing time required to enter clinical development and decreasing clinical attrition or development failure, while supporting the implementation of the 3Rs principles in health R&D.
- Potential earlier start or shortening of clinical studies / clinical investigations or potential reduction in data required from clinical studies, clinical investigations or other relevant clinical evidence generation thanks to the availability of validated pre-clinical novel approaches with reliably predictive human outcomes.

Actions funded under this topic are expected to consider and contribute to EU programmes and initiatives, such as the European Research Area (ERA) action on accelerating NAMs to advance biomedical research and testing of medicinal products and medical devices and different objectives listed under the European Commission's Strategy for European Life Sciences, as well as the Artificial Intelligence Act, the proposed EU Biotech Act[5] and other relevant legislation. Applicants should also consider, as relevant, the activities of the 3Rs Working Party of EMA.

INDICATIVE TEXT

[5] https://health.ec.europa.eu/document/download/ec1475b7-e3f9-409e-b927-fc7e69306a8c_en?filename=biotech_reg-com2025-1022_act_en.pdf

Why the expected outcomes can only be achieved by an IHI JU action

Accelerating the development and implementation of human-relevant translational science approaches (including NAMs) suitable for pharmaceutical and health technology R&D would reduce attrition during development. In addition, it is expected to support the implementation of the 3Rs principles and strengthen Europe's leadership in human-relevant translational science. IHI JU provides a unique framework to achieve such an ambitious aim by fostering a co-creation/co-ideation approach, bringing together the private (pharmaceutical and medical technology industry sectors) and public partners (e.g. academia, research/data infrastructures, biobanks, regulators, health technology assessment bodies), as well as small and medium-sized enterprises (SMEs) and charitable foundations / philanthropic organisations. This public-private partnership model is best suited for ensuring that the developed solutions are comprehensive, evidence-based, scalable and aligned with unmet public health needs whilst offering new market opportunities to companies.

Indicative budget

Applicant consortia will be competing for the maximum financial contribution from IHI JU of up to EUR 11 020 000.

IHI JU estimates that an IHI JU financial contribution up to EUR 11 020 000 would allow a proposal to address these outcomes appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

Applicant consortia must ensure that at least 45 % of the action's eligible costs and costs for the action-related additional activities are provided by in-kind contributions to operational activities ('IKOP'), financial contributions ('FC'), or in-kind contributions to additional activities ('IKAA').
While 45 % is the threshold for eligibility, applicant consortia are strongly advised to aim for 50 % to provide a margin e.g. for unforeseen changes during the project lifetime.
IKOP and FCs may be contributed by the constituent and affiliated entities of both the IHI JU private members and the contributing partners. IKAA may be contributed by constituent and affiliated entities of the IHI JU private members only. Contributing partners and their affiliated entities cannot contribute IKAA.
See the call conditions in the annual Work Programme for further information (also in the document 'call text' published on the IHI JU website).

Indicative duration of the action

Applicants should propose a project duration that matches the project's activities and expected outcomes and impacts.

Dissemination and exploitation obligations

The specific obligations described in the conditions of the calls and call management rules under 'Specific conditions on availability, accessibility and affordability' do not apply.

Legal entities established in Australia

According to the conditions of the calls and call management rules under 'Entities eligible for funding', legal entities participating in this topic and established in Australia are not eligible to receive funding.

INDICATIVE TEXT

Glossary

Acronym	Meaning
AI	Artificial Intelligence
NAMs	New Approach Methodologies
3Rs	Replacement, Reduction & Refinement of Animal in research
EC	European Commission
EMA	European Medicines Agency
ERA	European Research Area
EU	European Union
FCs	Financial Contributions
IHI JU	Innovative Health Initiative Joint Undertaking
IKAA	in-kind contributions to additional activities
IKOP	in-kind contributions to operational activities
R&D	Research & Development
SMEs	Small & Medium-sized Entreprises

INDICATIVE TEXT