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innovative health initiative

# Consolidated annual activity report 2024

In accordance with Article 26 of Council Regulation (EU) 2021/2085 of 19 November 2021 and with Article 23 of the Financial Rules of IHI JU. The consolidated annual activity report will be made publicly available after its approval by the Governing Board.

COCIR Advancing Healthcare · efpia · EuropaBio The European Association for Bioindustries · MedTech Europe from diagnosis to cure · Vaccines Europe · Co-funded by the European Union

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# Factsheet

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| **Name of the JU** | **Innovative Health Initiative Joint Undertaking (IHI JU)** |
| **Objectives** | IHI's general objectives are to:<br>• turn health research and innovation into real benefits for patients and society;<br>• deliver safe, effective health innovations that cover the entire spectrum of care – from prevention to diagnosis and treatment – particularly in areas where there is an unmet public health need;<br>• make Europe's health industries globally competitive. |
| **Legal Basis** | Article 187 of the Treaty on the Functioning of the European Union<br>Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe<br>Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014 |
| **Executive Director** | Hugh Laverty was acting Executive Director until 15 January 2024.<br>Niklas Blomberg joined IHI as Executive Director on 16 January 2024. |
| **Governing Board** | Chairperson (as of 16 December 2024): Nathalie Virag, Medtronic / MedTech Europe<br>Vice-Chairperson (as of 16 December 2024): Irene Norstedt, European Commission<br>8 members in total: 4 from the European Commission, and 4 from the industry partners<br>More information on the Governing Board can be found here. |
| **Other bodies** | Science and Innovation Panel (SIP)<br>• 18 members from the scientific community, wider healthcare community, European Commission, IHI industry partners, and the States' Representatives Group<br>• provides the Governing Board with science-based advice on a range of matters.<br>States' Representatives Group<br>• up to two representatives from each EU Member State and country associated to Horizon Europe<br>• is consulted on a range of issues, including draft call topics<br>• acts as a link between IHI and relevant national and regional research and innovation programmes. |
| **Staff number** | 48 positions were occupied at the end of 2024. |
| **Total budget 2024[1]** | Commitment appropriations: EUR 269 779 145[2]<br>Payment appropriations: EUR 205 697 059[3] |
| **Budget execution** | Commitment appropriations: total consumption: EUR 176 854 890 (65.56% committed of total commitment appropriations)<br>Title 1 – EUR 6 241 144 (3.53% of the total commitments)<br>Title 2 – EUR 2 915 898 (1.65% of the total commitments)<br>Title 3 – EUR 167 697 848 (94.82% of the total commitments) |

[1] Total budget includes operational budget (used for funding selected projects) & administrative budget (used for funding Programme Office activities).

[2] Voted commitment appropriations were EUR 189 680 000, subsequently amended to include unused appropriations from prior years, of EUR 72 353 086.

[3] Voted payment appropriations were EUR 197 951 000 and included carry overs from previous years of EUR 22 271 000.

| | |
|---|---|
| | Payment appropriations: EUR 194 656 168<br>(94.63% paid of the total payment appropriations<br>Title 1 – EUR 6 136 291 (3.15% of the total payment appropriations)<br>Title 2 – EUR 2 533 069 (1.30% of the total payment appropriations)<br>Title 3 – EUR 185 986 808 (95.55% of the total payment appropriations) |
| **Grants/Tenders/Prizes** | 14 grants signed for a total value of EUR 168 482 585.29 |
| **Strategic Research & Innovation Agenda** | The Strategic Research and Innovation Agenda (SRIA) was adopted by the Governing Board on 20 January 2022. |
| **Call implementation** | **Number of calls launched in 2024: 3 (IHI calls 6, 7, 8)**<br><br>**Single-stage calls**<br>Number of full proposals submitted: 45 (17 from call 5, and 28 from call 7)<br>Number of eligible proposals: 34 (12 from call 5, and 22 from call 7)<br>Number of proposals granted: 8 (7 from call 5, and 1 from call 7)<br><br>**Two stage calls**<br>Number of short proposals submitted: 58 (16 from call 6, and 42 from call 8)<br>Number of eligible proposals: 53 (15 from call 6, and 38 from call 8)<br>Number of proposals invited to stage 2: 12 (6 from call 4, 2 from call 6 and 4 from call 8)<br>Number of proposals granted: 6 (all from call 4)<br><br>**Project portfolio**<br>Number of IHI projects as of end of 2024: 30<br>IMI1 projects: 59 \| IMI2 projects: 123 |
| **Participation, including SMEs** | Total number of beneficiaries in funded projects: 967 participations, of which:<br>• 17.5 % of SMEs and 17.9 % of EU funding received by those SMEs<br>• 37.1 % of private for profit/large companies and 13.2 % of EU funding received by those companies<br>• 14.6 % of non-EU and non-associated members' entities<br>• 59.4 % of newcomer entities (i.e. entities that did not participate in the IMI2 programme) |

# Foreword

As I look back on my first year as Executive Director of the Innovative Health Initiative, it is a good time to reflect on what makes our partnership model unique, and why it helps us to deliver excellent, impactful science that contributes to Europe's competitiveness and key EU policies.

The answer can be found in our tagline – 'bold collaborations, transforming health'.

Many research partnerships bring together funding from different sources. What sets IHI (and its forerunner IMI) apart, and drives our success, is the way our projects create 'bold collaborations' by bringing together the best people in their fields.

On the 'public' side, EU funding supports the participation in our projects of leading experts from universities, SMEs, patient groups, regulators and other groups whose input is essential in health research. And on the 'private' side, around the half of the contributions of our industry members to our projects come in the form of people – in our projects, we have industry representatives from different sectors with expertise in a wide range of areas, including research, development and advanced engineering, regulatory affairs, project management, process development and manufacturing.

As a result, our projects include a diversity of knowledge, expertise, viewpoints and ways of working. This allows them to generate results that are both scientifically excellent and have a clear pathway to impact in research and health care – in other words, to transform health.

The added value of this approach is evident in the results presented in this report; we have project outputs being taken up and used by organisations both from within and outside the consortium. We also have project results achieving regulatory endorsements. Other project results contribute to the competitiveness of the sector. For example, many projects have established pan-European clinical trial networks as well as other resources (e.g. trial protocols, templates etc) to facilitate the conduct of multi-country clinical trials.

If the private members simply contributed cash to our projects, the results section would be significantly thinner and less impressive.

The strength of this way of working is also recognised in the report on the external evaluation of the IMI2 and IHI programmes, which was published in 2024. The report recognises IMI as 'a world-first public-private partnership in the field of health research and innovation'. Furthermore, expanding the scope to include cross-sector collaboration under IHI means the partnership is still 'ahead of the curve', the report notes.

The evaluators recognise the 'substantial achievements' of the IMI2 programme, and highlight the thousands of publications emerging from IMI projects; the project results being used by industry partners; project outputs made available outside consortia; and the significant number of regulatory procedures completed.

When the evaluators carried out their research for the report, IHI was still very new, as the first projects were just getting started. Nevertheless, even at this early stage, the evaluators were able to highlight how IHI projects are contributing to key EU policies such as Europe's Beating Cancer Plan and the European Health Data Space (EHDS).

Our projects are not resting on their laurels – they continue to push the boundaries of what is possible, exploring concepts like synthetic data, and studying how artificial intelligence (AI) can help to advance research and deliver better tools to prevent, diagnose and treat disease.

Looking to the future, I am confident that IHI will stay 'ahead of the curve', delivering results that will both transform health and boost Europe's competitiveness.

The successes outlined in this report are the result of a lot of hard work by many people, and I would like to close this foreword by thanking them. Thanks firstly to the members of the Governing Board, States' Representatives Group and Science and Innovation Panel, who contribute their expertise and insights to our programme. Thanks also to the representatives of the European Commission and industry partners, who work tirelessly to make IHI a success. I would also like to recognise the work of the participants in our projects; they are the backbone of IHI. Finally, I would like to thank my colleagues in the IHI Programme Office, who regularly go above and beyond the call of duty to ensure this ambitious partnership delivers on its goals.

**Niklas Blomberg**
IHI Executive Director

# Executive summary

### IHI highlights in 2024

- Launched 3 new calls for proposals (IHI calls 6, 7 and 8) with 10 topics.
- Finalised the text of IHI call 9, which pilots an applicant-driven approach, and organised successful promotion, information and brokerage activities.
- Signed Grant Agreements for 14 new projects on subjects such as improving clinical trials, theranostics, synthetic data, delivering practical improvements to healthcare, and greening the healthcare sector. This brought the IHI portfolio to 30 projects and the IMI1+IMI2+IHI portfolio to 212 projects.
- The official external evaluation of IMI2 and IHI was highly positive and confirms the need for a public-private partnership in health like IMI/IHI.
- The added value of IMI and IHI is underlined by the many project results being taken up and integrated into activities, products and services, and securing regulatory endorsements.
- The IHI Programme Office continues to meet key administrative targets.
- Women are well represented at all levels of IHI's work.

#### En route for a pilot 'applicant-driven' call for proposals

In 2024, IHI launched three new calls for proposals:

- IHI call 6 (a two-stage call with topics on treatment persistency and the use of real-world data and evidence);
- IHI call 7 (a single-stage call with topics on heart disease, the healthcare workforce, and biomarker validation);
- IHI call 8 (a two-stage call with topics on cardiovascular disease, osteoarthritis, regulatory sandboxes, and patient-centred endpoints).

Meanwhile, the Programme Office and members focused on preparing a pilot 'applicant-driven' call for proposals (IHI call 9) for launch in early 2025. While earlier calls for proposals were driven by specific health challenges, it is clear that there are still opportunities for new projects that would contribute to the IHI objectives as spelt out in the SRIA. IHI call 9, which was approved by the Governing Board in December 2024 as part of the Work Programme for 2025, seeks to unleash the creativity of the health research and innovation community.

As usual, IHI published information on the pilot applicant-driven call well ahead of the call launch, and dedicated significant amounts of time to explaining the new call to applicants, advising them on how to prepare a strong proposal, and creating opportunities for networking and consortium-building both online and in person. The community responded to these announcements enthusiastically; an online info session on the call attracted over 1 000 registrations, 1 500 people registered for the brokerage platform, and around 60 people pitched ideas for an IHI project at the face-to-face brokerage event.

### IMI/IHI project portfolio hits the 200 mark

During 2024, IHI signed Grant Agreements for 14 new projects, bringing the total portfolio of industry-public collaborative research and innovation projects funded under IMI1, IMI2 and IHI to 212. Hitting the 200 project milestone shows the strength of the public-private partnership approach pioneered by IMI and built on by IHI.

Project number 200 was UMBRELLA, which perfectly exemplifies what IHI is about. It is tackling a major unmet health need (the need for better stroke care) by bringing together a coalition of universities, hospitals, patient groups, and companies from different sectors. Working in collaborative public-private partnership like this will allow them to achieve results that would not be possible for any single organisation or even country to address alone.

The other new projects are set to advance research, improve lives and boost Europe's competitiveness in a range of fields:

- improving clinical trials
- advancing theranostics to tackle tough-to-treat cancers
- boosting the potential of synthetic data in health research
- delivering practical improvements to healthcare
- greening the healthcare sector
- contributing to EU legislation on the use of animals in research.

### 'Ahead of the curve' – external evaluation confirms relevance and value of IMI and IHI

The European Commission runs evaluations of its research programmes both at the halfway point and after the end of the programme, and in this context a team of experts carried out the final evaluation of the Innovative Medicines Initiative 2 (IMI2) programme and the mid-term evaluation of the Innovative Health Initiative (IHI).

The results of these evaluations were published in 2024 in a combined report. The conclusions of the report are positive, and can be summed up in the following 10 points:

1. IMI2 exceeded its targets
2. IMI2 advanced digital health
3. IMI2 resulted in long-lasting networks
4. IMI/IHI supports the sustainability of results
5. IHI is ahead of the curve
6. The move to IHI makes the partnership stronger
7. IHI supports collaboration across sectors
8. IHI contributes to key EU policies
9. IHI is able to drive innovation with potential of high impact
10. The Programme Office is efficient.

### Project results are being taken up and integrated into activities, products and services

Ultimately, the goal of European public-private partnerships in health is to have a real impact on both patients' lives and the competitiveness of Europe's health sector. It is therefore particularly rewarding when project outputs are taken up and integrated into organisations' activities, products and services.

- Mobilise-D developed algorithms to translate readings from wearable devices into digital mobility outcomes that can indicate changes in a person's disease status. The team made the algorithms open source and by the end of 2024, the source code had been downloaded 500 times and 4 companies had integrated the Mobilise-D algorithms into their own offerings.
- A clinical trial testing the best administration route for an experimental rheumatoid arthritis treatment is using outcome measures established by IMI project RT-Cure to evaluate its performance.
- A controlled human infection model of pertussis (whooping cough) developed by IMI project PERISCOPE is being used in a clinical trial of a nasal vaccine for pertussis. The nasal vaccine fights the bacteria that cause the disease at their entry point to the body and prevents them from taking hold.
- Surprisingly little is known about which medicines can be taken safely by pregnant and breastfeeding women. The Meds4Mums2B app developed by the ConcePTION project will provide pregnant and breastfeeding women with trustworthy and robust information based on real-world data.
- The European Lead Factory (ELF) established a collection of over half a million compounds and a state-of-the-art high throughput screening centre that researchers could apply to use for their own drug discovery programmes. Findings from the ELF are being advanced through further funding programmes and are triggering the launch of new start-up companies.

### Projects are securing regulatory endorsement

Many projects are delivering results such as tools, biomarkers, endpoints etc. that may impact on health-related decision-making. Support for this work from regulatory authorities is therefore key to their integration into health R&D processes.

- In April 2024, the European Commission approved marketing authorisation for Pfizer's EMBLAVEO®, a fixed-dose combination of two active substances - aztreonam and avibactam - for adult patients with infections due to antibiotic-resistant bacteria. Two of the EMBLAVEO® clinical studies were conducted with the support of the IMI project COMBACTE-CARE. Data from the studies showed that the treatment is effective and well-tolerated.
- The VAC2VAC project validated a non-animal test for checking batches of vaccines for certain contaminants; the work helped to convince the European Pharmacopoeia Commission (EPC) to eliminate the rabbit pyrogen test from its monographs entirely.
- The European Medicines Agency (EMA) issued a qualification opinion endorsing a new methodology, which was extensively validated by the AMYPAD project, that can assess the degree of Alzheimer's disease visible in a person's brain scan.
- The EMA also issued a third letter of support to MACUSTAR for its work to develop tools capable of accurately detecting changes in eyesight over time in people with age-related macular degeneration (AMD), a common cause of blindness.
- The HARMONY Alliance, which focuses on using big data to advance blood cancer research, was officially accepted as a DARWIN EU Network Data Partner. DARWIN (Data Analysis and Real World Interrogation Network) EU was set up by the EMA to deliver real-world evidence from across Europe on diseases, populations and the uses and performance of medicines.

### IMI and IHI projects are greening the health sector

The health sector has a significant impact on the environment; in OECD (Organisation for Economic Co-operation and Development) countries, it is responsible for between 3 and 8% of $CO_2$ emissions. It also uses large quantities of water, energy, solvents and fossil-based raw materials, and generates a lot of waste.

Active ingredients from medicines can get into the environment through a variety of routes, and once there they can prove harmful to wildlife and ecosystems. IMI project PREMIER is delivering knowledge, tools and resources to support environmental risk assessments (ERAs) of active pharmaceutical ingredients (APIs), and to aid in the prioritisation for risk assessment of 'legacy' APIs. What's more, they are developing a centralised, transparent, public and easily accessible database of ERAs – something that is called for in the proposed revision of the EU pharmaceutical legislation.

Meanwhile two new IHI projects are also working on addressing the environmental impacts of the health sector. PHARMECO plans a 'green revolution' in medicines manufacture. It will do this by integrating 'safe and sustainable by design' principles into pharmaceutical development and will deliver practical tools and resources to support environmentally-sound decision-making when designing manufacturing processes.

For its part, ENKORE seeks to develop an eco-design framework for single-use medical devices and their packaging. By integrating sustainable practices into the design, manufacturing and waste management processes, the project aims to support the delivery of products that are both safe for patients and environmentally responsible.

Looking to the future, IHI call 10, which was approved for launch at the end of 2024, includes a topic on PFAS (per- and poly-fluoroalkyl substances) in the health sector. PFAS are synthetic chemicals which play a key role in ensuring the quality and safety of a wide range of healthcare products. They are hard to break down and so build up when released into the environment. Concerns about the impacts of PFAS on both human health and the environment mean there is now wide recognition of the need to limit their use. The overall aim of this topic is to minimise exposure to and the emission of PFAS in the healthcare sector, while maintaining the quality and safety of products affected. It will do this by investigating alternatives to PFAS where viable. Where the replacement of PFAS is not possible, the topic will explore how the use of PFAS (and their release into the environment) can be minimised.

Together, these projects will help to minimise the impacts of the health sector on the environment and contribute to key EU priorities such as the Green Deal. In addition, better use of resources will help to boost the competitiveness of the sector. Furthermore, involving industry, government agencies and other stakeholders in cross-sectoral projects supports the development of implementable solutions and long-term impact.

### Scientific excellence

IMI and now IHI projects are delivering a wealth of new knowledge and making it available to the wider research community via publications in peer-reviewed journals. A bibliometric analysis of these papers highlights the excellent science taking place inside the projects.

- IMI projects have generated 14 550 publications, and although the first IHI projects are still very young, there are already 63 papers published from IHI projects.
- The mean field-normalised citation impact of both IMI and IHI papers is just over twice the world average, and IMI papers compare favourably with other major funders. Furthermore, 30.8% of IMI papers and 38.2% of IHI papers are in the top 10% most cited papers.

- The majority of papers are collaborative, with authors coming from diverse organisations, countries and sectors. This highlights the added value of the IMI and IHI partnership models, where around half of the industry contribution consists of staff members' time; these people's expertise is visible in their co-authorship of many papers.

### The IHI Programme Office continues to meet key administrative targets

The IHI Programme Office is currently managing three programmes in parallel (IMI1, IMI2 and IHI), each of which has different rules, management tools and procedures. Thanks to strong collaboration between the teams at IHI and robust procedures, IHI continues to manage these programmes efficiently, meeting all targets in terms of making payments and managing calls for proposals.

- Time to inform (TTI) applicants of evaluation results (target 153 days): 67 days
- Time to grant (TTG) (target 245 days): 222 days
- Time to pay (TTP) project pre-financing (target 30 days): 6 days
- Time to pay (TTP) interim and final payments to projects (target 90 days): 67 days for IMI2 projects; 59 days for IHI projects

The cumulative residual error rate for the IMI1 and IMI2 programmes is under the 2% materiality threshold.

In its 'Annual report on the EU Joint Undertakings for the financial year 2023', the European Court of Auditors (ECA) gave a clean bill of health for IHI JU, issuing an unqualified ('clean') opinion on the reliability of the accounts as well as on the legality and regularity of the revenue and payments underlying the annual accounts.

All of these results confirm the efficiency of the IHI Programme Office and its commitment to applying the principles of sound financial management.

### Women are well represented at all levels of IHI's work

Women are well represented at all levels of IHI's work, including in leadership roles, as the following statistics (which reflect the situation at the end of 2024) demonstrate:

- IHI Programme Office: 69% of staff and 50% of the management team are female.
- IHI Governing Board: 6 of the 8 members, including both the chairperson and vice-chairperson, are female.
- IHI Science and Innovation Panel: 9 of the 18 members, including the chairperson, are female.
- IHI States Representatives Group: 25 out of 41 main delegates, including the chairperson, are female.

The Programme Office showcased some of the women involved in its projects and governance bodies at a high level in an article and social media campaign for the International Day of Women and Girls in Science.

# 1 Implementation of the annual work programme for 2024

## 1.1 Key objectives for 2024, associated risks and corrective measures

**1. Execute the Strategic Research and Innovation Agenda priorities, enabling the active engagement of industry sectors covering the pharmaceutical, the biopharmaceutical, biotechnology and medical technology sectors, including companies active in the digital area, and a range of other key stakeholders involved in health care (including SMEs, academia, health care authorities, health care professionals and providers, and patient organisations), in particular through the launch of open and competitive calls for proposals.**

- Signed 14 grant agreements resulting from IHI Calls 4, 5, and 7, bringing the total IHI portfolio to 30 projects. The new projects cover all specific objectives set out in the SRIA and bring together diverse sectors and stakeholder types.
- Launched three new calls for proposals (one single-stage, call 7, two two-stage, Calls 6 and 8) with a total of 9 topics.
- Continued the work of the IHI Patient Pool exploring the direct involvement of patients and caregivers in IHI activities.
- Gathered 24 ideas via the Ideas Incubator to support the definition of areas for calls for proposals; 10 of these passed the basic checks and were reviewed by the SIP.

**2. Ensure continuity with and manage the legacy from the Innovative Medicines Initiative 2 Joint Undertaking.**

- Assessed technical interim / final reports and cost claims as well as reported in-kind contributions for IMI1 and IMI2 projects. 66 operational transactions were made during the year (62 interim and final payments and 4 recoveries related to final payments).
- Held 11 interim reviews of ongoing IMI2 projects to assess progress and obtain recommendations for the future.
- Held 2 spotlight / 'in conversation with' meetings to gain insights into the results, impact and legacy of projects that have finished.
- Continued to communicate about and promote IMI projects via all communication channels.

**3. Ensure sound budget implementation through the effective and efficient management of the programme including calls for proposals, grant award processes and close monitoring of projects.**

- For operational payment appropriations, maintained a good execution rate of 95 %.
- Met targets for time to inform (TTI) applicants of the outcome of evaluations: 67 days against a target of 153 days, and time to grant (TTG): 222 days against a target of 245 days.
- Met targets for time to pay (TTP) pre-financing: 6 days against a target of 30 days, and TTP interim and final payments to projects: 67 days for IMI2 projects and 59 days for IHI projects against a target of 90 days for both programmes.
- Maintained a residual error rate below the 2 % materiality threshold for ex-post audits, demonstrating the effectiveness of IHI's ex ante control procedures.
- Continued the development of processes and IT tools needed to allow the efficient and accurate reporting of IKOP (in-kind contributions to operational activities) and IKAA (in-kind contributions to additional activities) for IHI projects.
- Hit all targets for TTP pay administrative payments.

**4. Promote the cross sectorial partnership in health through proactive outreach strategies to attract high quality applications to IHI JU's calls for proposals and engage with new players and newcomers.**

- Organised 13 webinars as part of the IHI Call Days for calls 6, 7 and 8, featuring information sessions on all call topics as well as on our rules and procedures and the financial aspects of the proposal. For call 7, three pitching sessions (one per topic) were also run, allowing 80 pitchers to showcase themselves as potential project coordinators or partners.
- Actively promoted all calls for proposals via the IHI website, social media channels and newsletter, as well as via external events.
- Given the novelty of IHI call 9, which pilots an applicant-driven approach, IHI took a proactive approach to promoting and explaining the call; an info session 'Preparing for Call 9' attracted close to 900 attendees.
- Set up a brokerage event and platform to facilitate networking and the sharing of ideas for IHI projects. The event, held in November, attracted 386 on-site attendees, with many more following the sessions online. By the end of the year, the platform had over 1 500 profiles and 253 project proposals.

**5. Demonstrate the EU added value of IHI JU through assertive communication to target audiences with an emphasis on the openness, transparency, relevance, and coherence of IHI JU activities with its defined objectives and those of Horizon Europe.**

- Published 38 news articles on project successes on the IHI website and promoted them via the newsletter and social media.
- Highlighted IMI's impact on global health challenges, namely mental health and AMR (antimicrobial resistance), via thematic health spotlight web pages and events.
- Gave presentations and ran exhibition stands at 36 third-party events and meetings across the EU and beyond.
- Used milestones such as the 200$^{th}$ project, IHI's 3$^{rd}$ birthday, and the publication of the evaluation of IMI and IHI to run mini social media campaigns which attracted significant levels of engagement.

**6. Explore new synergies and implement actions with relevant programmes at Union, national, and regional level, in particular with those supporting the deployment and uptake of innovative solutions, training, education and regional development in the health sector.**

- Continued close collaboration with other European partnerships, EU Missions, and other EU Programmes and funding instruments, particularly those supporting the deployment of innovative solutions, education and regional developments, and other relevant programmes and policies at the international, national and regional levels.
- Met regularly with EC teams leading key European political priorities such as HERA (Health Emergency Preparedness and Response Authority), EU4Health, the Digital Europe programme, the European Health Data Space (EHDS), and the EU Biotech Act.

**7. Improve and broaden access to project outcomes by embedding dissemination and exploitation activities in all stages of the project lifecycle.**

- By a variety of means including webinars, events and attendance at international conferences and meetings, continued efforts to disseminate information on the programme and the results generated by its projects.
- Through monitoring activities, ensured that funded projects disseminated their projects results via many different channels including scientific publications, the Horizon innovation radar and results booster.
- Shared best practices on KPI (key performance indicator) monitoring & reporting through the inter-JU working group, through ad hoc meetings with individual partnerships such as Global Health EDCTP3 and CBE (Circular Bio-based Europe JU) and meetings with relevant teams at the EC's Directorate-General for Research and Innovation (DG RTD).
- Contributed to the second Biannual Monitoring Report (BMR) which monitors the performance of partnerships (including IHI) and that was published in September 2024.
- Participated in a panel at the European Partnerships Stakeholder Forum in December 2024
- To help participants in projects efficiently and rapidly share data, the IHI office contributed to and co-signed a 'Data Sharing Playbook', the launch of which was supported by an online 'Data Sharing Masterclass'.

## 1.2 Research & innovation activities and achievements

### 1.2.1 A 200-strong project portfolio highlights the strength of the PPP approach

During 2024, IHI signed Grant Agreements for 14 new projects addressing a wide range of health research challenges and covering all five specific objectives set out in the Strategic Research and Innovation Agenda (SRIA). Significantly, this brought the total portfolio of projects funded under IMI1, IMI2 and IHI to 212. Hitting the 200 project milestone shows the strength of the public-private partnership approach pioneered by IMI and built on by IHI.

Project number 200 was UMBRELLA, which perfectly exemplifies what IHI is about. It is tackling a major unmet health need (the need for better stroke care) by bringing together a coalition of universities, hospitals, patient groups, and companies from different sectors. Working in collaborative public-private partnership like this will allow them to achieve results that would not be possible for any single organisation or even country to address alone.

#### Meet the latest additions to the IHI project family

**Improving clinical trials**

Two new IHI projects are contributing to improving the environment for clinical trials in Europe. These projects' outputs will not only accelerate the development of much-needed new treatments, but will also contribute to Europe's competitiveness by making it an attractive place to run high quality trials, even in challenging disease areas.

**RealiseD** targets a paradigm shift in clinical trials for rare diseases – the team aims to deliver tools and resources to facilitate the set-up and conduct of trials for rare and ultra-rare diseases while minimising the burden for patients.

Meanwhile the **READI** project will usher in more inclusive approach to clinical studies by supporting the inclusion in trials of underserved and underrepresented groups. Improving inclusiveness and representation in clinical studies will lead to more equitable healthcare access, help address existing health disparities, and enhance the quality of clinical research.

**Advancing theranostics to tackle tough-to-treat cancers**

Theranostics refers to the practice of pairing a diagnostic test and therapy that both bind to the same target. For example, a molecule targeting a cancer cell could carry with it a radioactive isotope that shows up on a scan to diagnose the disease, and then another radioactive isotope designed to destroy the cancer cell. In 2024, IHI launched three new projects that aim to advance the development of theranostics and boost Europe's theranostic manufacturing and treatment capacities. The projects therefore contribute to the EU's Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA) action plan, which supports the safe, high quality and reliable use of radiological and nuclear technology in healthcare.

**ACCELERATE.EU** is pioneering the development of novel radiotheranostic pairs in which the therapy part features the radioactive isotope astatine-211 (211At). What sets 211At apart from other similar treatments is the fact that it emits alpha particles, and so could prove effective at treating cancers that are resistant to beta and gamma particles as well as chemotherapy. The project will focus its efforts on three highly aggressive cancers: pancreatic, breast and brain cancer.

**ILLUMINATE** focuses on Lutetium-177-PSMA (Lu-177-PSMA), which is used to treat prostate cancer that has spread to other organs and become resistant to treatments such as hormone therapy. ILLUMINATE aims to make it easier to identify the patients who are most likely to benefit from Lu-177-PSMA, and deliver improved manufacture methods to minimise the risk of drug shortages.

Finally, **Thera4Care** plans to position Europe as a global leader in theranostics and support healthcare system readiness for the technology. It is doing this by establishing an integrated, collaborative European ecosystem for theranostics that brings together leading academic centres, healthcare providers, SMEs and industry stakeholders.

**Boosting the potential of synthetic data in health research**

Synthetic health data, which has been created artificially to mimic real patient data, can help to avoid some of the privacy, security and other issues that arise when doing research with genuine patient data. However, it is not always clear which methods of generating synthetic health data are best for different situations, and some methods are still immature.

New project **SYNTHIA** is working to deliver validated, reliable tools and methods for synthetic data generation (SDG). The tools will cover multiple data types including lab results, clinical notes, genomics, imaging and m-health (mobile health) data. SYNTHIA also hopes to make possible the generation of longitudinal data.

The aim of **SEARCH** is to develop an innovative biomedical data generation and sharing solution as well as generalisable methodologies for generating and validating synthetic data. SEARCH will use new models to create realistic synthetic replicas of diverse types of healthcare data, including data types that are often missing from synthetic data sets, such as wearable device data, image sequences, and genomic data. The project will also deliver a framework for assessing the anonymity and credibility of synthetic data.

**Practical improvements to healthcare**

IHI boasts a growing portfolio of projects that aim to improve healthcare in diverse ways.

Today, having a blood test requires the patient to go to a hospital or clinic and this can be burdensome. But what if patients could collect a blood sample in the comfort of their own home and simply send it to the lab for analysis? Turning this vision into a reality is the ultimate goal of **Project-COMFORT**, which focuses on patient-centric microsampling techniques that collect less than half a millilitre of blood. While microsampling devices already exist, they are not widely used; Project-COMFORT aims to co-create and test the logistics, infrastructure and tools needed to make microsampling a standard part of healthcare and an acceptable alternative to conventional blood tests.

A stroke is a life-threatening condition that occurs when the blood supply to part of the brain is cut off by either a blood clot (85% of cases) or a burst blood vessel. Due to the potential for long-lasting consequences, stroke care involves a lengthy, complex pathway requiring coordination among multiple healthcare professionals. Unfortunately, many patients experience impaired care due to poor coordination between their healthcare providers. **UMBRELLA** aims to revolutionise the way we manage strokes by implementing a comprehensive approach that addresses gaps along the whole stroke care pathway, from diagnosis and emergency treatment, right through to rehabilitation and the prevention of further strokes.

Arthritis refers to a range of systemic diseases characterised by joint pain, swelling, and stiffness. Currently, imaging technologies are widely used to diagnose different forms of arthritis, monitor changes in patients' condition and assess how well treatments are working. However, we lack tools to facilitate the analysis and interpretation of the large number of images generated. **AUTOPIX** aims to deliver powerful analysis and decision-making tools to boost the usefulness of these images to patients and clinicians, from diagnosis and initial treatment decisions, through to monitoring and follow-up.

**Towards a greener healthcare sector**

The health sector has a significant impact on the environment; in OECD (Organisation for Economic Co-operation and Development) countries, it is responsible for between 3 and 8% of CO2 emissions. It also uses large quantities of water, energy, solvents and fossil-based raw materials, and generates a lot of waste. Two new IHI projects aim to improve the environmental performance of the sector, and so contribute to EU policies such as the Green Deal.

**PHARMECO** plans a 'green revolution' in medicines manufacture. It will do this by integrating 'safe and sustainable by design' principles into pharmaceutical development, and will deliver practical tools and resources to support environmentally-sound decision-making when designing manufacturing processes.

For its part, **ENKORE** focuses on the medical device sector; medical devices, particularly single-use devices, and their packaging generate substantial amounts of waste, including plastics and hazardous materials that are challenging to manage. They also need to be sterile and up to the job, and this limits the kinds of materials that can be used to make them. ENKORE seeks to develop an eco-design framework for single-use medical devices and their packaging. By integrating sustainable practices into the design, manufacturing and waste management processes, the project aims to support the delivery of products that are both safe for patients and environmentally responsible.

**Contributing to EU legislation on the use of animals in research**

The EU has long had the goal of replacing, reducing and refining the use of animals in research (the '3Rs' principle). New IHI project **VICT3R** hopes to dramatically cut animal use in standard safety studies. It is doing this by use existing data and artificial intelligence to create virtual control groups that could replace real animals in drug and chemical safety studies.

EU rules on the use of animals in research also seek to limit the use of non-human primates (NHPs); the use of NHPs is only allowed when no alternative is available, and the EU encourages research designed to develop alternatives to the use of NHPs. **NHPig** aims to further reduce the use of NHPs in research by replacing them with mini- and micro-pigs in non-clinical safety studies. The project will deliver knowledge and tools to advance the use of minipigs in these studies, and develop cell-based tests as non-animal approaches.

### Preparations for an applicant-driven call for proposals

Until now, the scope of all IHI call topics has been driven by specific health challenges to be addressed and the outcomes and impacts expected from the resulting projects. This approach has resulted in a growing portfolio of projects addressing a wide range of disease areas as well as cross-cutting issues in health research and innovation.

However, it is clear that there are still opportunities for new projects that would contribute to the IHI objectives as spelt out in the SRIA. Furthermore, there are many stakeholders in the health research space who are not yet involved in our projects. For this reason, the IHI Programme Office, IHI members and governance bodies spent much of 2024 preparing for the launch of a pilot applicant-driven call for proposals.

The resulting call text, which was approved by the Governing Board in December 2024 as part of the Work Programme for 2025, features five topics, each aligned with one of the five specific objectives (SOs) of the SRIA. From a procedural point of view, the call is a standard, single-stage call.

Due to the novel, applicant-driven nature of the call, the Programme Office also dedicated significant amounts of time in 2024 to promoting and explaining the call to applicants, advising them on how to prepare a strong proposal, and creating opportunities for networking and consortium-building both online and in person. These efforts are detailed in the communication section of this report.

### IMI and IHI projects – delivering results with impact

The IHI Programme Office continues to manage the large number of projects launched under the IMI1 and IMI2 programmes. Both programmes had ambitious goals; for example, the aims of IMI2 include improving and accelerating the drug development process; developing diagnostic and treatment biomarkers for disease; and developing new therapies for diseases where there is a high unmet need.

In order to track progress against these ambitious goals, the Programme Office follows the projects' outputs closely, and an extensive list of project achievements can be found in Annex 3. Meanwhile, a selection of these outputs is presented below. Between them, they demonstrate how our projects are delivering outputs that are being taken up and used in industry and the wider research community and also are contributing to regulatory science. These impacts help to secure the long-term legacy of project results.

## 1.2.2 IMI projects are securing regulatory endorsement

Many IMI and IHI projects are developing results/outputs such as novel tools / methodologies, biomarkers / endpoints, patient reported outcomes, that may impact on health-related decision-making processes, including decision-making processes by regulatory authorities. For this reason, we encourage all consortia to start thinking about any potential regulatory impacts of their work as soon as possible in order to build a strategy plan to deliver outputs that may require regulatory endorsement. Working in this way is key to success, as the examples below show.

### IMI-supported treatment against multidrug-resistant bacteria approved by European Commission

Up to 35,000 deaths in the EU every year are estimated to be caused by multi-drug resistant bacteria, and the IMI programmes feature a comprehensive portfolio of projects set up to address the immense challenge of antimicrobial resistance (AMR).

In April 2024, the European Commission approved marketing authorisation for Pfizer's EMBLAVEO®, a fixed-dose combination of two active substances - aztreonam and avibactam - for adult patients with infections due to antibiotic-resistant bacteria. EMBLAVEO® is indicated for the treatment of complicated intra-abdominal and urinary tract infections, hospital-acquired pneumonia and infections caused by certain types of bacteria (aerobic Gram-negative) where treatment options are limited.

Two of the EMBLAVEO® clinical studies were conducted with the support of the IMI project COMBACTE-CARE. Data from the studies showed that the treatment is effective and well-tolerated.

- Read more

### IMI project drives 'historic' decision to drop common animal test

Before a new batch of medicines can be released for use, manufacturers must run certain tests to check that the batch is safe for patients, whether human or animal. The tests required to assess the safety and quality of different types of medicines are set out in a reference work called the European Pharmacopoeia. In the case of medicines administered by injection, such as vaccines, some antibiotics, and blood products, manufacturers have to test for pyrogens, contaminants which can trigger a fever. For decades, the rabbit pyrogen test (RPT) has been the most common pyrogen test, and today some 400 000 rabbits worldwide are subjected to the test every year.

IMI project VAC2VAC was launched with the goal of developing and validating non-animal testing approaches for both human and veterinary vaccines. One focus of the project was the monocyte activation test (MAT), a cell-based assay for pyrogens. The project validated the MAT for testing batches of ENCEPUR, a vaccine against tick-borne encephalitis virus (TBEV).

Now, VAC2VAC's work has helped to convince the European Pharmacopoeia Commission (EPC) to eliminate the RPT from its monographs entirely. During a meeting, the group deleted the RPT from 57 texts and added a new general chapter on pyrogens. The new rules come into force on 1 July 2025. After that, the RPT will no longer be required and medicines developers will be able to select a suitable *in vitro* test, such as the MAT, to test their products for pyrogens.

- Read more

### EMA endorses new method for evaluating severity of Alzheimer's disease

In June 2024, the European Medicines Agency gave a thumbs up – in the form of a qualification opinion of novel methodologies for drug development – to a new methodology extensively validated by the IMI AMYPAD project that can assess the degree of Alzheimer's disease visible in a person's brain scan.

The technique works by grading the level of Alzheimer's disease a person has according to the amount of a protein called amyloid that is present in their brain, which is estimated using radioactive signals visible on a brain scan.

The endorsement means that the method can be confidently used in clinical trials by researchers who are seeking new treatments for Alzheimer's disease – the methodology can help to evaluate how effective new potential treatments are.

- Read more

### A new way of assessing diabetic kidney disease risk

Diabetic kidney disease (DKD) is a common complication of diabetes, and DKD is now the most common form of chronic kidney disease. There is no effective way to prevent or treat DKD, and DKD often goes undetected until the disease is advanced. Detecting the disease while it is still in the early stages, and assessing how well an experimental treatment works, remains a challenge.

The IMI project Beat-DKD developed a tool called the 'PRE score', which draws on multiple parameters involved in renal progression and protection to assess things like the risk of a person's kidney health declining, and to get early insights into the effects of a drug. As such, Beat-DKD believes the PRE score could be used to improve drug development and aid in the planning of clinical trials for kidney disease.

The EMA has issued a letter of support for the PRE score, describing the approach as 'innovative' and expressing its support for 'the development effort towards intermediate and final validation of the PRE score as a tool for drug development in kidney diseases'.

### MACUSTAR receives third nod of approval from regulators

Age-related macular degeneration (AMD) is an eye disease that blurs central vision and can cause blindness. Up until now, the development of new treatments has been hampered by a lack of knowledge regarding why some people with the intermediate stage of the disease progress to late-stage AMD and become blind, and others don't. There is a need for biomarkers to identify who will go on to develop late-stage AMD, and also a need for clinical endpoints that are capable of determining the effectiveness of new treatments under development.

The IMI MACUSTAR project has been developing tools that can help to accurately detect changes in eyesight over time, as well as measures and markers for assessing how well a treatment works. The project received letters of support for its approach from the EMA in 2018 and 2022. In 2023 MACUSTAR submitted a third request for qualification advice, focusing on enrichment criteria – attempts by researchers to select study populations where the effects of a drug effect are more likely to be seen – as well as an indication of intermediate AMD (iAMD) and strategies for the evaluation of progression from iAMD to late-stage AMD.

In 2024, the EMA issued a third letter of support, in which it supports the goals and plans to carry out further research to develop trial enrichment criteria and trial endpoints for subjects with iAMD as described by MACUSTAR. Although the MACUSTAR project has ended, the work of the consortium is continuing thanks to industry support.

- Read more

### HARMONY Alliance accepted as DARWIN EU Network Data Partner

The HARMONY Alliance (formed of the IMI projects HARMONY and HARMONY PLUS) pioneered the use of big data to study and boost the development of treatments for blood cancers such as leukaemia and lymphoma. In 2024, the HARMONY Alliance was officially accepted as a DARWIN EU Network Data Partner. DARWIN EU was set up by the EMA to deliver real-world evidence from across Europe on diseases, populations and the uses and performance of medicines.

According to the HARMONY Alliance, its inclusion in DARWIN EU is a testament to the quality and impact of its data-driven research efforts, as well as the trust placed in the Alliance by the academic and regulatory communities. The HARMONY Platform and HARMONY Alliance are also listed in two public electronic catalogues – one on real-world data (RWD) sources and one on RWD studies – set up by the EMA and Heads of Medicines Agencies.

## 1.2.3 Project results are being taken up and integrated into activities, products and services

Numerous results from IMI projects are being taken up and used by project partners in their research and innovation activities, or being integrated into products and services. This demonstrates the quality of the outputs and shows how projects are contributing to advancing health research and boosting the competitiveness of the sector.

### Real-world results: Mobilise-D algorithms enter the market

The way we move is an indication of how healthy we are. Declines in mobility are linked to the progression of several diseases including Parkinson's disease, multiple sclerosis, chronic obstructive pulmonary disease (COPD) and more. The Mobilise-D project set up an easy-to-use, clinically-validated system to monitor people's walking and gait patterns in real-world settings.

The method involves attaching a single wearable device to a patient's lower back over a seven-day period, which gives clinicians and researchers a clearer picture of exactly how well a person is moving in real life. Algorithms developed by the project then translate the device readings into digital mobility outcomes that can indicate a change in a person's disease status, how it is evolving over time and even predict future health events.

The project decided to make the algorithms open-source and translate them into the Python programming language – a task that was labour-intensive but has delivered results. By the end of 2024, there had been more than 500 downloads of the source code, and four companies had integrated the Mobilise-D algorithms into their own offerings.

- Read more

### RT-Cure results support new rheumatoid arthritis trial

Rheumatoid arthritis is caused when the immune system attacks the body's own healthy cells, resulting in painful inflammation, especially around the joints. Now a new clinical trial testing the best administration route for an experimental arthritis treatment is using outcome measures established by IMI project RT-Cure to evaluate its performance.

The experimental treatment involves manipulating the patient's own white blood cells and re-injecting them, with special instructions telling the immune system to cease attacking the rheumatoid joint. The treatment was initially tested using fluid from a knee joint, and now this new trial - AUTO-DECRA-2 - will test whether other entry points on the body (namely the lymph node and under the skin beside the thigh) might work better.

The differences in the immune responses to the various administration routes might be very slight, and often patients don't experience shifts in their symptoms over the short term. The AUTO-DECRA-2 trial needed a biochemical method to indicate which administration route yielded the best results, and the immune monitoring outcome measures developed by the RT-Cure project were a perfect fit. RT-Cure support also helped to establish the procedure of aspirating cells from lymph nodes (needed for biomarker analysis) as well as the procedure for injecting cells into lymph nodes as a treatment route.

- Read more

### PERISCOPE model accelerates development of new pertussis vaccine

Vaccines have helped to cut cases of pertussis (whooping cough) worldwide. However, recent years have seen a rise in cases and the disease remains a leading cause of infant mortality around the world. A key output of the IMI project PERISCOPE was a controlled human infection model of pertussis, which essentially creates a fast-track way of measuring how well a novel vaccine can prevent people getting infected.

The model developed by PERISCOPE is being used in a clinical trial of a nasal vaccine for pertussis, which fights the bacteria that causes the disease at its entry point to the body and prevents it from taking hold.

- Read more

### EU-PEARL platform trial resources applied in new depression trial

The EU-PEARL project developed tools and resources to facilitate the set-up and implementation of platform trials, in which several treatments can be tested at the same time, using a shared infrastructure and participant pool. The design is based on a single master protocol to which new treatment groups can be added at any time and treatments that prove ineffective can quickly be dropped.

EU-PEARL successfully developed a master protocol specifically for depression studies, and this will now be used in the first Europe-wide platform study on the safety and efficacy of treatments for depression. With funding from the Wellcome Trust, the platform trial will be rolled out in six European countries – Germany Spain, the Netherlands, Italy, Denmark and the UK. Two drugs plus a shared placebo arm will be investigated initially, with plans to add more treatments over time.

Meanwhile, work continues on an adaptive trial for patients with neurofibromatosis-1 (NF-1) using the master protocol developed by the consortium; the trial protocol was submitted to EMA for scientific review and drug selection is ongoing.

- Read more

### ConcePTION app offers info for mums-to-be

Surprisingly little is known about which medicines can be taken safely by pregnant and breastfeeding women, or what the potential side effects of various medication can be. The Meds4Mums2B app developed by the ConcePTION project will provide pregnant and breastfeeding women with trustworthy and robust information based on real-world data.

The basis of the ConcePTION app was an app that already exists and was developed as part of IMI's WEB-RADR project – it is a mobile application which allows patients to directly report potential medicine side effects and also receive reliable information on their drugs. CONCEPTION tailored it specifically for use for pregnancy and breastfeeding. Users can create a list in the app of the medications that they are interested in. Then, they receive news and updates for those particular medications only, for instance if more information becomes available about the risks or benefits of taking that particular medication during pregnancy or breastfeeding. This way, they will always have access to the most up-to-date information.

- Read more

### European Lead Factory results trigger new funding and business opportunities

The European Lead Factory established a collection of over half a million compounds and a state-of-the-art high throughput screening centre that researchers could apply to use for their own drug discovery programmes. The IMI project ESCulab has ended, but many hits identified through its services are still being actively developed by the programme owners and are generating new funding and business opportunities.

- The Fraunhofer Institute, owner of one of the fast tracked COVID-19 programmes has received funding through the EU-funded AVITHRAPID project for follow up.
- The Vrije Universiteit in Amsterdam, the owner of a programme focused on the discovery of new antimicrobial agents, has attracted funding from the Dutch funder NWO for a follow up programme called Next Generation Antibiotics Targeting Gram-Negative Pathogens.
- Programme owner The Research Network has launched two start-up companies based on results from the European Lead Factory: Anocis focuses on the discovery and development of novel medicines to treat pain and itch, while Betathera revolves around the discovery and development of novel antibiotics with low resistance potential.

### Companies apply T2EVOLVE outputs to boost CAR-T cell development and manufacture

In CAR (chimeric antigen receptor) T cell therapy, patients are treated with a type of immune cell called a T cell that has been engineered to seek out a destroy cancer cells. IMI project T2EVOLVE is developing innovation ecosystem that will accelerate the development of engineered T cell therapies in the EU. Among other things, the project has delivered standardised protocols for raw material selection and product release criteria to address the many challenges in the manufacture of T cell therapies.

Now, large pharmaceutical companies contributing to the project are integrating T2EVOLVE standards into their European CAR-T programmes. In addition, T-Curx, a European SME specialising in non-viral CAR-T manufacturing, has actively incorporated T2EVOLVE's findings into their clinical development strategies. Insights from the project have helped accelerate the translation of T-Curx's pipeline into early clinical trials run in Europe, highlighting the project's role in supporting emerging biotech companies.

#### Italy screens for type 1 diabetes alongside EDENT1FI

IHI project EDENT1FI was set up with one goal: to improve screening for type 1 diabetes in children and adolescents throughout Europe. By the time the project ends, more than 200 000 children and teenagers in the general population across Europe will be screened for this disease.

Around the same time as EDENT1FI started, the Italian government passed a law announcing that national screening programmes for type 1 diabetes in children and teenagers would start. Although it was still early days for EDENT1FI, Italian researchers active in the project were called on to assist the government with the national plan, and so a dialogue began between the two screening initiatives. The type of approach taken by the Italian government is different to that taken by EDENT1FI, but the researchers have opened a channel of communication where best practices and learnings are shared liberally.

To date, the Italian government has already implemented EDENT1FI's master protocol as part of an ongoing pilot screening programme. The EDENT1FI project also developed a method of screening for multiple autoantibodies – indicators of type 1 diabetes – using a capillary test, which proved efficient and non-invasive. Seeing the success that EDENT1FI had with the test, the Italian government also deployed it as part of their screening programme.

The main point of contact between EDENT1FI and the national screening programme is in Milan at the Ospedale San Raffaele, where EDENT1FI screening and national screening are ongoing simultaneously. The Ospedale transmits EDENT1FI's findings to the rest of the country and also communicates learnings from the national programme to EDENT1FI.

For EDENT1FI, knowledge gained through the Italian initiative can be used to hone best practices, protocols and guidelines that are generated by the project. Italy can serve as an example for other EU countries considering rolling out a national screening programme.

- Read more

### 1.2.4 IMI projects are releasing valuable resources to the research community

Many IMI projects make their project outputs available to the wider research community, boosting their impact and ensuring their legacy.

### RESOLUTE and REsolution put spotlight on under-studied proteins

Transport proteins are the gatekeepers of our cells, effectively controlling the flow of nutrients and other molecules across the cell membrane. With over 400 members, solute carriers (SLCs) represent the largest class of transport proteins. Yet although they have been implicated in many diseases, solute carriers had never been studied in detail.

IMI projects RESOLUTE and REsolution changed that, delivering a wealth of knowledge on SLCs plus tools to study them further. Outputs include cell lines, data and protocols for assays, and information on how genetic variations in SLC genes affect health.

Crucially, the projects made their results available to the scientific community through their own knowledge base and through other repositories.

## 1.2.5 IMI projects are paving the way for personalised treatments

Many diseases are still described on the basis of their symptoms, even though the underlying causes may be very different. This is important because a treatment that works in one patient may not work in another. IMI and IHI projects are probing the underlying causes of a wide range of diseases in a bid to identify clearly-defined clusters of patients who could respond well to the same treatments. Ultimately, these findings pave the way for more personalised treatments and could help to ensure that patients receive a treatment that works for them, faster.

### Discovery of five subtypes of Alzheimer's enriches the EPND database

The underlying physiology of Alzheimer's disease is extremely diverse, and researchers have posited that this could be a reason for the limited success of Alzheimer's drug trials. Now, researchers have used cerebrospinal fluid analysis data to successfully identify five separate molecular subtypes of Alzheimer's disease. They analysed samples from 419 Alzheimer's patients and compared those results to 187 healthy people, as a control.

The subtypes had distinct molecular characteristics – for instance, one subtype had increased production of amyloid plaques, whereas another subtype had reduced production of amyloid plaques but disruption of the blood-brain barrier. The group then validated their findings by creating a "subtype detector" using machine learning, and running it through a series of 6 cohort datasets from Europe and the US, where it identified subtypes with high accuracy.

Key to the study was the IMI project European Platform for Neurodegenerative Diseases (EPND). The individuals involved in the study were selected from a number of cohorts in the EPND Catalogue, and the data generated will be linked to EPND to enrich the platform and allow for further sharing and linking to other data.

- Read more

### New subgroups of Sjögren's patients mean better treatments possible

Sjögren's disease is a condition in which the immune system attacks cells in the body that secrete fluids, such as tear ducts and salivary glands. Symptoms include itchy eyes, a dry mouth, joint and muscle pain, difficulty concentrating, and disabling fatigue. Although there are treatments to alleviate some symptoms of Sjögren's disease, there is no cure.

IMI project NECESSITY carried out a study that showed that Sjögren's patients can be categorised into three different subgroups, meaning that more personalised and better treatments could be possible. The project will now apply its approach to the results of previous clinical trials to see if they observe a better response to treatment once the patients are clustered. This could help researchers when designing future clinical trials, because they can focus on the cluster that is more likely to benefit from a specific treatment under investigation.

- Read more

### Predicting obesity complications – in those who are not obese

People living with obesity face a higher risk for cardiovascular disease, type 2 diabetes and other complications. But some people, despite having a high body mass index (BMI), have a low risk for these complications. On the other hand, about one in five people with a normal BMI are at high risk. The IMI SOPHIA project used machine learning techniques to analyse health data from a database of 170 000 adults from the UK, the Netherlands and Germany. They also developed powerful algorithms to cluster people whose risk profiles didn't match what was expected given their body weight.

The study defined five subgroups of people whose risk for obesity complications and BMI are not aligned. This can help to identify people who are at risk of developing cardiovascular disease, type 2 diabetes or other complications commonly associated with obesity, but who are not currently living with obesity. Since a lot of these complications are preventable, it is possible to reduce the number of people who go on to develop these complications. What's more, better and more precise treatments can now be developed that are targeted for a specific subtype.

- Read more

### Spotting the molecular differences between phases of lupus

Lupus affects around half a million people in Europe. This chronic auto-immune disease affects multiple organs throughout the body, and patients with lupus undergo periods where the disease is active – so-called 'flare phases' – and where they have barely any symptoms – remission.

IMI project 3TR is using molecular techniques (like transcriptomics) to examine gene expression pathways in patients as they transition from remission to flare and vice-versa. Using data from a 2 000-person strong molecular dataset on patients with lupus from a previous IMI project, PRECISESADS, the 3TR team looked at data from 321 patients in various stages of flare-up and remission and successfully identified molecular signalling pathways that could distinguish people who were having active flare-ups from those who were experiencing low disease activity or complete remission from the disease. This was the first time that these molecular signalling pathways have been shown to distinguish disease activity levels in lupus patients.

- Read more

### 1.2.6 IMI and IHI projects are addressing the environmental impacts of health sectors

The health sector has a significant impact on the environment; in OECD (Organisation for Economic Co-operation and Development) countries, it is responsible for between 3 and 8% of CO2 emissions. It also uses large quantities of water, energy, solvents and fossil-based raw materials, and generates a lot of waste. The portfolio of IMI/IHI projects with an environmental focus is growing; meanwhile the PREMIER project is delivering a wealth of results which have the potential to help limit the environmental impacts of the sector.

#### PREMIER results set to minimise environmental impacts of pharma sector

Active ingredients from medicines can get into the environment through a variety of routes, and once there they can prove harmful to wildlife and ecosystems. In the EU, new medicines are required to undergo an environmental risk assessment (ERA). However, relatively few of the 1 900 or so active pharmaceutical ingredients (APIs) in use have been assessed.

IMI project PREMIER has developed a framework to prioritise the environmental assessment of existing medicines and has applied it to over 1 000 of these 'legacy' APIs. What's more, they are developing a centralised, transparent, public and easily accessible database to support ERAs – something that is called for in the proposed revision of the EU pharmaceutical legislation.

The project is also delivering knowledge and resources to support ERAs in different ways. For example, information on the mode of action can play an important role in the ERA. To support this, PREMIER developed the EcoDrug+ database which integrates data on 7 770 pharmaceuticals and their metabolites (including 61 000 other chemicals), with information on chemical target conservation for 180 organisms across divers phyla.

The team have also developed a tool, that enables an evidence-based decision to avoid fish-testing in laboratory studies for approximately a third of pharmaceuticals; an ethical win with a significant cost saving.

## 1.3 Calls for proposals, grant information and other funded actions

### Launch and management of calls in 2024

Throughout 2024, the IHI Programme Office continued to develop and refine its call development, evaluation and grant award framework, along with developing and improving relevant templates and guidance documents. These efforts ensure compliance with both the regulations of Horizon Europe and the additional requirements of IHI set out in the Single Basic Act (SBA), e.g. the 45 % eligibility criterion, the use of non-EU in-kind, and requirements on 3A (availability, accessibility and affordability). In parallel, the office collaborated with IHI members to formulate the topics, engaging in consultations with the States' Representatives Group (SRG) and the Science and Innovation Panel (SIP).

IHI launched three calls for proposals in 2024: IHI call 6 (a two-stage call with two topics) and IHI call 7 (a single-stage call with three topics) on 16 January; and IHI call 8 (a two-stage call with four topics) on 25 June.

During 2024, the IHI Programme Office also managed the evaluations and concluded the GAP (Grant Agreement Preparation) for calls launched in 2023:

- The IHI call 4 Grant Agreements (GA) were signed before the end of December 2024, allowing 3 projects to kick-off by the end of 2024 and the remaining projects in January 2025.
- The evaluation for IHI call 5 (single stage) was completed in March 2024, the GAP phase started immediately afterwards, and the GAs were all signed by September 2024.
- The evaluation for IHI call 6, stage 1, was completed in June 2024, and the evaluation of IHI call 6, stage 2 was completed in December 2024. The GAP phase started in December 2024 and is expected to be completed in Q2 2025.
- The evaluation for IHI call 7 (single stage) was completed in July 2024. 1 project started in November 2024 and the GAP phase for the remaining projects is expected to be completed in Q1 2025.

The table below provides the key deadlines of the development of the calls that were active in 2024, including the consultations with the SRG, SIP, GB and the European Commission (EC).

| Call | SIP/EC/SRG consultation | GB approval of topic text | Call launch | GB approval of evaluation results (stage 1 / single stage) | GB approval of evaluation results (stage 2) | GAP launch | GA signed (deadline) |
|---|---|---|---|---|---|---|---|
| **Call 4 two stage** | 06/06/2023 - 26/06/2023 | 24/07/2023 | 27/07/2023 | 22/01/2024 | 25/06/2024 | 26/06/2024 | 24/12/2024 |
| **Call 5 single stage** | 06/06/2023 - 26/06/2023 | 24/07/2023 | 27/07/2023 | 25/03/2024 | N/A | 26/03/2024 | 17/09/2024 |
| **Call 6 two stage** | 20/10/23 - 10/11/23 | 14/12/2023 | 16/01/2024 | 17/06/2024 | 03/12/2024 | 06/12/2024 | 12/06/2025 |
| **Call 7 single stage** | 20/10/23 - 10/11/23 | 14/12/2023 | 16/01/2024 | 22/07/2024 | N/A | 24/07/2024 | 22/01/2025 |
| **Call 8 two stage** | 26/04/2024 - 17/05/2024 | 24/06/2024 | 25/06/2024 | 09/12/2024 | In 2025 | In 2025 | In 2025 |

*Abbreviations:*

*GA – Grant Agreement.*
*GAP – Grant Agreement Preparation. GB – Governing Board.*
*EC – European Commission.*
*SRG – States' Representatives Group. SIP – Science and Innovation Panel*
*SIP – Science and Innovation Panel*

## 1.4 Evaluation procedures and outcomes

The sections below present, call by call, the progress made on each call in 2024, as well as breakdowns of applicants in eligible proposals and participants in selected proposals where relevant.

In the tables and charts showing the breakdowns by country and by organisation type of applicants / participants, note that the organisation types given are what the applicants declared (self-declarations). For space reasons, the following organisation types are abbreviated in the tables and charts:

- Healthcare = Healthcare professional organisation / healthcare provider
- Large company = Large company (for-profit legal entity)
- Research / education = Research / higher or secondary education organisations (private or public)
- SME = Small & medium enterprise
- Patient / citizen = Patient / citizen organisation
- Mid-cap = Mid-cap (for-profit legal entity)
- HTA = Health technology assessment body
- Regulator = Regulator or regulatory body
- NGO = Non-governmental organisation
- Payer = Healthcare payer

### 1.4.1 IHI call 4 (two-stage)

*Progress in 2024: from stage 2 submission to signature of the GAs.*

| **IHI call 4 at a glance** | |
|---|---|
| Topics | 6 (details below and here) |
| Launch date | 27/07/2023 |
| Submission deadline (stage 1) | 08/11/2023 |
| Proposals received | 17 |
| Admissible proposals | 17 |
| Eligible proposals (evaluated) | 15 |
| Applicants in eligible proposals (stage 1) | 248 |
| Proposals above threshold | 8 |
| Proposals invited to stage 2 | 6 |
| Submission deadline (stage 2) | 23/04/2024 |
| Applicants in eligible proposals (stage 2) | 311 |
| GAs signed in 2024 | 6 |

The maximum financial contribution from IHI JU for this call was EUR 83 350 000 million, and the industry / contributing partner contribution was EUR 85 076 000.

The table below highlights how the topics of IHI call 4 are aligned with the specific objectives (SOs) of IHI as described in the legislation creating IHI and the Strategic Research and Innovation Agenda (SRIA).

- **Specific Objective 1 (SO1):** addresses the challenge of unravelling causal factors of disease that are still poorly understood, such as the interplay between genetic and environmental factors, for example the impactof climate change on health.
- **Specific Objective 2 (SO2):** addresses one or more of the barriers for the development of new types of products or services in the health domain that integrate diverse components (such as diagnostics, medicinal products, medical devices, wearables, treatment monitoring, digital solutions), also including the challenge ofenabling the green transition across all aspects of healthcare.
- **Specific Objective 3 (SO3):** addresses the patient-centricity of innovations and the challenge of effectively engaging with all relevant health care actors (patients and civil society, health care professionals, health care providers, regulators, health technology assessment bodies and payers) for the design and development of new and/or integrated health solutions.
- **Specific Objective 4 (SO4):** addresses the issue that currently, data in many countries are hard to gather anddemonstrate limited interoperability.
- **Specific Objective 5 (SO5):** enabling the development of new and improved methodologies and models for a comprehensive assessment of the added value of innovative and integrated healthcare solutions.

| Topic | SO1 | SO2 | SO3 | SO4 | SO5 |
|---|---|---|---|---|---|
| Expanding translational knowledge in minipigs: a path to reduce and replace non-human primates in non-clinical safety assessment | | x | | | |
| Patient-centric blood sample collection to enable decentralised clinical trials and improve access to healthcare | x | x | x | | |
| Inclusive clinical studies for equitable access to clinical research in Europe | | | x | | x |
| Establishing novel approaches to improve clinical trials for rare and ultra-rare diseases | | | x | | x |
| Safe & Sustainable by Design (SSbD) packaging and single use device solutions for healthcare products | | x | | | |
| Sustainable circular development and manufacturing of healthcare products and their quantitative environmental impact assessment | | x | | | |

IHI informed the applicants of the outcome of the evaluation **64 days** after the submission deadline, well ahead of the 153-day deadline for sending evaluation result letters.

**Ethics evaluation process**: The IHI call 4 stage 2 ethics screening was conducted for the 6 above-threshold proposals. 2 proposals were ethically cleared, and 4 proposals were conditionally cleared. Those with a conditional clearance have a set of requirements to be addressed by the consortium during the granting phase and/or as specific ethics deliverables over the project implementation phase. No proposals were sent to ethics assessment.

**Complaints (redress):** There were no admissibility/eligibility or evaluation review requests for proposals not selected for funding under IHI call 4.

**IHI call 4: participants in selected proposals at stage 2**

48% of the participants are IHI industry partners, and 2% are IHI contributing partners. The table below gives a detailed breakdown of the participants by both country and organisation type.

| | Charity / Foundation | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | Total by country |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | | | | 1 | | | | | | | | | | **1** |
| Austria | | | | | 1 | | | | | | | 6 | 1 | **8** |
| Belgium | | | | 10 | | 3 | | 2 | 1 | | | 6 | 5 | **27** |
| Bosnia and Herzegovina | | | | | | | | | | | | 1 | | **1** |
| Brazil | | | | 1 | | | | | | | | | | **1** |
| Cyprus | | | | | | | | | | | | 1 | | **1** |
| Czechia | | | | | | | | | | | | 2 | | **2** |
| Denmark | | | 1 | 7 | | | | 1 | | 1 | | 2 | 1 | **13** |
| Finland | | | | | | | | | | | | | 1 | **1** |
| France | | | 1 | 19 | 1 | 2 | | | | | | 3 | 4 | **30** |
| Germany | | 1 | 2 | 32 | | | | | 1 | | | 8 | 1 | **45** |
| Greece | | | | | | 3 | | | | | | 2 | 2 | **7** |
| Hungary | | | | | 1 | | | | | | | | 1 | **2** |
| Ireland | | | | 3 | | | | | 2 | | | | | **5** |
| Italy | 1 | | 1 | 8 | 2 | | | | | | 1 | 4 | 3 | **20** |
| Lithuania | | | 1 | | | | | | 1 | | | | | **2** |
| Luxembourg | | | | 1 | | | | | | | | | 1 | **2** |
| Netherlands | 1 | | | 3 | | 2 | | 2 | | 1 | 1 | 7 | 1 | **18** |
| Norway | | | | | | | | | | | | 1 | | **1** |
| Poland | | | | | | | | | | | | 2 | | **2** |
| Portugal | | | | | | | | | | | | | 1 | **1** |
| Romania | | | | | | | | | 1 | | | | | **1** |
| Spain | 3 | | 5 | 3 | 2 | 1 | | | | | 1 | 14 | 3 | **32** |
| Sweden | | | 1 | 2 | | | | | | | | 4 | 3 | **10** |
| Switzerland | | | | 12 | | 1 | 1 | | | | | 1 | | **15** |
| United Kingdom | | 1 | | 21 | 1 | 1 | | | | | 1 | 5 | 3 | **33** |
| United States | | | | 23 | | 1 | 1 | | 1 | | | | 4 | **30** |
| **Total by org. type** | **5** | **2** | **12** | **146** | **8** | **14** | **2** | **5** | **7** | **2** | **4** | **69** | **35** | **311** |

### 1.4.2 IHI call 5 (single stage)

*Progress in 2024: from single-stage submission to signature of the GAs.*

| **IHI call 5 at a glance** | |
|---|---|
| Topics | 4 (details below and here) |
| Launch date | 27/07/2023 |
| Submission deadline (single stage) | 16/01/2024 |
| Proposals received | 17 |
| Admissible proposals | 17 |
| Eligible proposals (evaluated) | 12 |
| Applicants in eligible proposals | 309 |
| Proposals above threshold | 7 |
| Proposals selected for funding | 7 |
| GAs signed in 2024 | 7 |

The maximum financial contribution from IHI JU for these topics is EUR 115 million. As this was a single-stage call for proposals, no IHI private member / contributing partner contributions were indicated at call launch in the call topic texts as these contributions depend on the selected proposals.

The table below highlights how the topics of IHI call 5 are aligned with the specific objectives (SOs) of IHI as described in the legislation creating IHI and the Strategic Research and Innovation Agenda (SRIA).

| Topic | SO1 | SO2 | SO3 | SO4 | SO5 |
|---|---|---|---|---|---|
| Accelerating the implementation of New Approach Methodologies and other innovative non-animal approaches for the development, testing and production of health technologies | | x | | | |
| Development and proof of principle of new clinical applications of theranostics solutions | x | x | x | | |
| Improved prediction, detection, and treatment approaches for comprehensive stroke management | x | x | x | | |
| Maximising the potential of synthetic data generation in healthcare applications | | | x | x | |

IHI informed the applicants of the outcome of the evaluation **70 days** after the submission deadline, well ahead of the 153-day deadline for sending evaluation result letters.

**Ethics evaluation process**[4]: The ethics screening was conducted for the 7 above-threshold proposals. 7 were cleared

**Complaints (redress):** There were no admissibility/eligibility or evaluation review requests for proposals not selected for funding under IHI call 5.

[4] In addition to the scientific evaluations, the IHI Programme Office organises ethics evaluations for single stage proposals recommended for funding and single stage proposals placed on the main and reserve lists. As per the Horizon Europe Programme Guide, which outlines how the ethics appraisal framework works, the Programme Office independently operates the ethics review procedure and relies on external independent ethics experts.

**IHI call 5: applicants in eligible proposals**

26% of the applicants are IHI industry partners, and 24% are IHI contributing partners. The table below gives a detailed breakdown of the applicants by both country and organisation type.

| | Charity / Foundation | HTA | Healthcare | Large company | Mid-cap | NGO | Notified Body | Other | Patient / citizen | Public authority | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | | | | | | | | | | | 1 | | **1** |
| Austria | 1 | | | | | | | | | | 4 | 1 | **6** |
| Belgium | 2 | | 1 | 4 | 1 | 2 | | | 1 | | 10 | 1 | **22** |
| Cyprus | | | 1 | | | | | | | | 1 | 3 | **5** |
| Czechia | | | | | | | | | | | 1 | | **1** |
| Denmark | | | 2 | 4 | | | | | | 1 | 6 | 7 | **20** |
| Finland | | | 1 | | 1 | | | | | | 2 | 1 | **5** |
| France | | | 4 | 5 | | | | | | | 5 | 2 | **16** |
| Germany | | | | 18 | 1 | | | | | | 17 | 7 | **43** |
| Greece | | | 1 | | | | | | 1 | | 5 | 2 | **9** |
| Hungary | | | | 2 | | | | | | | 1 | 1 | **4** |
| India | | | | 2 | | | | | | | | | **2** |
| Ireland | | | | 3 | | | | | | | 1 | 2 | **6** |
| Israel | | | | 1 | | | | | | | | | **1** |
| Italy | | | 1 | 4 | | | | 1 | 1 | | 13 | 3 | **23** |
| Lithuania | | | | | | | | | | | 1 | 1 | **2** |
| Luxembourg | | | | | | | | | | | | 1 | **1** |
| Netherlands | 1 | | 1 | 5 | 1 | 1 | | | | | 14 | 6 | **29** |
| Norway | | | | | | | 1 | | | | 3 | | **4** |
| Poland | | | | | | | | | | | 3 | | **3** |
| Portugal | | | | | | | | | | | 6 | | **6** |
| Romania | | | | | | | | | | | 1 | 1 | **2** |
| Slovakia | | | | 1 | | | | | | | 1 | | **2** |
| Slovenia | | | | | | | | 1 | | | 1 | | **2** |
| Spain | | | 3 | 6 | | 1 | | 1 | | 1 | 21 | 11 | **44** |
| Sweden | | | | 2 | 1 | | | | | 1 | 2 | 3 | **9** |
| Switzerland | | | | 7 | 1 | 1 | | | | 1 | 4 | 2 | **16** |
| Türkiye | | | | | | | | | | 1 | | | **1** |
| Ukraine | | | | | | | | | | 1 | 1 | | **2** |
| United Kingdom | | 1 | | 5 | 1 | | | | | | 1 | 3 | **11** |
| United States | | | | 9 | | | | 1 | | | | 1 | **11** |
| **Total by org. type** | **4** | **1** | **15** | **78** | **7** | **5** | **1** | **4** | **3** | **6** | **126** | **59** | **309** |

**IHI call 5: participants in selected proposals**

34% of the participants are IHI industry partners, and 15% are IHI contributing partners. The table below gives a detailed breakdown of the participants by both country and organisation type.

| | Charity / Foundation | HTA | Healthcare | Large company | Mid-cap | NGO | Notified Body | Other | Patient / citizen | Public authority | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 1 | | | | | | | | | | 1 | | **2** |
| Belgium | 2 | | 1 | 4 | | 1 | | | 1 | | 5 | 1 | **15** |
| Cyprus | | | | | | | | | | | | 2 | **2** |
| Denmark | | | 1 | 2 | | | | | | 1 | 2 | 4 | **10** |
| Finland | | | 1 | | 1 | | | | | | 1 | 1 | **4** |
| France | | | 1 | 4 | | | | | | | 3 | 1 | **9** |
| Germany | | | | 14 | 1 | | | | | | 10 | 5 | **30** |
| Greece | | | 1 | | | | | | | | 2 | 2 | **5** |
| Hungary | | | | 2 | | | | | | | 1 | 1 | **4** |
| India | | | | 2 | | | | | | | | | **2** |
| Ireland | | | | 3 | | | | | | | 1 | 2 | **6** |
| Israel | | | | 1 | | | | | | | | | **1** |
| Italy | | | 1 | 4 | | | | 1 | | | 7 | 2 | **15** |
| Luxembourg | | | | | | | | | | | | 1 | **1** |
| Netherlands | 1 | | 1 | 3 | 1 | 1 | | | | | 8 | 5 | **20** |
| Norway | | | | | | | 1 | | | | 1 | | **2** |
| Poland | | | | | | | | | | | 1 | | **1** |
| Portugal | | | | | | | | | | | 2 | | **2** |
| Romania | | | | | | | | | | | | 1 | **1** |
| Slovakia | | | | 1 | | | | | | | | | **1** |
| Slovenia | | | | | | | | 1 | | | | | **1** |
| Spain | | | 1 | 5 | | | | 1 | | | 13 | 7 | **27** |
| Sweden | | | | 1 | 1 | | | | | 1 | 2 | 1 | **6** |
| Switzerland | | | | 6 | | | | | | | 4 | 2 | **12** |
| United Kingdom | | 1 | | 4 | 1 | | | | | | | 2 | **8** |
| United States | | | | 9 | | | | 1 | | | | 1 | **11** |
| **Total by org. type** | **4** | **1** | **8** | **65** | **5** | **2** | **1** | **4** | **1** | **2** | **64** | **41** | **198** |

### 1.4.3 IHI call 6 (two-stage)

*Progress in 2024: From call launch to the end of stage 2.*

| **IHI call 6 at a glance** | |
|---|---|
| Topics | 2 (details below and here) |
| Launch date | 16/01/2024 |
| Submission deadline (stage 1) | 16/04/2024 |
| Proposals received | 16 |
| Admissible proposals | 16 |
| Eligible proposals (evaluated) | 15 |
| Applicants in eligible proposals (stage 1) | 280 |
| Proposals above threshold | 11 |
| Proposals invited to stage 2 | 2 |
| Submission deadline (stage 2) | 10/10/2024 |
| Applicants in eligible proposals (stage 2) | 92 |
| GAs signed in 2024 | n/a |

The maximum financial contribution from IHI JU for this call was EUR 24 600 000 million, and the industry / contributing partner contribution was EUR 24 600 000 million.

The table below highlights how the topics of IHI call 6 are aligned with the specific objectives (SOs) of IHI as described in the legislation creating IHI and the Strategic Research and Innovation Agenda (SRIA).

| Topic | SO1 | SO2 | SO3 | SO4 | SO5 |
|---|---|---|---|---|---|
| Support healthcare system resilience through a focus on persistency in the treatment of chronic diseases | | | x | | |
| Development of evidence based practical guidance for sponsors on the use of real-world data / real-world evidence | | | | x | |

The stage 1 evaluation process was successful and IHI was on time to inform applicants of the outcome of the evaluation by the end of June 2024, **57 days** after the submission deadline, and well ahead of the 153-day deadline for sending evaluation result letters.

The stage 2 evaluation process was successful and IHI was on time to inform applicants of the outcome of the evaluation by early December 2024.

**Ethics evaluation process**: The IHI call 6 stage 2 ethics screening was conducted for the two above-threshold proposals. 1 proposal was ethically cleared, and 1 proposal was ethically conditionally cleared. The proposal with a conditional clearance has a set of requirements to be addressed by the consortium during the granting phase and/or as specific ethics deliverables over the project implementation phase. No proposals were sent to ethics assessment.

**Complaints (redress):** There were no admissibility/eligibility or evaluation review requests for proposals not selected for funding under IHI call 6.

**IHI call 6: applicants in eligible short proposals**

Industries appear to be under-represented in the first stage of a two stage call because the pre-identified industry consortium members in the topic text join the successful applicant consortium in stage 2.

The table below gives a detailed breakdown of the applicants by both country and organisation type.

| | Charity / Foundation | HTA | Healthcare | Large company | NGO | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | | | 1 | | | | | | | 4 | 1 | **6** |
| Belgium | 2 | | 1 | | 6 | | 3 | | | 3 | 5 | **20** |
| Bulgaria | | | | | | | | | | 2 | | **2** |
| Croatia | | | | | | | | | | 1 | | **1** |
| Czechia | | | 1 | | | | | 1 | | 2 | | **4** |
| Denmark | | | 4 | | | | | 1 | | 6 | 1 | **12** |
| Estonia | | | | | | | | | | 1 | 2 | **3** |
| Finland | | | 2 | | | | | | | 3 | | **5** |
| France | | | 1 | | 1 | | | | | 5 | | **7** |
| Germany | | | 2 | | | | 3 | | 2 | 13 | 6 | **26** |
| Greece | | | 3 | | | | 2 | | | 10 | 1 | **16** |
| Hungary | | | | | | | | | | | 1 | **1** |
| Ireland | | | 1 | | | | 2 | | | 3 | | **6** |
| Israel | | | | | | | 1 | | | 1 | | **2** |
| Italy | 2 | 1 | 2 | 1 | | | | | | 14 | 7 | **27** |
| Luxembourg | | | | | | | | | | 3 | 2 | **5** |
| Netherlands | 1 | | 4 | | 3 | | 1 | 1 | | 15 | 6 | **31** |
| Norway | | 1 | 3 | | 1 | | | | 1 | 3 | | **9** |
| Poland | | | | | | | | | | 3 | 1 | **4** |
| Portugal | | | 1 | | | | 2 | | | 4 | | **7** |
| Romania | | | | | | | | | | 3 | | **3** |
| Serbia | | | | | | | | | | 1 | | **1** |
| Slovenia | | | | | | 1 | | | | 2 | | **3** |
| Spain | 5 | | 10 | | 1 | | 3 | 2 | 1 | 13 | 8 | **43** |
| Sweden | | | 1 | | | | 2 | 2 | | 4 | | **9** |
| Switzerland | | | | | | | | | | 3 | 2 | **5** |
| Türkiye | | | | | | | | | | 1 | | **1** |
| Ukraine | | | | | | | | | | 1 | | **1** |
| United Kingdom | | 2 | 1 | | | | | 1 | 1 | 14 | | **19** |
| United States | | | | | | | | | | 1 | | **1** |
| **Total by org. type** | **10** | **4** | **38** | **1** | **12** | **1** | **19** | **8** | **5** | **139** | **43** | **280** |

**IHI Call 6: participants in selected proposals**

54% of the participants are IHI industry partners. The table below gives a detailed breakdown of the participants by both country and organisation type.

| | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | | | 3 | | | | | | | 2 | **5** |
| Canada | | | 1 | | | | | | | | **1** |
| Denmark | | | 2 | | | | | | | | **2** |
| France | | 1 | 11 | | | | | | | | **12** |
| Germany | | 2 | 5 | | | | | | 2 | | **9** |
| Greece | | | 1 | | | | | | | | **1** |
| India | | | 1 | | | | | | | | **1** |
| Ireland | | | | | | | | 1 | 1 | | **2** |
| Israel | | | | | | | | 1 | 1 | | **2** |
| Italy | | | 5 | | | | | | | | **5** |
| Netherlands | | 1 | 2 | | 1 | | 2 | | 4 | 4 | **14** |
| Norway | 1 | | | | | | | | | | **1** |
| Poland | | 1 | | | | | | 1 | | 1 | **3** |
| Portugal | | | | | | | | | 1 | | **1** |
| Spain | | 1 | 2 | | | | | 1 | 4 | 1 | **9** |
| Sweden | | | 1 | 1 | | 1 | | 1 | 2 | | **6** |
| Switzerland | | | 2 | | | | | | | | **2** |
| United Arab Emirates | | | 1 | | | | | | | | **1** |
| United Kingdom | 1 | | 2 | | | | | | 2 | | **5** |
| United States | | 1 | 9 | | | | | | | | **10** |
| **Total by org. type** | **2** | **7** | **48** | **1** | **1** | **1** | **2** | **5** | **17** | **8** | **92** |

## 1.4.4 IHI call 7 (single stage)

*Progress in 2024: from call launch to signature of the GAs.*

| **IHI call 7 at a glance** | |
|---|---|
| Topics | 3 (details below and here) |
| Launch date | 16/01/2024 |
| Submission deadline (single stage) | 22/05/2024 |
| Proposals received | 28 |
| Admissible proposals | 27 |

| | |
|---|---|
| Eligible proposals (evaluated) | 22 |
| Applicants in eligible proposals | 481 |
| Proposals above threshold | 12 |
| Proposals selected for funding | 8 |
| GAs signed in 2024 | 1 |

The maximum financial contribution from IHI JU for this call was EUR 95 000 000 million. As this was a single-stage call for proposals, no IHI private member / contributing partner contributions were indicated at call launch in the call topic texts. Information on IHI private member / contributing partner contributions to projects funded under IHI single stage calls will be available only once the grants are signed in 2025.

The table below highlights how the topics of IHI call 7 are aligned with the specific objectives (SOs) of IHI as described in the legislation creating IHI and the Strategic Research and Innovation Agenda (SRIA).

| Topic | SO1 | SO2 | SO3 | SO4 | SO5 |
|---|---|---|---|---|---|
| Improving clinical management of heart disease from early detection to treatment | | X | | | |
| User-centric technologies and optimised hospital workflows for a sustainable healthcare workforce | | X | | | |
| Clinical validation of biomarkers for diagnosis, monitoring disease progression and treatment response | X | | | | |

IHI informed the applicants of the outcome of the evaluation **63 days** after the submission deadline, well ahead of the 153-day deadline for sending evaluation result letters.

**Ethics evaluation process**: The ethics screening was conducted for the 12 above-threshold proposals. 6 were cleared while 6 were conditionally cleared. Those with a conditional clearance have a set of requirements to be addressed by the consortium during the granting phase and/or as specific ethics deliverables over the project implementation phase. No proposals were sent to ethics assessment.

**Complaints (redress):** A redress committee was convened to analyse 1 redress procedure introduced by one proposal. For this case, no grounds were found to support the complaint.

**IHI Call 7: applicants in eligible proposals**

24% of the applicants are IHI industry partners, and 10% are IHI contributing partners. The table below gives a detailed breakdown of the applicants by both country and organisation type.

| | Charity / Foundation | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | | | | | | | | | | | | 1 | | **1** |
| Austria | | | 1 | | | 2 | | | | | 1 | 6 | 2 | **12** |
| Belgium | | | 1 | 7 | 1 | 1 | | | 4 | | | 1 | 3 | **18** |
| Bulgaria | | | | | | 1 | | | | | | | 1 | **2** |
| Canada | | | | 1 | | | | | | | | | 1 | **2** |
| Croatia | | | | | | | 1 | | | | | | | **1** |
| Cyprus | | | 1 | | | | | | | | | 1 | 2 | **4** |
| Czechia | | | 1 | | | | | | | | | | | **1** |
| Denmark | | | 4 | 4 | | | | | | | | 5 | 2 | **15** |
| Estonia | | | | | | | | | | | | | 3 | **3** |
| Finland | | | | | | | | | | | | | 1 | **1** |
| France | | | 6 | 8 | | 1 | | 1 | 1 | | | 10 | 7 | **34** |
| Germany | | | 10 | 16 | 2 | | 2 | | 1 | | 1 | 20 | 14 | **66** |
| Greece | | | | | | | | | 3 | | | 3 | 2 | **8** |
| Hungary | | | | 2 | | | | | | | | | 1 | **3** |
| India | | | | 1 | | | | | | | | | | **1** |
| Ireland | | | | 1 | 2 | | | | 1 | | | 2 | 1 | **7** |
| Israel | | | | 1 | | | | | | | | 1 | 1 | **3** |
| Italy | | | 11 | 5 | 1 | | 2 | | 1 | | | 12 | 7 | **39** |
| Korea (Republic of) | | | | | | | 1 | | | | | | | **1** |
| Latvia | | | | | | | | | | | | 1 | | **1** |
| Lithuania | | | | | | | | | | | | | 1 | **1** |
| Luxembourg | | | | | | | | | | | | | 1 | **1** |
| Nepal | | | 1 | | | | | | | | | | | **1** |
| Netherlands | 1 | | 11 | 16 | 2 | | | 1 | 3 | | | 23 | 24 | **81** |
| Norway | | | | 1 | | | | | | | | 1 | 1 | **3** |
| Poland | | | | | | | | | | | | 3 | | **3** |
| Portugal | | | 1 | 1 | | | | | | | | 2 | 1 | **5** |
| Romania | | | | | | 1 | | | | | | | 1 | **2** |
| Serbia | | | 1 | | | | | | | | | 2 | | **3** |
| Slovakia | | | | 1 | | | | | | | | | | **1** |
| Slovenia | | | | | | 1 | | | 1 | | | 1 | | **3** |

| | Charity / Foundation | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Africa | | | | | | | | | | | | 1 | | **1** |
| Spain | 1 | 2 | 13 | 8 | 1 | 2 | | 1 | 1 | | 1 | 14 | 11 | **55** |
| Sweden | | | 3 | 2 | | | | | | | | 5 | 2 | **12** |
| Switzerland | | | 1 | 5 | 1 | 6 | 1 | | 1 | | | 7 | 3 | **25** |
| Taiwan | | | | | | | | | | | | 1 | | **1** |
| Türkiye | | | | | | | | | | 2 | | | 1 | **3** |
| Ukraine | | | | | | | | | | | | 1 | | **1** |
| United Kingdom | | | 4 | 9 | 1 | | | | 1 | | | 22 | 9 | **46** |
| United States | | | | 6 | | | 1 | | | | | 2 | 1 | **10** |
| **Total by org. type** | **2** | **2** | **70** | **95** | **11** | **15** | **8** | **3** | **18** | **2** | **3** | **148** | **104** | **481** |

**IHI Call 7: participants in selected proposals**

27% of the participants are IHI industry partners, and 8% are IHI contributing partners. The table below gives a detailed breakdown of the participants by both country and organisation type.

| | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | | | | | 2 | | | | 1 | 2 | 1 | **6** |
| Belgium | | | 5 | | | | | 3 | | | 1 | **9** |
| Denmark | | | 1 | | | | | | | 3 | 1 | **5** |
| Estonia | | | | | | | | | | | 2 | **2** |
| France | | 5 | 3 | | | | | 1 | | 1 | 3 | **13** |
| Germany | | 6 | 4 | | | 1 | | 1 | 1 | 6 | 6 | **25** |
| Greece | | | | | | | | 1 | | 1 | | **2** |
| Hungary | | | | | | | | | | | 1 | **1** |
| Ireland | | | 1 | 1 | | | | | | 1 | | **3** |
| Israel | | | | | | | | | | 1 | | **1** |
| Italy | | 5 | 3 | | | | | 1 | | 5 | 5 | **19** |
| Korea (Republic of) | | | | | | 1 | | | | | | **1** |
| Lithuania | | | | | | | | | | | 1 | **1** |
| Netherlands | | 4 | 8 | | | | 1 | 2 | | 10 | 11 | **36** |

| | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Other | Patient / citizen | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Norway | | | | | | | | | | 1 | | **1** |
| Poland | | | | | | | | | | 1 | | **1** |
| Portugal | | 1 | 1 | | | | | | | | | **2** |
| Romania | | | | | | | | | | | 1 | **1** |
| Slovenia | | | | | 1 | | | 1 | | | | **2** |
| Spain | 2 | 7 | 5 | | | | 1 | | 1 | 3 | 5 | **24** |
| Sweden | | 2 | | | | | | | | 2 | 1 | **5** |
| Switzerland | | 1 | 2 | | 4 | 1 | | | | 2 | 1 | **11** |
| United Kingdom | | | 5 | | | | | | | 5 | 3 | **13** |
| United States | | | 2 | | | 1 | | | | 1 | | **4** |
| **Total by org. type** | **2** | **31** | **40** | **1** | **7** | **4** | **2** | **10** | **3** | **45** | **43** | **188** |

### 1.4.5 IHI call 8 (two-stage)

*Progress in 2024: From call launch to end of stage 1.*

| **IHI call 8 at a glance** | |
|---|---|
| Topics | 4 (details below and here) |
| Launch date | 25/06/2024 |
| Submission deadline (stage 1) | 10/10/2024 |
| Proposals received | 42 |
| Admissible proposals | 40 |
| Eligible proposals (evaluated) | 38 |
| Applicants in eligible proposals (stage 1) | 677 |
| Proposals above threshold | 30 |
| Proposals invited to stage 2 | 4 |
| Submission deadline (stage 2) | 23/04/2025 |
| Applicants in eligible proposals (stage 2) | n/a |
| GAs signed in 2024 | n/a |

The maximum financial contribution from IHI JU for this call was EUR 47 600 000 million, and the industry / contributing partner contribution was EUR 49 000 000 million.

The table below highlights how the topics of IHI call 8 are aligned with the specific objectives (SOs) of IHI as described in the legislation creating IHI and the Strategic Research and Innovation Agenda (SRIA).

| Topic | SO1 | SO2 | SO3 | SO4 | SO5 |
|---|---|---|---|---|---|
| A city-based approach to reducing cardiovascular mortality in Europe | x | | | | |
| Novel Endpoints for Osteoarthritis (OA) applying Big Data Analytics | x | | | | |
| Enabling the deployment of model regulatory sandbox mechanisms to support innovation | | | | | x |
| Patient-Centred Clinical-Study Endpoints Derived Using Digital Health Technologies | | | x | | |

The stage 1 evaluation process was successful and IHI was on time to inform applicants of the outcome of the evaluation by the end of December 2024 (61 days ahead of the 153-day deadline). Full proposals for those selected to enter the second stage are expected to be submitted for evaluation in April 2025.

**Ethics evaluation process**: The ethics screening takes place at stage 2.

**Complaints (redress):** No complaints were submitted in stage 1.

**IHI Call 8: applicants in eligible short proposals**

8% are IHI contributing partners. Industries appear to be under-represented because the pre-identified industry consortium members will join only in stage 2.

The table below gives a detailed breakdown of the applicants by both country and organisation type.

| | Charity / Foundation | Payer | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Notified Body | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | | | | 1 | | | | 1 | | | | | | 6 | 1 | **9** |
| Belgium | 3 | | 1 | 5 | | | 8 | 3 | | | 5 | 1 | | 13 | 8 | **47** |
| Bosnia and Herzegovina | | | | | | | | | | | | 1 | | 1 | | **2** |
| Bulgaria | | | | 1 | | 1 | 1 | | | | 1 | 1 | | 4 | 2 | **11** |
| Canada | | | | | | | 1 | 1 | | | 2 | | | 1 | 1 | **6** |
| Croatia | | | | | | | | | | | | | | | 1 | **1** |
| Cyprus | | | | | | | | | 1 | | | | | | 2 | **3** |
| Czechia | | | | | | | 1 | | | | | | | | 1 | **2** |
| Denmark | 1 | | | 3 | | | | | | | | 3 | 1 | 7 | 2 | **17** |
| Estonia | | | | | | | | | | | | 1 | | 4 | 6 | **11** |
| Finland | | | | 1 | | | | 1 | | | | 2 | | 2 | 2 | **8** |
| France | | | | 2 | | 1 | 1 | 1 | | | 3 | | 1 | 4 | 4 | **17** |
| Germany | 1 | | | 7 | | 1 | 1 | 4 | | 1 | 1 | 5 | 1 | 26 | 11 | **59** |

| | Charity / Foundation | Payer | HTA | Healthcare | Large company | Mid-cap | NGO | Not Declared | Notified Body | Other | Patient / citizen | Public authority | Regulator | Research / education | SME | **Total by country** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Greece | | | | 3 | | | 2 | | 1 | | 3 | 3 | 1 | 19 | 10 | **42** |
| Hungary | | | | | | | | | | | | | | | 1 | **1** |
| Iceland | | | | | | | | | | | | | | 1 | | **1** |
| Ireland | | | | 1 | 1 | | 2 | 2 | | 1 | 3 | 1 | | 6 | 5 | **22** |
| Israel | | | | | | | | | | | 1 | | | 1 | | **2** |
| Italy | 1 | | | 13 | | | | 1 | | | 1 | 3 | | 40 | 9 | **68** |
| Japan | | | | | | | | | | | | | | 1 | | **1** |
| Latvia | | | | 1 | | | | | | | | | | 2 | 1 | **4** |
| Lithuania | | | | 1 | | | | | | | 1 | | | 1 | 1 | **4** |
| Luxembourg | | | | 1 | | | | | | | | 1 | | 1 | 1 | **4** |
| Netherlands | 8 | | 1 | 8 | | | 1 | 2 | | 2 | 5 | 1 | | 31 | 8 | **67** |
| Nigeria | | | | | | | | | | | | | | | 2 | **2** |
| Norway | | | 1 | | | | 1 | | | | | 1 | 1 | 5 | | **9** |
| Poland | | | | 2 | | | | | | | | 1 | | 4 | 1 | **8** |
| Portugal | | | | 2 | | | | | | | | 1 | | 9 | 4 | **16** |
| Romania | | | | 1 | | 1 | | | | | | 1 | | 3 | 1 | **7** |
| Serbia | | | | 1 | | | | | | | | 1 | | 1 | 2 | **5** |
| Slovenia | 2 | | | 1 | | 1 | 1 | | | 1 | 1 | 1 | 1 | 3 | 1 | **13** |
| South Africa | | | | | | | | | | | | | | 1 | | **1** |
| Spain | 1 | 1 | 4 | 15 | | | 3 | 1 | | | 4 | 8 | 1 | 30 | 28 | **96** |
| Sweden | | | | 2 | | | 1 | | | | | 1 | | 8 | | **12** |
| Switzerland | | | | | | | 1 | | | 1 | 2 | 1 | 1 | 15 | 11 | **32** |
| Türkiye | | | | 1 | | | | | | | 1 | 1 | | 5 | 2 | **10** |
| Ukraine | | | | | | | 1 | | | | | | | | 1 | **2** |
| United Kingdom | 3 | | 1 | 3 | | | 1 | 1 | | | 1 | 5 | | 27 | 9 | **51** |
| United States | | | | | | | | | | 1 | | | | 2 | 1 | **4** |
| **Total by org. type** | **20** | **1** | **8** | **76** | **1** | **5** | **27** | **18** | **2** | **7** | **35** | **45** | **8** | **284** | **140** | **677** |

### 1.4.6 Evaluation and ethics experts

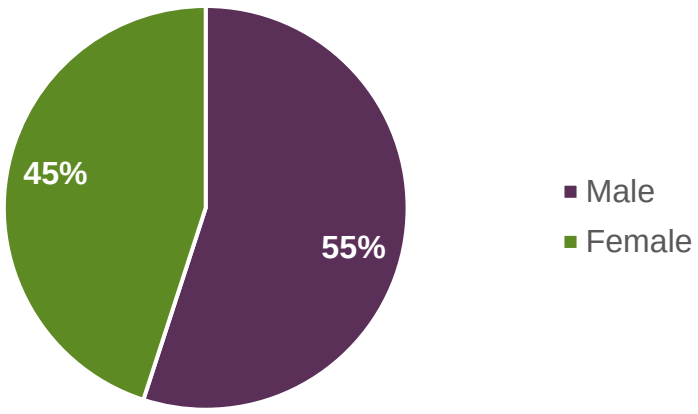
IHI selected 158 experts from 34 countries for the evaluations of call 4 stage 2, call 5, call 6 stages 1 and 2, call 7, and call 8 stage 1. Almost half of the experts were female (45%), and most came from the EU and Horizon Europe (HE) associated countries. All experts were selected so as to ensure a high level of skills, experience and knowledge in the areas of the call topics. Special attention was given to achieving an appropriately balanced composition (skills, experience, knowledge, geographical diversity, gender and private-public sector balance) and rotation.

The table below show the number and type of experts allocated per call.

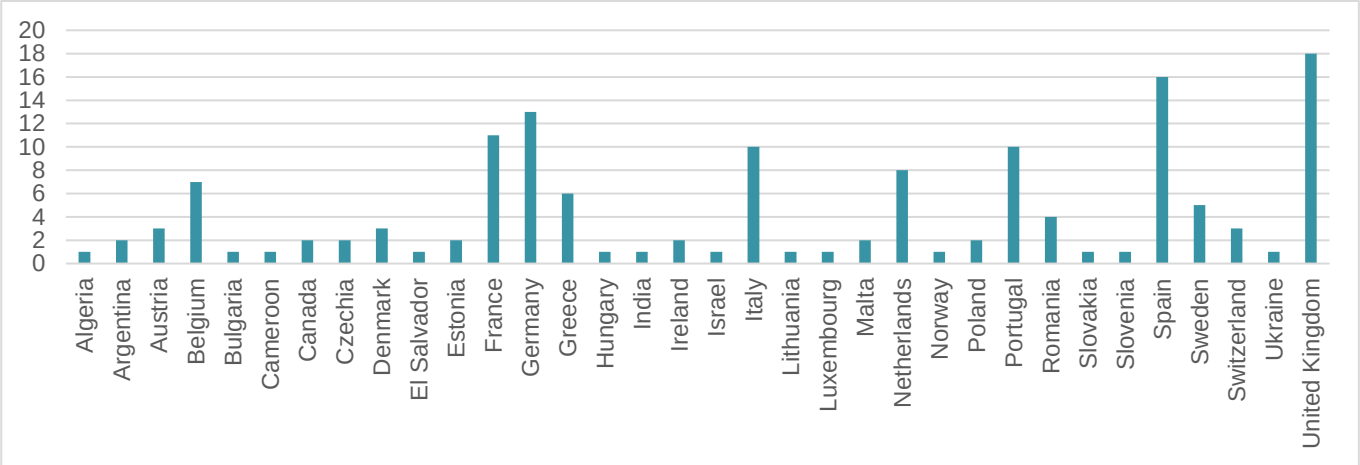
| Call | Scientific evaluation experts | Ethics screening experts | Observers | Total no. experts |
|---|---|---|---|---|
| Call 4 stage 2 | 28 | 2 | 1 | **31** |
| Call 5 single stage | 32 | 4 | 1 | **37** |
| Call 6 stage 1 | 13 | N.A. | 1 | **14** |
| Call 6 stage 2 | 11 | 2 | 1 | **14** |
| Call 7 single stage | 25 | 4 | 1 | **30** |
| Call 8 stage 1 | 31 | N.A. | 1 | **32** |

Statistics on the selected experts for the calls mentioned above can be found in the charts below:

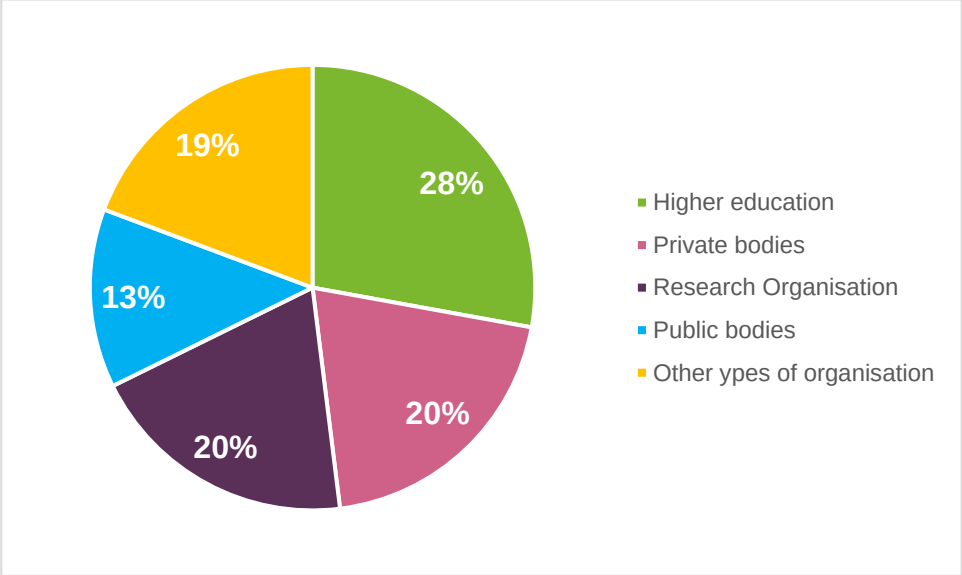
**Experts' gender**



**Experts' nationality**




**Experts' affiliation**



## 1.5 Follow-up activities linked to past calls

### Interim reviews for IMI2 projects

Given the number of consortium partners and the often complex challenges that IMI and IHI projects address, it was decided that all projects would be subject to an interim review. Often taking place at the midway stage of a project's implementation, a panel of independent expert reviewers is appointed by the Programme Office. The reviewers are requested to:

- monitor the progress and performance of the project against its original objectives;
- ensure the proper use of funds;
- identify any risks or challenges;
- provide feedback to the consortium and the office on the impact and innovation potential of project results;
- assess the sustainability of project results and how to ensure the upscaling and uptake of these results at the end of the project.

The consensus opinion of the expert panel is captured in a report that is provided to both the office and the consortium partners. This report often contains recommendations for the consortium to follow that the Programme Office then monitors during the remaining reporting periods of the project.

In 2024, the Programme Office concluded 11 interim reviews of ongoing IMI2 projects. Each expert reviewer panel consisted of at least three experts.

| Project acronym | IMI2 Call | Full project name | Review date |
|---|---|---|---|
| **HIPPOCRATES** | 20 | Health initiatives in psoriasis and psoriatic arthritis consortium European states | 29 & 30/01/2024 |
| **PREMIER** | 17 | Prioritisation and risk evaluation of medicines in the environment | 05/03/2024 |
| **Gravitate-Health** | 18 | Empowering and equipping Europeans with health information for active personal health management and adherence to treatment | 21/03/2024 |
| **BEAMER** | 23 | Behavioral and adherence model for improving quality, health outcomes and cost-effectiveness of healthcare | 18/04/2024 |
| **Inno4Vac** | 20 | Innovations to accelerate vaccine development and manufacture | 21 & 22/04/2024 |
| **H2O** | 18 | H2O Health outcomes observatory | 22/04/2024 |
| **OPTIMA** | 23 | Optimal treatment for patients with solid tumours in Europe through artificial intelligence | 28/05/2024 |
| **PERSIST-SEQ** | 20 | Building a reproducible single-cell experimental workflow to capture tumour drug persistence | 11/06/2024 |
| **FACILITATE** | 23 | Framework for clinical trial participants data reutilization for a fully transparent and ethical ecosystem | 11 & 12/06/2024 |
| **BIGPICTURE** | 18 | Central repository for digital pathology | 12/06/2024 |
| **EPND** | 23 | European Platform for Neurodegenerative Diseases | 24 & 25/09/2024 |

## 1.6 Openness, cooperation, synergies and cross-cutting themes and activities

### 1.6.1 Collecting ideas to support the definition of IHI's annual priorities and areas for calls for proposals

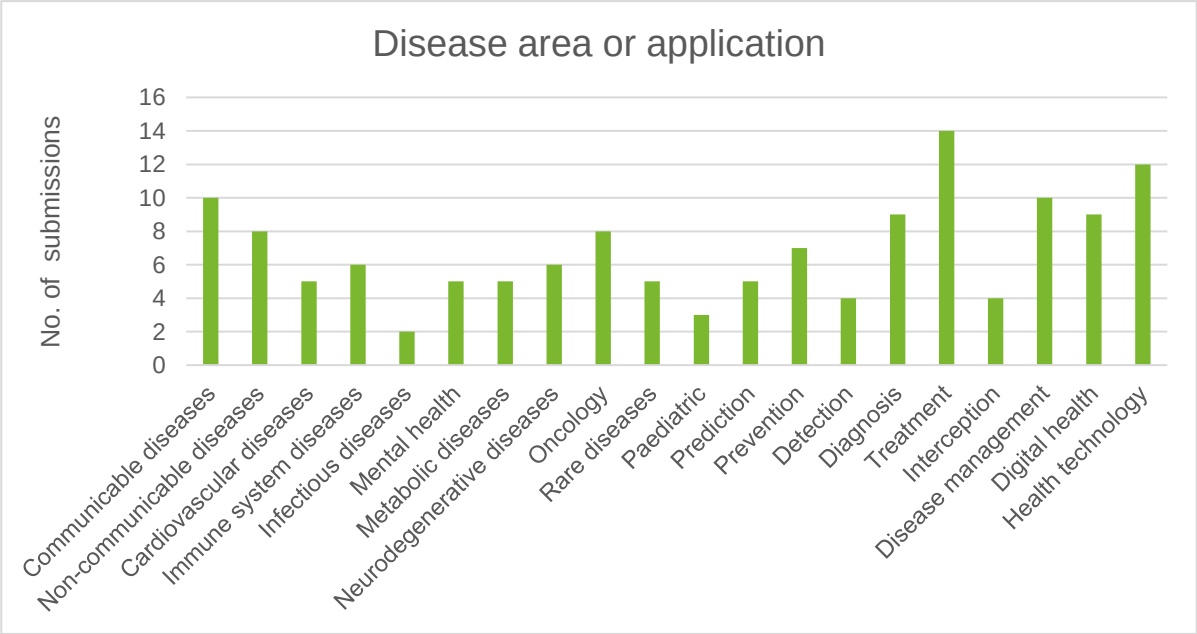
In line with the Council Regulation establishing IHI, the Programme Office developed a process for the collection of ideas from a wide range of stakeholders through an online platform called the Ideas Incubator. With the overall aim of helping IHI define its annual priorities and areas for future calls for proposals, this process involves the SIP in reviewing the ideas and providing feedback on whether the ideas merit further consideration, i.e. they are aligned with IHI's objectives and have the potential to be developed further as all or part of an IHI call topic.

In 2024, 24 ideas were collected in total, 10 of which passed the completeness and quality check and were reviewed by the SIP. This is an increase of 50% compared to the number of ideas received in 2023 and may be due to the "Ideas Incubator" awareness raising campaign launched at the end of 2023 together with the release of refined guidance to submitters.

Half of the ideas received were submitted by individuals in their personal capacity. The other half were submitted on behalf of an organisation, mainly from small and medium-sized enterprises (25%), followed by charities/foundations, research organisations and healthcare organisations/healthcare providers (17% each).

The ideas came from several countries, namely India, Türkiye and the United Kingdom (3 each); Belgium, France and Germany (2 each); Austria, Denmark, Hungary, Iraq, Italy, Nepal, South Africa, Tunisia and the United States (1 each).

The collected ideas addressed all IHI Specific Objectives (SOs) as set out in the SRIA and covered a wide range of areas as shown in the chart below (submitters can select more than one disease area or application per idea).



As of the end 2024, 14 ideas and the accompanying SIP opinions had been published on the IHI website. Eight further ideas were reviewed by the SIP in 2024, and the SIP opinions are expected to be published in early 2025.

### 1.6.2 Synergies

As a European partnership, IHI has a key role to play in achieving the objectives of the EU's policy for research and innovation in health.

Many other programmes and initiatives at regional, national and European level work on similar subjects to IHI. To maximise impacts and avoid duplication, IHI continued to explore ways of and sought close collaborations and synergies on research and innovation activities with other relevant instruments in 2024.

As primary actions, IHI ensured the discussions on this with its founding members, the Commission and the industry trade associations, and its governance bodies (Governing Board, SRG and SIP) in line with the Council Regulation establishing IHI. The two advisory bodies were also invited to identify the national and regional initiatives of relevance during the consultations on the IHI work programme, including the proposed scientific priorities and calls for proposals for the year to come.

Moreover, the Programme Office followed up on the activities initiated by its internal task force on synergies set up in 2022 with representatives from the Programme Office, the EC and industry partners. The group continued to map existing and new EU strategies, programmes, initiatives and policies of potential relevance. Where considered relevant in light of the planned IHI annual scientific priorities, the representatives of the other initiatives were invited to present their work and identify areas where complementary or shared activities would be of interest to address common challenges, avoid overlaps, align activities and ensure knowledge exchange and access to results.

As a continuity of the activities initiated since the setting-up of IHI, the founding members and the Programme Office involved (subject to confidentiality and appropriate management of conflict of interest) representatives of other relevant regional, national and European programmes, partnerships and funding instruments in discussion during the drafting of the of IHI call topic texts in order to identify areas in which complementarity or joint activities would address the IHI challenges more effectively and efficiently. IHI established close collaborations with other European partnerships, EU Missions, and other EU Programmes and funding instruments, particularly with those supporting the deployment of innovative solutions, education and regional developments, and other relevant programmes and policies at the international, national and regional levels. This notably refers to the continuous interaction with the following initiatives:

- the sister African and European research partnership on infectious diseases, Global Health EDCTP3 JU;
- the Horizon Europe Cancer Mission that aims at providing a better understanding of cancer, allow for earlier diagnosis and optimisation of treatment and improve cancer patients' quality of life during and beyond their cancer treatment;
- the European Rare Disease Research Alliance (ERDERA) to transform rare disease research and care in Europe;
- the European partnership on Transforming Health and Care Systems (THCS) designed to support coordinated national and regional research and innovation programmes along with capacity building, networking, dissemination and other key activities to support health and care systems transformation;
- the European partnership for the assessment of risks from chemicals (PARC);
- the ERA4Health partnership that focuses on tackling diseases and reducing disease burden;

- the European Partnership for Personalised Medicine (EP PerMed), the coordination platform bringing together European as well as international, national and regional ministries and funding organisations, agencies and authorities;
- the European partnership on Innovative SMEs through its two funding programmes, Eurostars and Innowwide;
- the Metrology partnership supporting the acceleration of the transition towards a green, climate neutral and digital Europe;
- the Marie Skłodowska-Curie Actions (MSCA) Staff Exchanges instrument;
- the European partnership on One Health Antimicrobial Resistance (OHAMR);
- the Global Antimicrobial Resistance Research and Development Hub (Global AMR R&D Hub), an international initiative launched during the World Health Assembly of 2018 to facilitate international cross-sector collaboration in antimicrobial resistance research and development, fostering innovation to safeguard global health.

Moreover, IHI regularly met with EC teams leading key European political priorities such as HERA, EU4Health, the Digital Europe programme, the European Health Data Space (EHDS), the EU Biotech Act.

Support for the deployment of innovative solutions, education and regional development being a priority, IHI explored further opportunities with EIT Health (within the Memorandum of Understanding signed in 2023), engaged with EUREGHA, the reference network for European Regional and Local Health Authorities, and a range of regional clusters (such as HARLIC) and reinforced its collaboration with the Health-NCP-Net 3.0 (HNN 3.0), the network of the Horizon Europe National Contact Points (NCPs) in the area of health. In particular, IHI:

- relied on these stakeholders to amplify awareness and promotion of IHI opportunities for regional and local health authorities and ecosystems.
- organised a joint awareness event with EUREGHA and EIT Health. It aimed at promoting and disseminating the activities of the Innovative Health Initiative (IHI), including its planned calls for proposals, towards regional and local health stakeholders. This provided the participants with comprehensive information necessary for increased and meaningful engagement of regional and local authorities and ecosystems in key opportunities offered by IHI to improve and innovate health and care across Europe.
- invited HNN 3.0 to the SRG dedicated workshops such as on in-kind contribution to additional activities and contributing partners.

### 1.6.3 Regulatory engagement

The regulatory environment is key to ensuring that safe and effective health innovations are developed to address public health needs.

In 2024, IHI JU has continued to engage with all relevant regulatory authorities to ensure that regulators' perspective is embedded in the scientific priorities and calls for proposals and that the science generated by IMI and IHI projects is translated into people-centred healthcare solutions. This includes also the input gathered through the representation of regulators in the SIP.

The Programme Office held its first IHI Regulatory Science Summit on 27-28 February 2024. The meeting gathered representatives from medicinal products and medical devices regulatory agencies from Europe and US, notified bodies, industry, the European Commission, the IHI SIP to discuss challenges and opportunities in regulatory science that could be addressed by a cross-sectoral public-private partnership like IHI. The meeting focused on five key areas: rare diseases, paediatrics, real-world data / real-world evidence

(RWD/RWE), artificial intelligence (AI) and regulatory sandboxes. Building on previous Regulatory Science Summit events held under the Innovative Medicines Initiative, this first meeting under IHI fostered dialogue between different sectors/regulatory bodies. Looking at the full spectrum of health innovations/technologies and taking into account the different regulatory frameworks for medicines and medical devices/in vitro diagnostics, participants provided a lot of insights that inform proposed ideas for IHI topics (see IHI Regulatory Science Summit 27-28 February 2024 Report). In particular, the input on regulatory sandboxes was incorporated into IHI call 8, topic 3.

Furthermore, IHI continued to increase the awareness of applicants and project consortia about regulatory needs to be considered when relevant. In particular, the Programme Office released in 2024 a guide for applicants and project consortia on regulatory considerations for IMI and IHI projects with the view to helping applicants and project consortia to maximise the regulatory impact of IHI projects, and optimise regulatory engagement.

In 2024, the IHI Programme Office became a member of the Accelerating Clinical Trials in the EU (ACT-EU) Multi-stakeholder Platform Advisory Group (MSP AG) representing the research funders. The role of this group is to deliver strategic advice regarding the ACT EU workplan, identify stakeholder priorities, deliver operational advice for ACT EU initiatives, and identify experts and engagement methodology. Being part of group provides an opportunity for sharing the experience of IMI/IHI projects with clinical trials**.**

Finally, the IHI Programme Office has continued successful collaboration with the European Medicines Agency (EMA), including through contributions at meeting/workshops e.g. EMA representatives participated in the IHI workshop on real-world data, digital health and artificial intelligence held in October 2024; while IHI contributed to the ACT EU Clinical Trials Analytics Workshop, and an EMA event on Advancing Regulatory Science Research.

### 1.6.4 Patient engagement

Given IHI's objectives, patients remain an essential stakeholder for the programme. Patients bring a unique perspective based on their real-life experience with a disease and are essential partners for many IHI projects. IHI engages with patients and patient organisations in different ways and through a range of different activities. The Science and Innovation Panel, an advisory body to the IHI GB, has a patient representative. The efforts to promote patient engagement under IMI2 have continued under IHI and as of the end of 2024, 65% of IMI2 projects and 60% of IHI projects have patient organisations either as partners in the consortium or represented in advisory boards, ethics advisory boards, or other consultative bodies.

Creating and developing communication channels with patients is instrumental in keeping them engaged and informed about the latest developments in IHI. Throughout 2024, IHI provided updates to patients with news of its activities, calls and events, and highlights from IMI2/IHI projects.

In 2024, IHI also participated in external high-profile events, webinars, and meetings to raise awareness of IHI's goals and achievements while contributing to patient-centred discussions and debates.

#### The IHI Patient Pool

In addition to engaging patients and patient organisations in the work of its projects, IHI continued with its experiment exploring how to involve patients in the administrative work of the office through the patient Pool established in 2023.

In 2024 the IHI Programme Office invited patients from the IHI Patient Pool to perform a variety of roles and tasks including the evaluation of proposals submitted to two IHI calls for proposals (call 4 topic 3 and call 8 topic 4), and monitoring of IMI2 projects (H2O, BEAMER, Gravitate-Health, and Hippocrates). The IHI Programme Office provided one-to-one training and follow-up meetings to patient experts involved after the conclusion of the evaluation and review process.

Members of the Patient Pool were also invited to attend IMI2 project close-out meetings where they had the opportunity to get an overview of how an IMI2 consortium works.

## 1.7 Progress against key performance indicators

The IHI Programme Office tracks the performance, outputs and impacts from IHI and IMI projects via a series of indicators. These are detailed in annexes 6 to 9; here we highlight some of the most significant results.

This section concludes with a summary of the main findings from the external evaluation of IMI2 and IHI, which was published in 2024.

### 1.7.1 Progress against IMI2 and H2020 KPIs

IMI plays a significant role in advancing healthcare innovation in Europe, aligning its work with global health priorities and contributing to Europe's competitiveness. The IMI2 key performance indicators (KPIs) track progress across areas like unmet healthcare needs, project assets, regulatory tools, disease taxonomies, resource accessibility, industry uptake, and stakeholder involvement, showcasing notable achievements and opportunities to shape the future of medical innovation. Where relevant, we also gather data on IMI2 KPIs from IMI1 projects.

The data shows that IMI projects are broadly exceeding their targets, delivering excellent results which are rigorously validated so that they can have a real impact on health research and innovation.

IMI1 and IMI2 projects completed 54 procedures for regulatory acceptance of assets developed (as defined in KPI 3 of Annex 6), showing how the programmes are contributing to regulatory science and moving innovation closer to implementation.

Moreover, IMI performed well in delivering new tools and processes which were implemented by industry participants. With a target of 50, IMI2 projects produced 850 tools and processes that found one or more applications in industrial setting. This figure rises to over 1 000 when including IMI1 projects, underlining the fruitful collaboration of academia, industry, and other healthcare bodies in turning research into real-world applications.

Finally, around three quarters of IMI1 and IMI2 projects are making their outputs available to the wider community. These outputs, which include databases, biobanks and clinical trial networks, support the competitiveness of the entire health sector in Europe.

Overall, an analysis of the IMI KPIs highlights a trend in which IMI projects are not only progressing as planned but, in many cases, exceeding their established targets. The KPIs also underline that innovation and impact take time to materialize, with many project outcomes emerging in the later stages of the project lifecycle and often even beyond their official completion. This pattern reflects the complex and long-term nature of IMI projects, which rely on cross-sector collaboration to drive advances in healthcare research.

### 1.7.2 Progress against JU-specific (IHI) KPIs

The key performance indicators (KPIs) of the Innovative Health Initiative (IHI) track its progress in advancing health innovation and collaboration. Organised into three categories, Resources (inputs) measure stakeholder engagement and cross-sector partnerships, Outcomes track tangible project results like publications, tools, and data innovations, and Impacts assess long-term contributions, such as sustainable infrastructures and alignment with global health priorities. Together, these KPIs provide a framework for evaluating IHI's efforts in driving innovation and addressing healthcare challenges.

IHI has demonstrated initial progress in many of these areas. Below is an overview of the most significant achievements up to now.

#### 1. Resources (inputs)

The involvement of diverse healthcare actors is already notable, with 100% of funded projects (30) involving more than two types of stakeholders. Cross-sectoriality is strong, with 93% of projects (28 out of 30) integrating private entities from two or more healthcare technology sectors. Additionally, 3 projects have already engaged regulators to contribute to new or improved guidelines or methodologies.

#### 2. Outcomes

Although the first IHI projects are still relatively young, five key outputs including tools for studying disease biology and epidemic preparedness, have been developed. Three technology platforms integrating people-centred approaches were also created.

Three projects contributed to new or improved clinical guidelines focused on disease prevention, diagnosis, treatment, and management. In terms of health data management, a federated database has been established to improve health data access and analysis. Additionally, the demonstration of data integration and artificial intelligence has resulted in 2 and 1 pilot projects, respectively. These pilots are significant milestones on the pathway to implementing innovative technologies in healthcare systems.

#### 3. Impacts

One technology platform was established, marking progress in creating sustainable resources that support the translation of knowledge into innovation. Nearly all projects (97%, 29 out of 30) align with World Health Organization (WHO) Health 2020 priorities, emphasising IHI's focus on public health needs.

The progress observed in these areas demonstrates that IHI is advancing in fostering collaboration, creating tools and methodologies, and aligning with international health priorities. Given that the first IHI projects have just started to report, these results are promising initial steps for the programme toward achieving its broader objectives.

### 1.7.3 Progress against general Horizon Europe KIPs

Horizon Europe uses 9 key impact pathways (KIPs) to measure its scientific, societal, and economic impacts evaluated in three moments in time (short, medium, and long-term). While it is still very early to assess the performance of IHI in respect to the 9 KIPs, some key short-term indicators provide an initial insight into their progress.

Scientific contributions, human capital development, and societal engagement through open science and co-creation are notable highlights. However, it is important to note that some data is still unavailable, particularly in the areas of innovation-based growth and R&I mission outcomes. As the Programme matures, it is expected that more comprehensive data will become available, allowing for a clearer picture of its long-term impact. For example, the first IHI project consortia have started to publish their findings. 834 researchers have participated in upskilling activities such as training, mentoring, and mobility, reflecting a strong commitment to capacity-building. All research outputs (open data/publication/software etc.) reported to date have been shared through open knowledge infrastructures, promoting accessibility and collaboration in line with the EU's open science agenda. Economically, IHI has supported the creation or maintenance of 109 full--time equivalent jobs (FTEs), demonstrating its role in fostering employment through R&I activities. Moreover, it has successfully mobilised EUR 324.9 million in co-investments from public and private sources, underscoring confidence in its potential to drive long-term economic growth and innovation.

All IHI projects that have reported to date indicate that they have engaged citizens and end-users in co-creating research and innovation content, ensuring that the outcomes are meaningful and beneficial to society.

### 1.7.4 Progress against common Horizon Europe KPIs for partnerships

IHI has performed well across the key performance indicators (KPIs) shared by all European partnerships. These indicators highlight how IHI is already contributing to key EU priorities. By the end of 2024, 30 IHI-funded projects were in progress, representing a total committed budget of EUR 365.4 million. These investments directly support EU priorities, with 92% aligned to Digital EU, 8% to the Green Deal, and 100% contributing to EU resilience in health.

To accomplish its mission, IHI has fostered strong synergies with European partnerships, EU Missions, and other EU programmes. Since its launch, it has initiated 20 collaborative efforts with European partnerships and EU Missions and 16 cooperative initiatives with other EU programmes (more details on synergies are provided in chapter 1.6 of this report).

IHI aspires to be an open partnership and serve the interests of all relevant stakeholders. Consequently, IHI actively promotes an open and inclusive research environment, welcoming new participants from diverse backgrounds. Its funding calls have attracted 1 663 applicants from 50 countries, leading to 376 newcomer beneficiaries (organisations that had not previously participated in its predecessor program) from 32 countries. Additionally, IHI has successfully engaged 14 international actors (Contributing Partners coming from third countries).

### 1.7.5 External evaluations of IMI and IHI

The European Commission runs evaluations of its research programmes both at the halfway point and after the end of the programme, and in this context a team of experts carried out the final evaluation of the Innovative Medicines Initiative 2 (IMI2) programme and the mid-term evaluation of the Innovative Health Initiative (IHI).

The results of these evaluations, which involved desk research, stakeholder interviews, and case studies, were published in 2024 in a combined report. The report assesses the programmes according to five evaluation criteria (relevance, coherence, efficiency, effectiveness, EU-added value) and four partnership-specific criteria (additionality, directionality, international positioning and visibility, and transparency and openness).

The conclusions of the report are positive, and can be summed up in the following 10 points:

1. **IMI2 exceeded its targets**
   IMI2 delivered ‘substantial achievements’, including thousands of publications, many completed regulatory procedures, plus diverse tools and resources released to the research community.

2. **IMI2 advanced digital health**
   IMI2 made ‘substantial contributions to the field of digital health’ by supporting projects that contribute to the R&D of digital health technologies and their integration into practice.

3. **IMI2 resulted in long-lasting networks**
   The strength of the collaborations nurtured by IMI2 is demonstrated in the number of collaborations continuing after IMI funding has ceased.

4. **IMI/IHI supports the sustainability of results**
   There are numerous examples of consortia that have taken active measures to sustain the novel solutions, assets and approaches developed during projects.

5. **IHI is ahead of the curve**
   Expanding the scope of the organisation to include cross-sector collaboration under IHI means it is still 'ahead of the curve' as a public-private partnership in the field of health research.

6. **The move to IHI makes the partnership stronger**
   The transition from IMI to IHI shows that it's possible to refresh a partnership to strengthen its response to emerging health challenges and capitalise on opportunities in areas of fast-paced innovation.

7. **IHI supports collaboration across sectors**
   Collaborative projects can tackle complex health and healthcare challenges that individual organisations, disciplines or sectors would not be able to address alone.

8. **IHI contributes to key EU policies**
   IHI contributes directly to several EU policies, including Europe's Beating Cancer Plan, the Pharmaceutical Strategy for Europe, the European Green Deal and the new Industrial Strategy for Europe.

9. **IHI is able to drive innovation with potential of high impact**
   Stakeholders confirmed that the public-private partnership is highly relevant and able to drive innovation in novel research areas with the potential of high impact on patient care and quality of life.

10. **The Programme Office is efficient**
    The IHI Programme Office has a strong track record for meeting operational targets such as time-to-inform, time-to-grant, and time-to-pay.

Another report published in 2024 assesses the progress made so far by the wider family of partnerships, including joint undertakings like IHI. Among other things, the Biennial Monitoring Report 2024 highlights the contribution of partnerships to EU priorities such as the green and digital transitions as well as the EU's technological sovereignty and international positioning. On the last two, the report's section on IHI highlights projects on real-world evidence; cancer and big data; paediatric clinical trials; and antimicrobial resistance.

All the reports are available online:

- Interim evaluation of the Innovative Health Initiative (IHI) and final evaluation of the Innovative Medicines Initiative (IMI2)
- Evaluation support study on Horizon Europe's contribution to a resilient Europe
  This study covers the Health cluster of Horizon Europe and includes several references to IMI and IHI
- Evaluation support study on Horizon Europe's contribution to a resilient Europe - Annexes
  Annex 4 includes two case studies on IMI/IHI:
  Case Study No 1: From Innovative Medicines Initiative to Innovative Health Initiative – the early experience
  Case Study No 2: IMI2 and IHI: driving innovation in digital health
- Performance of European partnerships - Biennial monitoring report 2024 on partnerships in Horizon Europe

## 1.8 Dissemination and information about project results

The Programme Office continued to encourage its projects to use the variety of EC tools dedicated to the dissemination and exploitation of project results. As part of these efforts, 7 projects used the Horizon innovation radar as part of the interim review and 3 projects reported using the Horizon results booster.

The IHI office updated its guide on dissemination and exploitation of IHI project results which explains clearly the importance of dissemination of IHI project results and guides project consortia to relevant resources and tools to support their activities in this area.

As part of IHI periodic reporting, all project consortia are requested to provide updates on publications generated and their dissemination activities. Across the 3 programmes (IMI1, IMI2 and IHI), 71 periodic reports were processed in 2024. Each of these reports were reviewed and feedback provided by the office to the consortium members on their dissemination activities and how to maximise the impact of their dissemination activities.

As part of ongoing efforts to harmonise and synergise in this area, IHI worked closely with other JUs on best-practice sharing on KPI monitoring and reporting through the inter-JU working group. This included ad hoc meetings with individual partnerships such as EDCTP3 and CBE, including the sharing of IHI documents and guidance in this area. In addition, IHI was invited to contribute to best practice sharing meetings organised by DG RTD.

IHI also contributed to the second Biannual Monitoring Report (BMR), which monitors the performance of partnerships and that was published in September 2024 featuring the IHI partnership (amongst others).

The IHI Programme Office encourages its project consortia to make their results available to the people that can best make use of them, including for example, the scientific community, industry, other commercial players, policymakers, and more. IHI JU also encourages its consortia to ensure that the results they have generated are taken up and used, translating research concepts into concrete solutions that have a positive impact on the public's quality of life.

### Publications in peer-reviewed journals

IHI and IMI projects regularly publish articles in peer-reviewed journals as a way of disseminating their results and activities. Links to these articles can be found on the projects' factsheets on CORDIS (e.g., EHDEN on CORDIS) and on the projects' own websites (e.g., EHDEN's project website).

To gain a broader overview of the publications funded by IMI and IHI, the Programme Office has been monitoring and analysing the papers coming out of its projects since 2012. The analyses, now carried out by Nature Research Intelligence, demonstrate both the sheer volume and high quality of research taking place for both IMI and IHI projects.

## Analysis of the published output of IHI-funded research projects

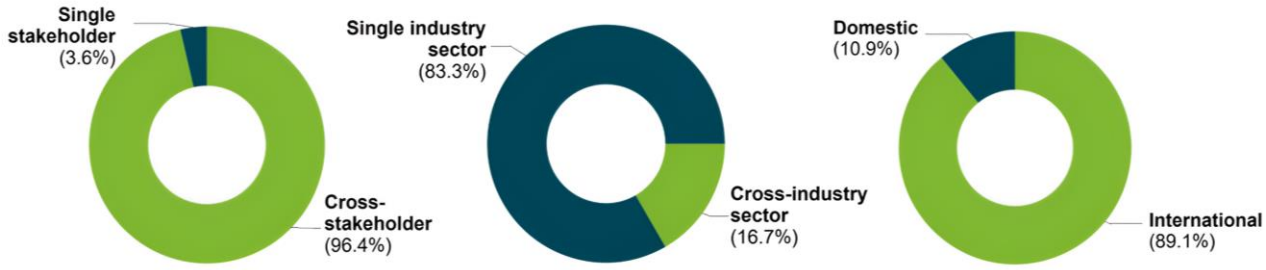
### IHI-funded publications are visible with strong impact

IHI-funded projects have produced **63 publications** to date. These papers, published in the period of 2023-2024, already have an impact that is more than double the world average with a mean field normalised citation impact of 2.11. More than one third of papers (38.2%) are in the top 10% most cited.

| No. publications | No. papers | Total citations of papers | Raw citation impact of papers | Mean field normalised citation impact of publications | Total highly (top 10%) cited papers | % Highly (top 10%) cited papers |
|---|---|---|---|---|---|---|
| **63** | 55 | 257 | 4.67 | 2.11 | 21 | 38.2% |

### IHI research is highly collaborative

IHI research is highly collaborative, and collaborative research produced a higher number of papers compared to non-collaborative research.




- Almost all (96%) of IHI project papers were published by co-authors working across stakeholders.
- The majority (89%) of IHI-funded papers involved international collaborations.
- To date, 17% of IHI project papers have involved collaborations between different industries.

### Project snapshot

| Rank | Project | Total publications | Mean field normalised citation impact |
|---|---|---|---|
| **1** | PROMINENT | 16 | 1.16 |
| **2** | PREDICTOM | 10 | 3.45 |
| **3** | AD-RIDDLE | 7 | 2.19 |
| **4** | IMAGIO | 6 | 2.88 |
| **5** | CLAIMS | 5 | 0.51 |
| **6** | LIVERAIM | 3 | 2.10 |
| **7** | iCARE4CVD | 3 | 1.67 |
| **8** | EDENT1FI | 3 | 0.43 |
| **9** | GUIDE.MRD | 2 | 5.99 |
| **10** | IDERHA | 2 | 0.66 |

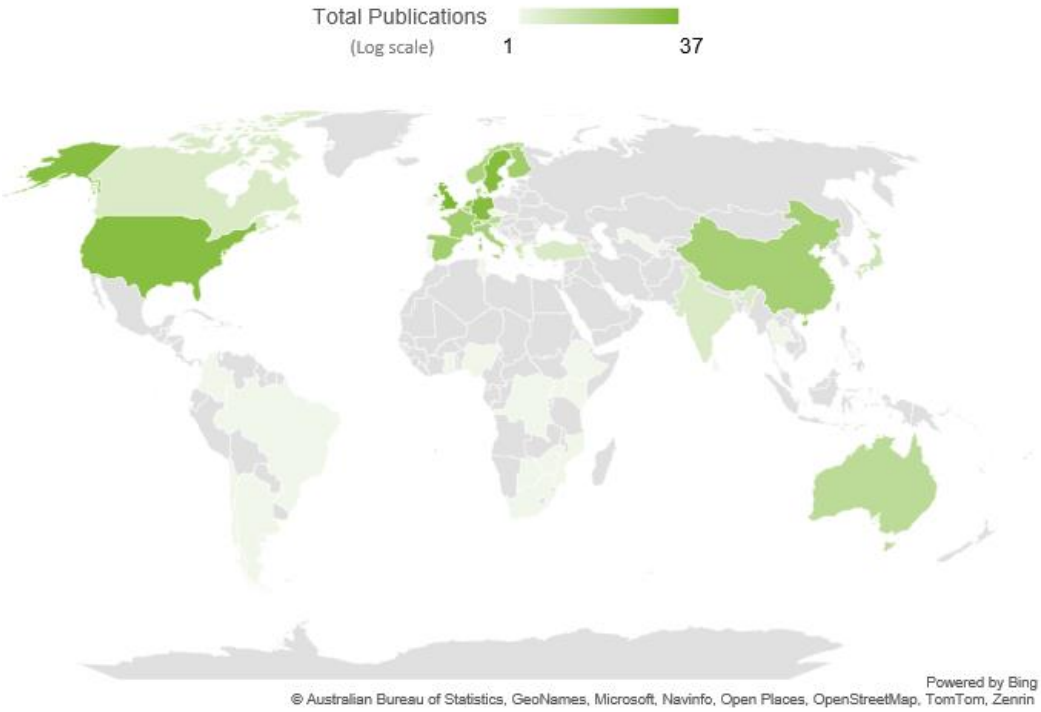
**Journal snapshot**

Between 2023 and 2024, IHI-funded projects released publications in **49 different journals**, with the average journal impact factor for IHI research being 12.60. The average journal impact factor (JIF) for 2024 across 38 journals was 10.16. The top 3 journals by publication volume include *The Journal of Prevention of Alzheimer's Disease* (4 publications, JIF 8.5), *Alzheimer's & Dementia* (3 publications, JIF 13.1), and *EBioMedicine* (2 publications, JIF 9.7).

**Countries with at least 1 publication funded by IHI JU**

The analysis reveals the global reach of IHI's research activities. In total, **50 countries** have at least one publication funded by IHI. There are **10 countries** which have 10 or more publications funded by IHI JU.

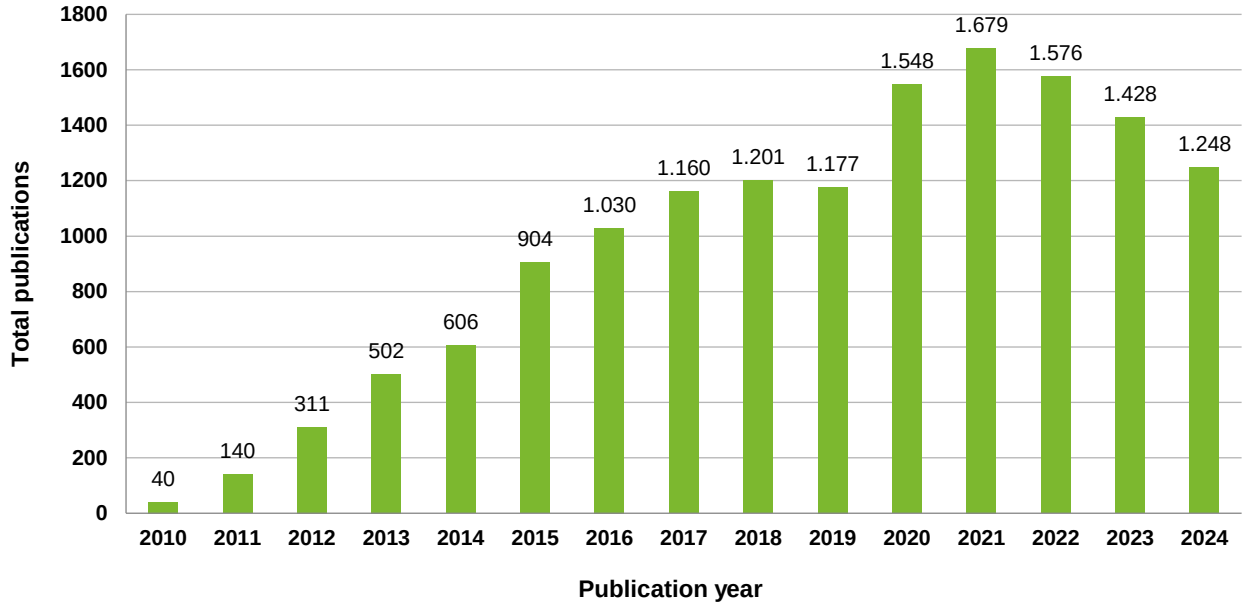
The scale in the graph below encompasses countries that have between 1 and 37 publications. The top 5 countries based on publication output include the *United Kingdom (37), Germany and Sweden (27), the United States of America (26), and the Netherlands (22)*.



## Analysis of the published output of IMI-funded research projects

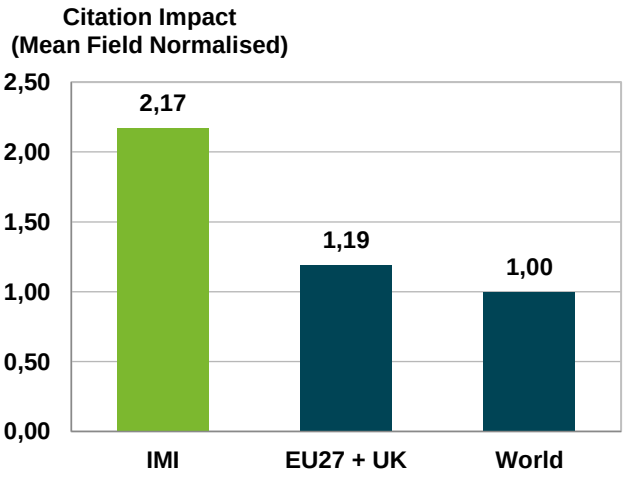
### IMI projects have resulted in more than 14 000 publications to date

IMI-funded projects continue to produce a substantial number of publications, reaching **14 550 publications** to date. In 2024, IMI projects generated 1 248 publications. In the past 5 years, IMI publications have averaged 1 496 publications per year.



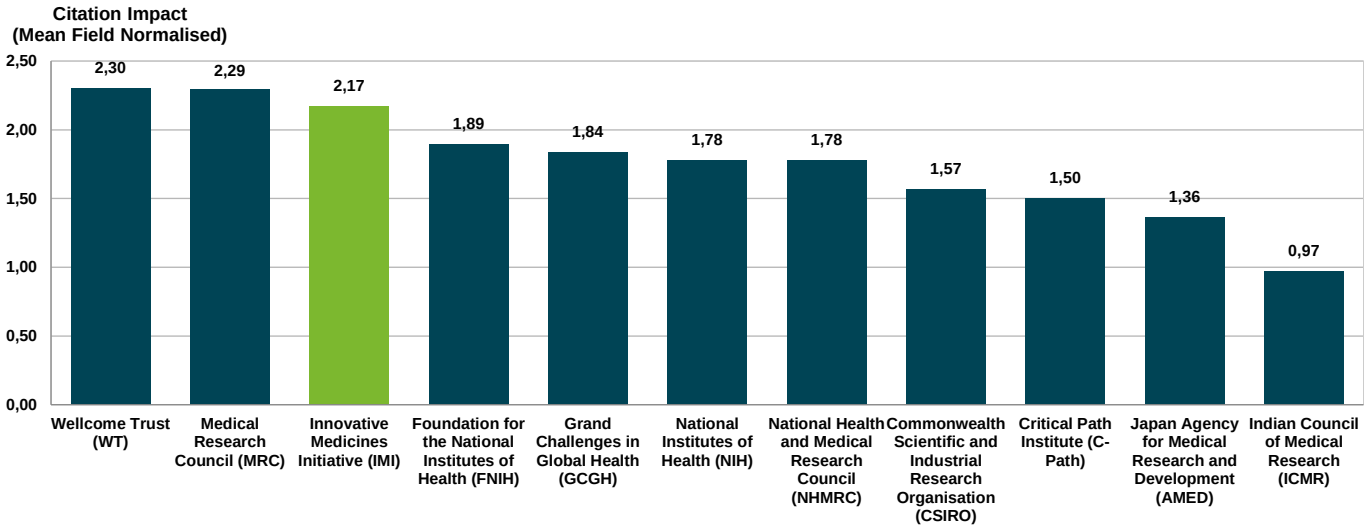

### The citation impact of IMI research is higher than EU countries and world averages

IMI publications had a mean field normalised citation impact score of 2.17, more than double the world average and exceeding the citation impact of research from the 27 EU countries and the United Kingdom (EU27+UK – 1.19) by almost double.



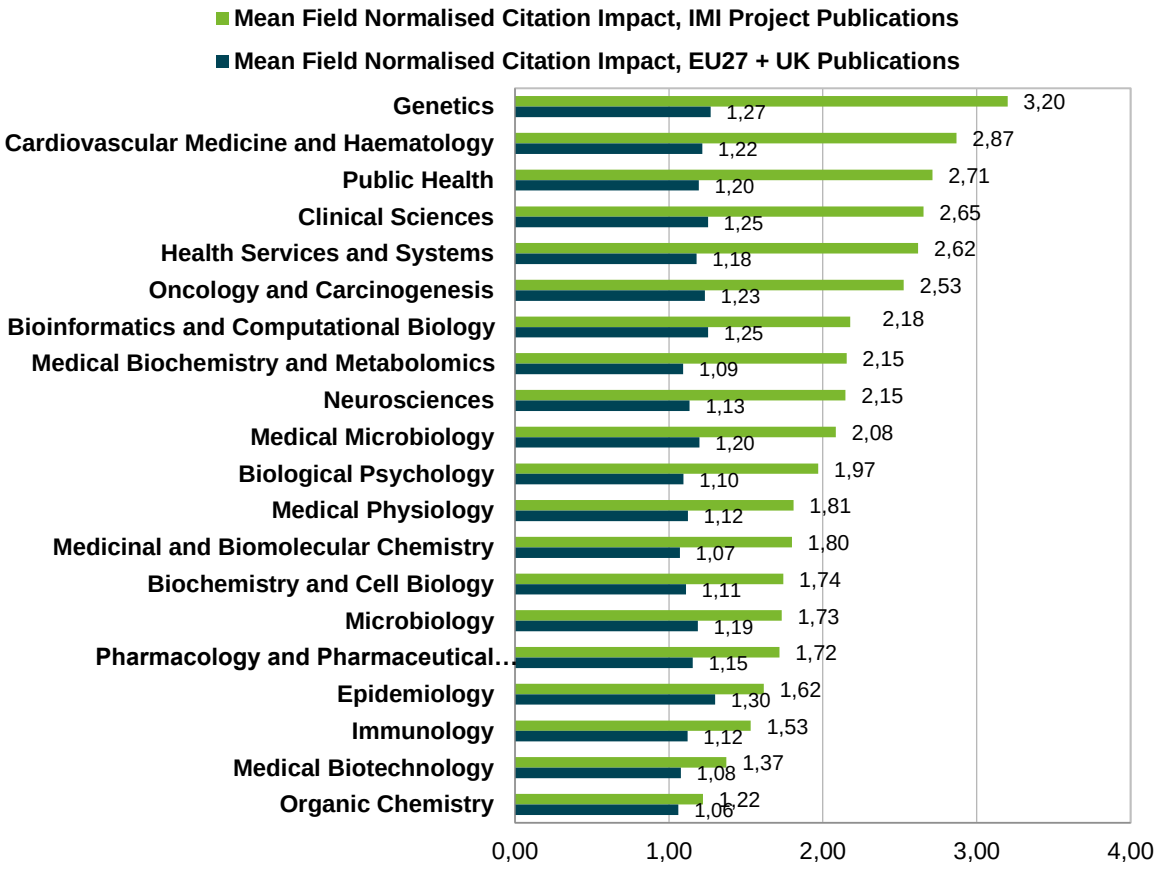
**The citation impact of IMI research ranks highly among top global funders**

IMI also compares favourably with major international life-science funding organisations such as the Medical Research Council (MRC), the Wellcome Trust (WT), and the Foundation for the National Institutes of Health (FNIH). This is consistent with the results of previous years and demonstrates that IMI continues to uphold a high standard.




**In all fields, IMI research has a higher citation impact than the EU27+UK average**

As shown by the graph below, IMI research is published in a range of fields within the biomedical sector. In almost all fields, IMI research has a higher citation impact than the EU27+UK average. This is most notable in the fields of genetics, cardiovascular medicine and haematology, public health, clinical sciences, health services and systems, and oncology and carcinogenesis, where the IMI citation impact is between 3.20 and 2.53.



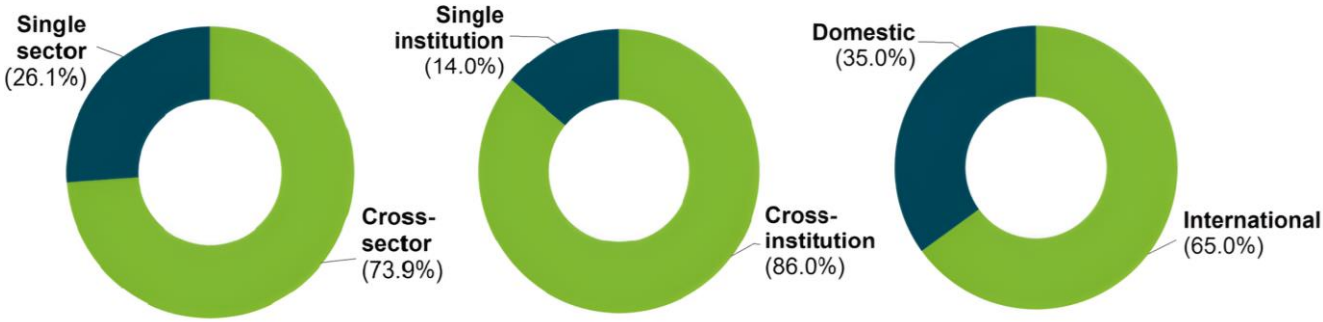

Other key facts and figures revealed by the latest analysis include the following:

- The internationally collaborative nature of IMI is reflected in the authorship of the papers, with 65% of publications recording authors from more than one country.
- 30.8% (n=4 067) of papers from IMI projects are ‘highly cited’, meaning they are in the top 10 % of papers by research field, document type, and year of publication.
- IMI projects have been published in 2 051 journals to date, and the average journal impact factor for IMI research is 6.06. The average journal impact factor for 2024 across 549 journals was 7.67.
- Journals with a particularly high impact factor that have published IMI research include Nature Reviews Drug Discovery, The British Medical Journal (BMJ), New England Journal of Medicine, The Lancet, Nature Reviews Molecular Cell Biology, Nature Reviews Clinical Oncology, Nature Reviews Disease Primers, Nature Reviews Cancer, Nature Reviews Microbiology and Nature Reviews Immunology.

### IMI research is highly collaborative

IMI research is highly collaborative; IMI collaborative research produced a higher number of papers compared to non-collaborative research.

- About three-quarters (74%) of all IMI project papers were published by co-authors working in different sectors (such as academia, companies, government, hospitals).
- The majority (86%) of IMI project papers involved collaborations between different institutions.
- Almost two-thirds (65%) of all IMI project papers involved international collaborations.




**Project snapshot – top 10 projects by number of publications**

Going by the number of papers produced, the most prolific projects are unsurprisingly the older ones. The table below shows the top 10 projects, ranked by number of papers produced. As shown in the table below, the mean normalised citation impact scores range between 1.45 and 3.12.

| Rank | Project | Total publications | Mean Field Normalised Citation Impact |
|---|---|---|---|
| **1** | EU-AIMS | 818 | 2.02 |
| **2** | BTCure | 800 | 1.70 |
| **3** | AIMS-2-TRIALS | 604 | 2.56 |
| **4** | ULTRA-DD | 487 | 1.93 |
| **5** | BigData@Heart | 476 | 3.12 |
| **6** | EMIF | 464 | 2.69 |
| **7** | EUbOPEN | 373 | 1.97 |
| **8** | INNODIA | 306 | 1.45 |
| **9** | RTCure | 283 | 2.80 |
| **10** | NEWMEDS | 273 | 2.27 |

**Journal snapshot – top 10 journals by number of publications and journal impact factor (JIF)**

Between 2010 and 2024, IMI projects released publications in **2 051 different journals**. The following table shows the top 10 journals by descending order of IMI publications.

| Rank | Journal | JIF (2023) | Total publications | Total citations |
|---|---|---|---|---|
| **1** | Annals of the Rheumatic Diseases | 20.3 | 280 | 12 285 |
| **2** | Scientific Reports | 3.8 | 263 | 9 690 |
| **3** | PLOS ONE | 2.9 | 237 | 8 333 |
| **4** | Nature Communications | 14.7 | 214 | 20 664 |
| **5** | Frontiers in Immunology | 5.7 | 174 | 3 672 |
| **6** | Journal of Medicinal Chemistry | 6.9 | 122 | 3 621 |
| **7** | Diabetologia | 8.4 | 121 | 5 040 |
| **8** | Alzheimer's & Dementia | 13.1 | 112 | 5 738 |
| **9** | International Journal of Molecular Sciences | 4.9 | 110 | 2 778 |

| | | | | |
|---|---|---|---|---|
| **10** | Diabetes | 6.2 | 101 | 3 087 |

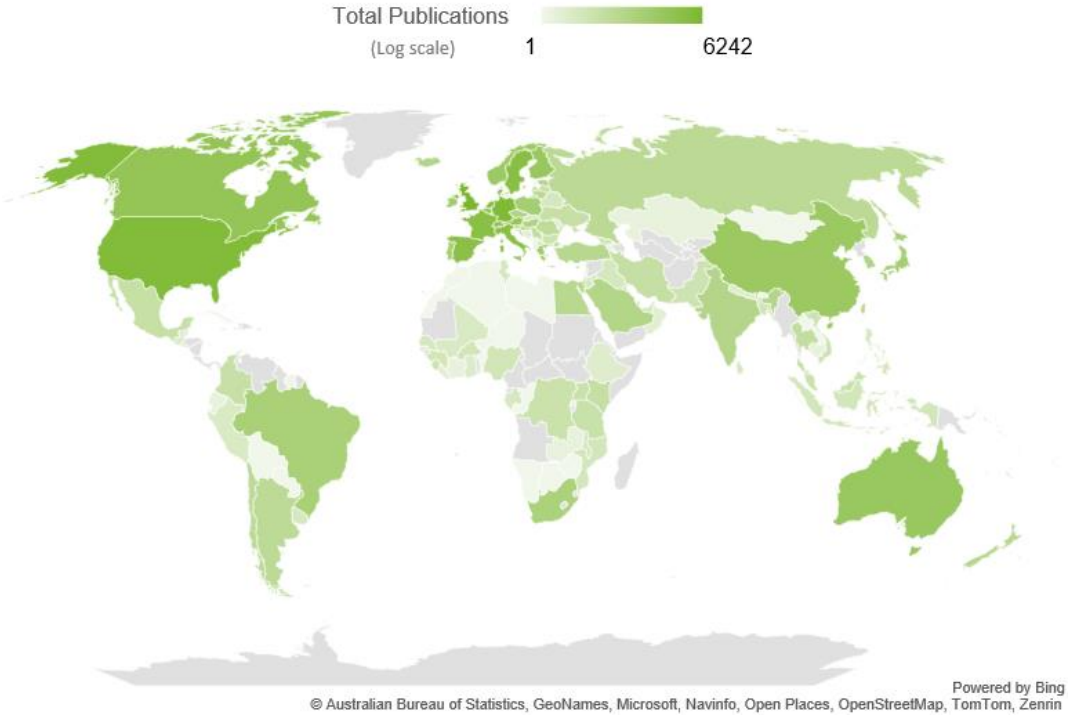
The table below demonstrates the top 10 journals by JIF in which IMI projects have published.

| Rank | Journal | JIF (2023) | Total publications | Total citations |
|---|---|---|---|---|
| **1** | Nature Reviews Drug Discovery | 122.8 | 20 | 3 610 |
| **2** | The Lancet | 98.4 | 23 | 7 952 |
| **3** | New England Journal of Medicine | 96.3 | 4 | 1 274 |
| **4** | The BMJ | 93.7 | 17 | 2 842 |
| **5** | Nature Reviews Molecular Cell Biology | 81.4 | 2 | 599 |
| **6** | Nature Reviews Clinical Oncology | 81.1 | 11 | 8 676 |
| **7** | Nature Reviews Disease Primers | 79 | 3 | 4 032 |
| **8** | Nature Reviews Cancer | 72.5 | 2 | 611 |
| **9** | Nature Reviews Microbiology | 69.2 | 3 | 1 518 |
| **10** | Nature Reviews Immunology | 67.7 | 5 | 1 256 |

**IMI has a global reach – countries with at least 1 publication funded by IMI**

The analysis also reveals the global reach of IMI's research activities. In total, **133 countries** have at least one publication funded by IMI. There are **71 countries** which have 10 or more publications funded by IMI.

The scale used in the graph below shows countries that have between 1 and 6,242 publications. The top 5 countries based on publication output include the United Kingdom (6 242), Germany (4 551), the Netherlands (3 827), the United States of America (3 589), and Sweden (2 272).



# 2 Support to operations

## 2.1 Communication activities

In 2024, the IHI Communication Policy continued to be implemented. This year, the communications team prioritised the promotion of the new calls for proposals – focusing on engaging new audiences as well as attracting existing IHI stakeholders to apply for the new calls. Clear communications around call 9 have been particularly important as it is the first time that IHI or IMI has launched an applicant-driven call.

### Engaging stakeholders in calls for proposals

Providing timely information about IHI funding opportunities and clearly communicating our rules and procedures is essential for potential applicants to decide whether and how to apply for funding. Never has this been more true than in the case of call 9, as the novel applicant-driven approach marks a departure from earlier calls.

While previous IHI calls for proposals set out the challenges to be addressed, IHI call 9 invited applicants to identify opportunities in the IHI SRIA and turn them into proposals for IHI projects. To ensure proactive and effective engagement with the widest number of potential applicants, IHI made use of an efficient mix of communication and engagement activities, channels and tools to inform, connect and promote Call 9.

- **Inform:** as it is applicant driven, the approach of Call 9 was not only novel, but required a higher level of effort from the applicants' side. Ensuring that potential applicants were well-informed about this pilot at an early stage of the process became the first building block in the comms strategy. IHI published and disseminated information on the call almost four months ahead of the call launch and immediately organised an info session, Preparing for IHI call 9, to explain how to write a competitive proposal and how to use the new brokerage platform. Subsequently, the team prepared an FAQ based on the questions raised by the participants.

- **Connect and share:** IHI projects are highly collaborative - to facilitate interactions between potential applicants and create opportunities to connect and openly share project proposals was the second building block put in place by the Programme Office. To that end, IHI set up an online networking platform and held a face-to-face brokerage event, which included pitches and posters. By working jointly with NCP WIDERA.NET, IHI made sure that participation from interested stakeholders from the widening member states was supported.

- **Promote:** the team promoted call 9 and the brokerage platform and event via a suite of communications materials and channels, including the website, mailshots, newsletter and printed materials for use at events. A dedicated social media campaign highlighted different aspects of the call, combining promotion with information.

As a result of this comprehensive approach, IHI was engaging with a vast, targeted and interested audience in 2024 in advance of the call launch, which took place on 16 January 2025.

Although providing potential applicants with timely information about call 9 was a key strategic priority, the communications team continued to engage in promoting and providing information for the three calls launched in 2024. Thirteen webinars were organised as part of the IHI Call Days for calls 6, 7 and 8, featuring information sessions on all nine call topics as well as on our rules and procedures and the financial aspects of the proposal, reaching out to over 2 700 participants. For call 7, three pitching sessions (one per topic) were also run, allowing 80 pitchers to showcase themselves as potential project coordinators or partners. 1 440 people registered for these pitching sessions.

**External info sessions**

IHI regularly supports outreach events set up by public and private organisations in the Member States. These offer unique opportunities to present IHI calls and explain how to engage with the IHI community. In 2024, IHI staff contributed to the following info sessions:

| Date | Organiser | Event name | Location |
|---|---|---|---|
| 17.01.2024 | Agência de Investigação Clínica e Inovação Biomédica (AICIB) | Portuguese National IHI InfoDay | Online |
| 25.01.2024 | National Documentation Centre (EKT) and Biomedical Research Foundation Academy of Athens | Information Day on the Innovative Health Initiative | Online |
| 26.02.2024 | APRE & Confindustria dispostivi medici, Farmindustria e Assobiotec | Opportunities in IHI: the Public Private Partnership calls 6 and 7 | Milano, IT |
| 29.02.2024 | CDTI | IHI Infoday– Calls 6 and 7 | Madrid, ES |
| 13.03.2024 | DIA Europe | IHI session: "IHI in a nutshell" How companies can shape and join projects under IHI and share the experience of the IHI single stage pioneers in building IHI partnerships | Brussels, BE |
| 19.04.2024 | National Documentation Centre (EKT) and Biomedical Research Foundation Academy of Athens | Information Day on the Innovative Health Initiative | Athens, EL |
| 22-23.05.2024 | MedTech Forum | Learn from the best: some IHI winners sharing their experiences IHI: 50 min to quit being a dummy | Vienna, AT |
| 05.06.2024 | INSERM | IHI info day Call 8 | Online |
| 4/6.11.2024 | BIO Europe | How and why to apply for competitive EU research grants | Stockholm, SE |
| 1.07.2024 | CDTI | IHI Call 8 Info Day | Online |
| 03.10.2024 | TOUR4EU – Tuscan Organisation of Universities and Research for Europe | Info day - Training course region Toscana Universities | Brussels, BE |
| 06.11.2024 | CDTI, Farmaindustria, Asebio, FENIN | Innovative Health Initiative. Analysis and future | Madrid, ES |
| 09.11.2024 | Łukasiewicz – PORT, Polish Industry Contact Point Medical Technologies and Health | Polish Study Visit- networking session | Brussels, BE |
| 03.12.2025 | Mission affaires européennes et internationales France, groupe miroir Cancer | Webinaire d'information Innovative Health Initiative | Online |
| 10.12.2024 | Agence pour l'innovation et la Santé France | Session d'information IHI | Brussels, BE |

### Highlighting project successes

When communicating about project results, IHI has taken a two-pronged approach: focusing on portfolio and individual success stories.

1. The Programme Office published 38 news articles from January to December to share individual project success stories. Whenever possible, the publication of these articles sought to enhance strategic internal or external objectives. For instance, two stories about IMI's work on vaccines were published to coincide with World Immunization Week. The LinkedIn post promoting the news story on Inno4Vac's work on vaccine stability had 2 287 impressions, 53 clicks and 37 reactions, while the LinkedIn post promoting the news story on PERISCOPE's work towards advancing a pertussis vaccine had 2 853 impressions, 49 clicks and 45 reactions. All news articles were published in the newsroom section of the IHI website, promoted on social media, and featured in the newsletter.

   IHI's media partnerships with Science Business allowed the further promotion of 12 articles via the Science Business website, newsletter, and social media accounts.

   Project achievements were also discussed in detail by their leading scientists during two lively online events that are part of a series designed for a wider, general audience. While the In conversation... with EBISC2 event showcased how to build on the achievements of the IMI project EBISC and make a stem cell line biobank self-sustaining, in the In conversation with... RT Cure webinar the focus was on how to detect arthritis earlier and prevent it.

   In order to maximise IHI's potential as a sounding board, in 2024 the Programme Office started the LinkedIn roundup posts, done once per month to capture results from projects that cannot be covered in more depth. The 9 round-up posts published in 2024 had an average of 1 765 impressions, which is higher than the usual average number of impressions for an IHI post (1 256).

2. To illustrate how the research IHI funds is having a real impact in tackling a particular global health challenge, the Programme Office combines two communication activities: the thematic health spotlight webpages and the IMI impact series events, where several IMI projects are invited to discuss the relevance of their research. In 2024, two new topics were added to the collection: IMI impact on antimicrobial resistance and IMI impact on mental health disorders.

### Demonstrating IHI's alignment with its purpose

To ensure the transparency of our activities and processes, IHI published on the website information and statistics on the outcomes of the evaluations of the IHI Calls 5, 6, 7 and 8 as well as the independent observers' reports. To close the loop, the Programme Office also highlighted the planned research of the newly granted projects through project factsheets and news articles.

Throughout the year, certain stories were told in the format of social media campaigns. These were strategically chosen where short concise messages would tell a story best or where IHI had a key message or success story relevant to an international campaign.

One such campaign was IHI's LinkedIn carousel on "10 things we learned from the evaluations." Based on the findings of the IMI2 final evaluation and the IHI interim evaluation carried out by the European Commission, the campaign pulled 10 key learnings from the evaluation report and showcased them as a carousel on LinkedIn. The campaign scored 2 423 clicks, making it the most-clicked post of IHI in 2024, as well as 5 479 impressions and 71 likes.

To support the International Day for Women and Girls in Science, IHI reached out to several prominent women working on IMI projects and in IHI governance bodies, who shared their experience and ideas. The campaign spanned a week in total and successfully showcased IHI's women scientists to the wider community as well as highlighting the gender balance in IHI's governance bodies. On LinkedIn, the campaign was engaged with 139 times and 49 people clicked through to the website.

The Data and Digital workshop, held in autumn 2024, provided a neutral platform for organisations taking part in IHI to engage in frank discussions about the future and identify key challenges and opportunities that could be addressed as part of public-private projects. A report was produced highlighting the main discussion points and key take-aways.

**External events**

IHI is committed to engaging with the wide health research community across the EU and beyond. In 2024, staff represented IHI in 36 third-party events and meetings. In two of them, DIA Europe and BIO Europe, the IHI team had a booth at the events exhibition.

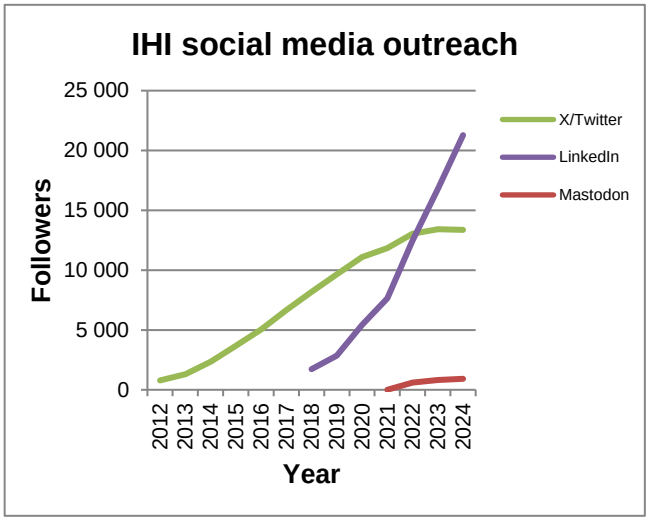
| Date | Organiser | Event name | Location |
|---|---|---|---|
| 25/26.01.2024 | European Commission, the European Medicines Agency (EMA) and Heads of Medicines Agencies (HMA) | ACT-EU Clinical trials Analytics multi-stakeholder Workshop | Amsterdam, NL |
| 09.02.2024 | EMA | Myocarditis research agenda | Online |
| 29.02.2024 | BBMRI | BBMRI 10th Anniversary | Brussels, BE |
| 05.03.2024 | LUMI Consortium event | AI and health including opportunities provided by HPC centres and large datasets | Brussels, BE |
| 26.03.2024 | World Dementia Council | WDC Summit | London, UK |
| 03.04.2024 | Edelman Global Advisory | Shaping the future of healthcare in Europe: looking ahead to the new EU political cycle) | Online |
| 19.04.2024 | EIT Health summit | AI Act | Rotterdam, NL |
| 15.05.2024 | Photonics21 | Photonics Partnership Annual Meeting 2024 | Brussels, BE |
| 28.05.2024 | Belgium presidency | The convergence of technologies enabling R&I for the healthcare of the future | Brussels, BE |
| 30.05.2024 | EU NTC | Navigating tomorrow: Insights on Horizon scanning and Public-private collaborative support strategies | Amsterdam, NL |
| 3-5.06.2024 | BIO International Convention | IHI session: 'Breaking the Rare Disease Deadlock through Multi-Stakeholder Collaboration' | San Diego, US |
| 24.06.2024 | Children's Tumor Foundation | 2024 Global NF Conference | Brussels, BE |

| | | | |
|---|---|---|---|
| 11.09.2024 | BY-COVID | IHI Lessons-learned, challenges during the pandemic and any upcoming actions around infectious diseases and pandemics | Brussels, BE |
| 19.09.2024 | European Commission, ERA Forum | R&D policy to leverage industrial transformation and competitiveness | Brussels, BE |
| 24.09.2024 | Hanseatic Life Science Research Infrastructure Consortium (HALRIC) | 2024 HALRIC conference | Hamburg, DE |
| 24.09.2024 | EMA Pharmacogenomics | Multi-stakeholder workshop on Pharmacogenomics | Amsterdam, NL |
| 26.09.2024 | EUPATI | EUPATI's mission for education in the evolving landscape | Brussels, BE |
| 03.10.2024 | Alzheimer's Association | Capital for the Cure: Investing in Alzheimer's Innovations | Lausanne, CH |
| 09.10.2024 | European Commission, Cancer Subgroup under the Public Health Expert Group | Overview of IMI/IHI contribution to the Cancer Plan | Brussels, BE |
| 10.10.2024 | EDHEN | EDHEN Symposium | Barcelona, ES |
| 22.10.2024 | ACT-EU Multi-stakeholder platform Advisory Group | ACT-EU Multi-stakeholder platform annual meeting | Amsterdam, NL |
| 23.10.2024 | EFGCP | Better Medicines in Children Conference | Brussels, BE |
| 24.10.2024 | Quinz Law Firm | The Government's Role in Driving Pharmaceutical Innovation | Online |
| 29.10.2024 | Inspire2Live | Annual Congress | Amsterdam, NL |
| 30/31.10.2024 | Vaccine Congress | Why are PPPs so important for vaccine development and how do we sustain them? | Barcelona, ES |
| 05.11.2024 | European partnership Innovative SMEs & PermRep of Germany to the EU | Innovative Europe. A high-level policy debate on SMEs and their crucial role as drivers of European competitiveness | Brussels, BE |
| 13.11.2024 | European Brain Council | Brain Innovation days<br>Session: Harnessing AI for brain health: lab to market to society + interview on IHI | Brussels, BE |
| 14.11.2024 | International Diabetes Federation | Advancing Cell Therapy for Type 1 Diabetes | Brussels, BE |
| 18.11.2024 | Advancing Regulatory Science Research | European Platform Regulatory science research | Amsterdam, NL |
| 19.11.2024 | Nordic Health Data Summit | The Nordics-Baltics for cross-country cooperation in health data | Brussels, BE |

| | | | |
|---|---|---|---|
| 20.11.2024 | Politico | Health Care Summit | Brussels, BE |
| 27.11.2024 | Joint Programming Neurodegenerative Diseases | JPND final symposium | Brussels, BE |
| 29.11.2025 | THCS | THCS annual conference | Brussels, BE |
| 02.12.2024 | EU4Health Impact and Integration | How quantum computing and AI can revolutionize life sciences | Brussels, BE |
| 4-5.12.2025 | EC-RTD/EU-Learn | Partnerships Stakeholder Forum | Brussels, BE |
| 10.12.2024 | European Parliament | Lunch debate -Dementia research as a European priority | Brussels, BE |

### Establishing the brand and raising awareness of IHI's core identity

During 2024, IHI continued to increase its visibility amongst the health research community. The number of recipients of the IHI monthly newsletter grew by 21% in the course of 2024, with 9 705 subscribers being regularly informed about IHI's corporate developments and news from our projects.




The graph on social media outreach shows a fast-growing audience in IHI's LinkedIn channel, paired with a stagnation of Twitter followers over the last two years, a testimony of the difficult situation faced by the platform since 2022.

Looking at the type of people that follow IHI´s LinkedIn account, one can observe a balanced increase across all followers. IHI followers still come primarily from academia, including research centres and higher education (19.6%), large industry (mainly composed of 14.3% from the pharmaceutical manufacturing sector and 3.2% from the medical equipment manufacturing sector) and the biotechnology research field (10.4%).

On corporate communication, 2024 included some institutional milestones: the new Executive Director taking up office in January and the grant signature of IHI´s project number 200. The Programme Office produced a short video featuring the new Executive Director which was viewed 4 705 times on LinkedIn, and scored 106 reactions, 176 clicks and 16 reposts. IHI's 200th project post also performed well on LinkedIn, with 4 501 impressions, 102 clicks and 92 likes. It was reposted 17 times. On a more festive note, IHI turned 3 this year and the Programme Office celebrated it with a Happy Birthday carousel, which gained 4 140 impressions, 1 401 clicks and 143 reactions, making it one of the best performing posts of 2024.

Corporate information was also shared through IHI's Infodesk mailbox. IHI received 287 requests for information from interested stakeholders that were responded to in a timely fashion by the service responsible.

### Anticipating and countering criticism

Through continuous monitoring, the communications team remained alert to issues that could damage IHI's reputation. As in previous years, IHI performed a content analysis to measure the tone of both news coverage and X engagement. For the press, the tonality for mentions of IMI was neutral in 95% of news items, while the content of around 5% of the pieces was positive. As for IHI, the tonality was recorded as neutral in 90% of news items and positive in 10%. Neither of the two programmes attracted negative coverage. On X, more than half of all posts about IHI were positive in tone, with the rest being largely neutral and just a small proportion having a negative tonality.

### Unlocking IHI partners' potential as multipliers

The IHI Office holds regular meetings with the IHI Comms Task Force, where discussions are held about IHI's plans for communications activities that are relevant to the partners and the partners can share information about how to better communicate with their communities. The Comms Task Force links IHI with key communications personnel from IHI's partners and this collaboration enables the multiplication of efforts – for instance, IHI's communications materials are widely shared by the accounts of IHI's member organisations.

IHI staff regularly participated in events suggested or organised by the members in 2024, with a view towards encouraging various communities to become active in IHI's activities or apply to our calls. For instance, together with MedTech Europe, the Office organised IHI's participation in MedTech Forum, the largest health and medical technology industry conference in Europe. The Forum featured two sessions on IHI and the IHI team had a stand at the exhibition.

With an emphasis on case studies, IHI and EFPIA organised the Masterclass – how to unlock the potential of data sharing in collaborative projects, an interactive session designed to introduce the Data Sharing Playbook to Horizon Europe project partners to practical tools and resources to share data with confidence when working in collaborative consortia. Interest was high on the day with 660 registrations to the masterclass and continued throughout the year as proved by the 492 downloads of the playbook from IHI's website.

## 2.2 Legal and financial framework

During 2024, IHI implemented the Council Regulation establishing IHI (Council Regulation (EU) 2021/2085), while continuing to manage projects launched under the IMI1 and IMI2 programmes (Council Regulations (EC) 73/2008 and (EU) 557/2014 respectively).

Regulation (EU, Euratom) 2024/2509 on the financial rules applicable to the general budget of the Union (recast) entered into force on 29 September 2024 and is applicable as from 30 September 2024.

## 2.3 Budgetary and financial management

### 2.3.1 Total budget 2024

IHI JU's total budget for 2024 was **EUR 269 779 145** in commitment appropriations (CA) and **EUR 205 697 059** in payment appropriations (PA). The budget execution of the commitment appropriations and the payment appropriations reached **65.56%** and **94.63%** respectively.

The IHI JU's budget is divided into three titles:

- Title 1 covers staff expenditure such as salaries training costs associated with recruitment procedures, missions and staff well-being.
- Title 2 covers the costs associated with functioning of IHI such as renting of premises, IT needs, meetings, expenses related to external communication and studies.

Titles 1 and 2 together form the administrative expenditure.

- Title 3 covers IHI's operational activities.

The IHI Governing Board approved the 2024 budget on 14 December 2023. The budget approved was EUR 189 680 000 in commitment appropriations and EUR 197 951 000 in payment appropriations. The payment appropriations included carry overs from previous years of EUR 22 271 000. The budget was subsequently amended during 2024.

The budget amendment was approved by the Governing Board on 21 June 2024. The commitment appropriations were adjusted to include the carry overs from the previous years of EUR 72 353 086. The total budget approved was EUR 262 033 086 in commitment appropriations and EUR 197 951 000 in payment appropriations.

Additionally, the total assigned revenue for 2024 was EUR 7 746 059 in commitment appropriations and an equal amount in payment appropriations.

### 2.3.2 Operational expenditure

The operational budget for 2024 was **EUR 259 972 450** in commitment appropriations (CA) and **EUR 195 890 364** in payment appropriations (PA). The operational budget execution, of the commitment and payment appropriations, reached a level of **64.51%** and **94.94%** respectively.

IHI JU's operational budget (Title 3) reflects expenses linked to the implementation of the IHI JU's Strategic Research and Innovation Agenda. Here it should be noted that, since November 2021, the Programme Office has managed three programmes in parallel:

#### IHI JU (under Horizon Europe, HE)

Starting from 30 November 2021, the IHI JU managed a third programme, Horizon Europe.

As set out in the 2021 Council Regulation establishing IHI JU, the EU has committed to contribute EUR 1.170 billion from Horizon Europe to the IHI JU programme, for operational activities.

The IHI JU industry partners have committed up to EUR 1 billion to IHI JU, and furthermore up to EUR 200 million can be committed by other organisations that decide to support the objectives of IHI in specific areas of research, by becoming contributing partners.

In 2024, IHI JU committed EUR 167 697 848 from the operational budget of EUR 259 972 450. This budget was allocated to the sixth, seventh, and eighth calls for proposals under Horizon Europe, with commitments of EUR 24 600 000, EUR 95 000 000, and EUR 47 550 000, respectively. Furthermore, EUR 500 000 was allocated to commitment of evaluation experts and EUR 47 848 was allocated to the IMI2 programme for project regularisations.

A significant portion of the unused 2024 budget (EUR 71 211 094) was carried over from the first three Horizon Europe calls, launched in 2022. The transition from Horizon 2020 (IMI2) to Horizon Europe (IHI) was challenging for a number of reasons. The expanded scope of IHI meant reaching out to new stakeholders, and new rules (in particular the introduction in IHI of a new eligibility criterion requiring applicants to bring at least 45% of their total proposed costs as in-kind contributions from private members) proved challenging for the community. This resulted in undersubscription in the first IHI calls. In addition, from the start of the new partnership, the budget of EUR 100 000 000 planned for 2021 had to be carried over to 2022 due to the adoption of the SBA only in November 2021.

The ability to use the carry overs has been complicated by the EU-UK 2024 agreement by making UK entities ineligible to access those from the 2021-2023 financial years. As UK entities remain highly engaged in the IHI JU programme, and the majority of consortia selected for funding under IHI contain UK entities, the inability to access these carry overs for use with these consortia has hindered IHI JU's efforts to utilise them.

IHI JU is actively working with the European Commission to identify potential solutions to consume these carry overs.

### IMI2 (under Horizon 2020, H2020)

As initially set out in the 2014 Council Regulation, the European Union has committed to contribute EUR 1.595 billion from H2020 to the IMI2 programme, for operational activities. At the end of 2021, the total EU commitments available at programme level over the lifetime of the IMI2 JU (2014-2021) for operational activities amount to EUR 1.4566 billion:

| | |
|---|---|
| EUR 1.595 billion | (as initially set out in Council Regulation 557/2014) |
| - EUR 139 million | (reduction in 2019) |
| - EUR 6.7 million | (redeployment to climate related activities under Horizon 2020) |
| + EUR 7.3 million | (50% of unused commitments since 2014, transferred from the administrative budget to the operational budget) |
| = EUR1.4566 billion | total EU commitments available at programme level over the lifetime of the IMI2 JU (2014-2021) for operational activities at the end of 2021 |

In 2024, payments related to H2020 projects amounted to EUR 113 246 214. The payment appropriations related to H2020 were mainly used by interim and final payments for projects of IMI2 Calls 1-23.

#### IMI1 (under the Seventh Framework Programme, FP7)

FP7 was the EU's research and innovation funding programme for 2007-2013. Through FP7, the EU contributed EUR 966 million to the IMI1 research programme.

In 2024, there were no payments related to FP7 projects.

### 2.3.3 Administrative expenditure

In 2024, the total administrative budget was EUR 9 806 695 in commitment appropriations (CA) and an equal amount in payment appropriations (PA). The budget execution reached a level of 93.38% and 88.40% respectively.

This indicates strong performance in managing administrative expenses (Titles 1 and 2) throughout 2024, a result of proactive budgeting and consistent monitoring.

- Title 1 budget execution was 94.44% in commitment appropriations and 91.86% in payment appropriations.
- Title 2 budget execution was 91.17% in commitment appropriations and 81.01% payment appropriations.

A substantial portion of the Title 2 budget was allocated to expenses related to rent, IT infrastructure, meetings, workshops, communication activities, research studies. These expenditures primarily supported the management of the three ongoing research programmes.

Throughout the year, IHI JU adhered to sound financial management practices, resulting in several budget transfers between budget chapters to align with evolving operational needs. To address the increased demand for IT resources, a budget transfer of EUR 71 464 was approved from Title 1 to Title 2 at the end of 2024.

## 2.3.4 Overview of the total budget 2024 in EUR

### IHI JU statement of revenue 2024 (EUR)

The table below shows the statement of revenue, per nature of revenue, indicating EFTA contribution on individual lines. The EFTA percentage used for 2024 was 3.54% for Horizon Europe and 3% for H2020.

CA = commitment appropriations PA = payment appropriations

| Statement of revenue | Voted budget 2024 | | Amended budget 2024 | |
|---|---|---|---|---|
| Heading | Commitment appropriations (in EUR) | Payment appropriations (in EUR) | Commitment appropriations (in EUR) | Payment appropriations (in EUR) |
| EU contribution excl. EFTA | 178 588 695 | 165 433 693 | 178 588 695 | 165 433 693 |
| of which Administrative | 4 781 717 | 4 689 287 | 4 781 717 | 4 689 287 |
| of which Operational | 173 806 978 | 160 744 406 | 173 806 978 | 160 744 406 |
| Third countries contribution including EFTA | 6 251 305 | 5 406 307 | 6 251 305 | 5 406 307 |
| of which Administrative | 58 283 | 150 713 | 58 283 | 150 713 |
| of which Administrative third countries excluding EFTA | - | - | - | - |
| of which Operational | 6 193 022 | 5 255 594 | 6 193 022 | 5 255 594 |
| Industry financial contribution | 4 840 000 | 4 840 000 | 4 840 000 | 4 840 000 |
| of which Administrative | 4 840 000 | 4 840 000 | 4 840000 | 4 840 000 |
| of which Operational | | | | |
| Other revenue (assigned revenues - amounts recovered from beneficiaries) | | | 7 746 059 | 7 746 059 |
| **SUB-TOTAL REVENUES** | **189 680 000** | **175 680 000** | **197 426 059** | **183 426 059** |
| reactivation of unused appropriations from administrative expenditure | - | - | - | - |
| Of which from | | | | |

| | | | | |
|---|---|---|---|---|
| Reactivation of unused appropriations from operational expenditure | - | 22 271 000 | 72 353 086 | 22 271 000 |
| Of which from 2023 | - | - | 700 000 | - |
| Of which from 2022 | - | 22 271 000 | 71 653 086 | 22 271 000 |
| **TOTAL** | **189 680 000** | **197 951 000** | **269 779 145** | **205 697 059** |

## IHI JU statement of revenue per member in 2024 (EUR)

For a complete overview, the table below shows the statement of revenue per Members' contributions, indicating the evolution of the budget approved, through budget amendment during 2024, per fund sources, current year, carry overs (reactivation) and assigned revenue, balancing the expenditure per titles.

CA = commitment appropriations. PA = payment appropriations

| Chapter / line | Revenue | Budget 2024.1 | | Budget 2024 Amendment 1 | | Assigned revenue | | Final Amended Budget 2024.1 | |
|---|---|---|---|---|---|---|---|---|---|
| | | CA | PA | CA | PA | CA | PA | CA | PA |
| **10** | **European Commission contribution** | | | | | | | | |
| **1000** | European Commission contribution (including EFTA contribution) for current year out of IMI2 budget | 3 146 000 | 86 646 000 | | | | | 3 146 000 | 86 646 000 |
| **1002** | European Commission contribution (including EFTA contribution) for current year out of IHI JU budget | 181 694 000 | 84 194 000 | | | | | 181 694 000 | 84 194 000 |
| **1001** | European Commission - appropriations carried over from previous years | | 22 271 000 | 72 353 086 | | | | 72 353 086 | 22,271,000 |
| | **European Commission contribution - total** | **184 840 000** | **193 111 00** | **72 353 086** | **-** | | | **257 193 086** | **193,111,000** |
| **20** | **JU members other than the Union contribution** | | | | | | | | |
| **2000** | EFPIA contribution for current year out of IMI2 budget | 3 146 000 | 3 146 000 | | | | | 3 146 000 | 3 146 000 |
| **2002** | EFPIA contribution for current year out of IHI budget | 832 000 | 832 000 | | | | | 832 000 | 832 000 |
| **2001** | EFPIA - appropriations carried over from previous years | | | | | | | - | - |
| | **EFPIA contribution - total** | **3 978 000** | **3 978 000** | **-** | **-** | | | **3 978 000** | **3,978,000** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **2010** | EuropaBio contribution for IHI current year | 15 000 | 15 000 | | | | | 15 000 | 15 000 |
| **2011** | EuropaBio - appropriations carried over from previous years | | | | | | | - | - |
| | **EuropaBio contribution - total** | **15 000** | **15 000** | **-** | **-** | | | **15 000** | **15 000** |
| **2020** | COCIR contribution for IHI current year | 423 500 | 423 500 | | | | | 423 500 | 423 500 |
| **2021** | COCIR - appropriations carried over from previous years | | | | | | | - | - |
| | **COCIR contribution - total** | **423 500** | **423 500** | **-** | **-** | | | **423 500** | **423 500** |
| **2030** | MedTech Europe contribution for IHI current year | 423 500 | 423 500 | | | | | 423 500 | 423 500 |
| **2031** | MedTech Europe - appropriations carried over from previous years | | | | | | | - | - |
| | **MedTech Europe contribution - total** | **423 500** | **423 500** | **-** | **-** | | | **423 500** | **423 500** |
| **20** | **JU members other than the Union contribution - total** | **4 840 000** | **4 840 000** | **-** | **-** | | | **4 840 000** | **4 840 000** |
| | Assigned revenue (amounts recovered during the year from suppliers and projects) | | | | | 7 746 059 | 7 746 059 | 7 746 059 | 7 746 059 |
| **Total revenue** | | **189 680 000** | **197 951 00** | **72 353 086** | **-** | **-** | **-** | **269 779 145** | **205 697 059** |
| | **Expenditure** | | | | | | | | |
| **Title 1** | Staff expenditure | 6 674 000 | 6 674 000 | - | - | 5 834 | 5 834 | 6 679 834 | 6 679 834 |
| **Title 2** | Infrastructure expenditure | 3 006 000 | 3 006 000 | - | | 120 862 | 120 862 | 3 126 862 | 3 126 862 |
| **Title 3** | Operational expenditure | 180 000 000 | 188 271 000 | 72 353 086 | - | 7 619 364 | 7 619 364 | 259 972 450 | 195 890 364 |
| **Total expenditure** | | **189 680 000** | **197 951 00** | **72 353 086** | **-** | **7 746 059** | **7 746 059** | **269 779 145** | **205 697 059** |

## IHI JU statement of expenditure 2024 in commitment appropriations (EUR)

The table below shows the **commitment appropriations (CA) implementation** for the financial year 2024, reflecting the following fund sources: current year credits, recoveries from beneficiaries and re-activation of appropriations from preceding financial years.

In line with article 174.14 of the Single Basic Act and article 6 of the Commission Delegated Regulation (EU) 2019/887, the unused appropriations may be carried over up to the following three financial years. The unused appropriations shown in the table below, to be carried over, are estimated, being subject to Governing Board approval.

In line with article 26 of Single Basic Act, any unused part of the contribution for administrative costs may be made available to cover the operational costs of the Joint Undertaking.  As such, 50 % of the 2024 unused administrative appropriations (EC part) is available to be carried over to operational expenditure in 2026. Such appropriations are foreseen to be used for new calls under the programme Horizon Europe.

| Chapter | Statement of expenditure Commitment appropriations | Amended budget 2024 | Amended budget 2024 after transfers and assigned revenue | Executed budget 2024 | % | Unused commitment appropriations 2024 | Estimated to be carried over to 2025 | Estimated available for future use (N+3 rule) |
|---|---|---|---|---|---|---|---|---|
| | **Title 1 - Staff expenditure** | **6 674 000** | **6 608 370** | **6 241 144** | **94** | **367 226** | **-** | **183 613** |
| 11 | Staff in active employment | 6 128 000 | 5 884 955 | 5 673 223 | 96% | 211 732 | - | 105 866 |
| 12 | Miscellaneous expenditure on staff recruitment | 5 000 | 12 910 | 12 910 | 100% | - | - | - |
| 13 | Missions | 144 000 | 101 090 | 52 809 | 52% | 48 281 | - | 24 140 |
| 14 | Socio-medical structure | 262 000 | 272 834 | 202 264 | 74% | 70 570 | - | 35 285 |
| 15 | External staff | 125 000 | 322 081 | 287 081 | 89% | 35 000 | - | 17 500 |
| 17 | Representation expenses | 10 000 | 14 500 | 12 857 | 89% | 1 643 | - | 821 |
| | **Title 2 - Infrastructure expenditure** | **3 006 000** | **3 198 326** | **2 915 898** | **91%** | **282 428** | **-** | **141 214** |
| 20 | Rent and related expenditures | 690 000 | 912 157 | 789 116 | 87% | 123 042 | - | 61 521 |
| 21 | IT (hardware and software) | 1 090 000 | 1 240 805 | 1 240 805 | 100% | - | - | - |
| 22 | Office equipment | 5 000 | | | | - | - | - |

| Chapter | Statement of expenditure Commitment appropriations | Amended budget 2024 | Amended budget 2024 after transfers and assigned revenue | Executed budget 2024 | % | Unused commitment appropriations 2024 | Estimated to be carried over to 2025 | Estimated available for future use (N+3 rule) |
|---|---|---|---|---|---|---|---|---|
| 23 | Current administrative Expenditure | 124 000 | 76 448 | 70 879 | 93% | 5 568 | - | 2 784 |
| 24 | Postage and telecommunications | 47 000 | 16 899 | 16 860 | 100% | 39 | - | 20 |
| 25 | Meetings | 100 000 | 67 965 | 45 618 | 67% | 22 348 | - | 11 174 |
| 26 | Expenditure in connection with operational activities | 310 000 | 180 000 | 119 497 | 66% | 60 503 | - | 30 251 |
| 27 | External communication information and publicity | 300 000 | 287 711 | 228 783 | 80% | 58 928 | - | 29 464 |
| 28 | Service contracts | 340 000 | 416 340 | 404 340 | 97% | 12 000 | - | 6 000 |
| | **Administrative expenditure Total Title 1+ Title 2** | **9 680 000** | **9 806 695** | **9 157 042** | **93%** | **649 654** | **-** | **324 827** |
| | **Title 3 - Operational expenditure** | **252 353 086** | **259 972 450** | **167 697 848** | **65%** | **92 274 602** | **83 434 379** | **126 715** |
| | Previous years' Calls | 72 353 086 | 72 353 086 | - | 0% | 72 353 086 | 71 211 094 | - |
| | Current year's Calls | 180 000 000 | 180 000 000 | 167 650 000 | 93% | 12 350 000 | 12 223 285 | 126 715 |
| | Assigned revenue: amounts recovered from beneficiaries | | 7 619 364 | 47 848 | 1% | 7 571 516 | - | - |
| | **GRAND TOTAL (Title 1 + Title 2 + Title3)** | **262 033 086** | **269 779 145** | **176 854 890** | **66%** | **92 924 255** | **83 434 379** | **451 542** |

**Breakdown of unused EUR 92 924 255 in commitment appropriations:**

Horizon Europe operational activities of EUR 83 561 094:

- The amount of EUR 83 434 379 will be carried over to 2025.
- Of this, EUR 12 223 285 is eligible for UK entities.
- EUR 71 211 094 stems from unused appropriations of 2022 calls (1, 2, and 3) and is not eligible for UK entities.
- The amount of EUR 126 715, eligible for UK entities, will be carried over to 2026.

Recoveries from closed programs, FP7 and H2020, of EUR 8 713 507:

- These appropriations will not be carried over.

Administrative activities of EUR 649 654:

- 50% (EC portion) will be carried over to 2025 or 2026 based on operational needs.

### IHI JU statement of expenditure – commitments carried forward (EUR)

For a complete overview of the unused appropriations, the table below shows the implementation of fund source C8 (representing the commitments carried forward from 2023).

| Chapter | Statement of Expenditure Commitment appropriations | Appropriations 2024 carried forward | Appropriations Consumed | Unused commitment appropriations 2024 | Estimated to be carried over to 2025 | Estimated Available for future use (N+3 rule) |
|---|---|---|---|---|---|---|
| | Administrative expenditure Total Title 1+ Title 2 | 1 094 135 | 906 413 | 187 721 | - | 93 861 |
| | Title 3 Operational expenditure | 701 836 876 | 654 572 622 | 47 264 254 | - | 40 596 43 |
| | **GRAND TOTAL (Title 1 + Title 2 + Title3)** | **702 931 011** | **655 479 036** | **47 451 975** | **-** | **40 690 703** |

**Breakdown of unused EUR 40 690 703 in commitment appropriations:**

Administrative activities of EUR 93 861:

- 50% (EC portion) will be carried over to 2025 or 2026 based on operational needs.

Horizon Europe operational activities of EUR 40 596 843:

- stems from unused appropriations of 2023 calls (4 and 5) and is not eligible for UK entities. This amount will be carried over to 2026.

## IHI JU statement of expenditure 2024 payment appropriations (EUR)

The table below shows the **payment appropriations (PA) implementation** for financial year 2024, reflecting the following fund sources: current year credits, recoveries from beneficiaries and re-activation of appropriations from preceding financial years.

| Chapter | Statement of expenditure Payment appropriations | Amended budget 2024 | Amended budget 2024 after transfers | Executed budget 2024 | % | Unused commitment appropriations 2024 | Estimated to be carried over to 2025 | Estimated Available for future use (N+3 rule) |
|---|---|---|---|---|---|---|---|---|
| **1** | **Title 1 - Staff expenditure** | **6 674 000** | **6 679 834** | **6 136 291** | **92%** | **543 543** | **-** | **543 543** |
| 11 | Staff in active employment | 6 128 000 | 5 956 389 | 5 673 223 | 95% | 283 166 | | 283 166 |
| 12 | Miscellaneous expenditure on staff recruitment | 5 000 | 13 190 | 13 190 | 100% | - | | - |
| 13 | Missions | 144 000 | 100 840 | 50 517 | 50% | 50 323 | | 50 323 |
| 14 | Socio-medical structure | 262 000 | 272 834 | 197 174 | 72% | 75 660 | | 75 660 |
| 15 | External staff | 125 000 | 322 081 | 189 330 | 59% | 132 751 | | 132 751 |
| 17 | Representation expenses | 10 000 | 14 500 | 12 857 | 89% | 1 643 | | 1 643 |
| **2** | **Title 2 - Infrastructure expenditure** | **3 006 000** | **3 126 862** | **2 533 069** | **81%** | **593 793** | **-** | **593 793** |
| 20 | Rent and related expenditures | 690 000 | 883 032 | 725 711 | 82% | 157 321 | | 157 321 |
| 21 | IT (hardware and software) | 1 090 000 | 1 090 000 | 1 018 091 | 93% | 71 909 | | 71 909 |
| 22 | Office equipment | 5 000 | | | | - | | - |
| 23 | Current administrative expenditure | 124 000 | 104 000 | 80 358 | 77% | 23 642 | | 23 642 |
| 24 | Postage and telecommunications | 47 000 | 22 830 | 10 710 | 47% | 12 121 | | 12 121 |
| 25 | Meetings | 100 000 | 80 000 | 45 618 | 57% | 34 382 | | 34 382 |
| 26 | Expenditure in connection with operational activities | 310 000 | 229 360 | 105 315 | 46% | 124 045 | | 124 045 |
| 27 | External communication, information and publicity | 300 000 | 300 000 | 241 500 | 80% | 58 500 | | 58 500 |

| Chapter | Statement of expenditure Payment appropriations | Amended budget 2024 | Amended budget 2024 after transfers | Executed budget 2024 | % | Unused commitment appropriations 2024 | Estimated to be carried over to 2025 | Estimated Available for future use (N+3 rule) |
|---|---|---|---|---|---|---|---|---|
| 28 | Service contracts | 340 000 | 417 640 | 305 767 | 73% | 111 873 | | 111 873 |
| | **Administrative expenditure Total Title 1+ Title 2** | **9 680 000** | **9 806 695** | **8 669 360** | **88%** | **1 137 336** | **-** | **1 137 336** |
| **3** | **Title 3 - Operational expenditure** | **188 271 000** | **195 890 364** | **185 986 808** | **95%** | **9 903 555** | **-** | **9 903 555** |
| | Previous years' Calls | 22 271 000 | 22 271 000 | 21 785 123 | 98% | 485 877 | | 485 877 |
| | Current year's Calls | 166 000 000 | 166 000 000 | 158 840 124 | 96% | 7 159 876 | | 7 159 876 |
| | Assigned revenue- amounts recovered from beneficiaries | | 7 619 364 | 5 361 562 | 70% | 2 257 802 | | 2 257 802 |
| | **TOTAL** | **197 951 000** | **205 697 059** | **194 656 168** | **95%** | **11 040 891** | **-** | **11 040 891** |

**Breakdown of unused EUR 11 040 891 in commitment appropriations:**

EUR 9 903 555 unused payment appropriations of operational activities to be carried over to financial year 2026.

EUR 1 137 336 unused payment appropriations of administrative activities.

- These appropriations will be carried over to financial year 2025 or 2026 depending on operational needs.

### 2.3.5 Budget transfers

#### Administrative budget

Throughout the year, the IHI JU adhered to sound financial management practices, resulting in several budget transfers between budget chapters to align with evolving operational needs. To address the increased demand for IT resources, a budget transfer of EUR 71 464 was approved from Title 1 to Title 2 at the end of 2024.

*Table: IHI JU 2024 budget transfers administrative commitment appropriations (CA)*

| Chapter | | Budget approved and assigned revenue (EUR) | Budget transfers (EUR) | Budget after transfers (EUR) |
|---|---|---|---|---|
| | | Commitment appropriations | Commitment appropriations | Commitment appropriations |
| **1** | **Title 1 - Staff expenditure** | **6 679 834** | **-71 464** | **6 608 370** |
| 11 | Staff in active employment | 6 128 000 | -243 045 | 5 884 955 |
| 12 | Staff recruitments - miscellaneous expenditure | 5 000 | 7 910 | 12 910 |
| 13 | Mission expenses | 144 000 | -42 910 | 101 090 |
| 14 | Socio-medical structure | 267 834 | 5 000 | 272 834 |
| 15 | External staff services | 125 000 | 197 081 | 322 081 |
| 17 | Representation | 10 000 | 4 500 | 14 500 |
| **2** | **Title 2 - Infrastructure expenditure** | **3 126 862** | **71 464** | **3 198 326** |
| 20 | Office building and associated costs | 810 823 | 101 335 | 912 157 |
| 21 | Information technology (hardware and software) | 1 090 000 | 150 805 | 1 240 805 |
| 22 | Office equipment | 5 000 | -5 000 | - |
| 23 | Current administrative expenditure | 124 000 | -47 552 | 76 448 |
| 24 | Telecommunication and postal expenses | 47 039 | -30 140 | 16 899 |
| 25 | Formal meetings | 100 000 | -32 035 | 67 965 |
| 26 | Administrative expenditure in connection with operational activities | 310 000 | -130 000 | 180 000 |
| 27 | External communication, information and publicity | 300 000 | -12 289 | 287 711 |
| 28 | Service contracts | 340 000 | 76 340 | 416 340 |
| | **Administrative expenditure Total Title 1+ Title 2** | **9 806 695** | **-** | **9 806 695** |

### Operational budget

The IHI JU adhered to sound financial management practices, adjusting budget allocations between programs to adapt to changing operational requirements. To meet the growing payments needs of H2020 projects, a budget reallocation of EUR 9 100 000 was authorized from Horizon Europe to IMI2 budget. This transfer was essential to guarantee timely payments for associated projects.

*Table: IHI JU 2024 Budget transfers operational payment appropriations (PA)*

| Chapter | | Budget approved and assigned revenue (EUR) | Budget transfers (EUR) | Budget after transfers (EUR) |
|---|---|---|---|---|
| | | Payment appropriations | Payment appropriations | Payment appropriations |
| **3** | **Title 3 - Operational expenditure** | | | |
| | Fresh credits payment appropriations FP7 and H2020 related projects | 83 500 000 | 9 100 000 | 92 600 000 |
| | Fresh credits payment appropriations Horizon Europe related projects | 82 500 000 | -9 100 000 | 73 400 000 |
| | Assigned revenue- amounts recovered from beneficiaries | 7 619 364 | - | 7 619 364 |
| | Reactivation of unused appropriations from operational expenditure-carry overs | 22 271 000 | - | 22 271 000 |
| | **TOTAL Title 3 Operational expenditure** | **195 890 364** | **-** | **195 890 364** |

## 2.3.6 Overview of total commitments outstanding

The summary of commitments outstanding at the end of 2024, for administrative and operational expenditure, was as follows:

*Table: IHI JU 2024 Summary of commitments outstanding at the end of 2024*

| Description | EUR |
|---|---|
| Commitments carried from previous year | 702 931 011 |
| De-commitments (-) | -47 451 975 |
| Payments made during 2024 related to commitments carried forward (-) | -182 226 347 |
| Commitments made during 2024 | 176 854 890 |
| Payments made during 2024 related to commitments made during 2024 (-) | -12 429 821 |
| **Total commitments outstanding at the end of 2024** | **637 677 758** |

Breakdown of commitments outstanding at the end of 2024 amounting to - EUR 637 677 758:

- administrative activities: EUR 1 394 096
- FP7 and H2020 projects: EUR 269 765 699
- Horizon Europe EUR 366 517 963

Breakdown of de-commitments made during 2024 amounting to - EUR 47 451 975:

- administrative activities: - EUR 187 781
- FP7 and H2020 projects: - EUR 6 667 411
- Horizon Europe (call 4 and call 5 launched in 2023): - EUR 40 596 843

Breakdown of commitments made during 2024 amounting to EUR 176 854 890:

- administrative activities: EUR 9 157 042
- FP7 and H2020 dedicated to projects regularisations: EUR 47 848
- Horizon Europe: call 6, call 7 and call 8 launched in 2024 amounting to EUR 167 150 000 and evaluation experts EUR 500 000

Breakdown of payments made during 2024 amounting to EUR 194 656 168:

- administrative activities: EUR 8 669 360
- FP7 and H2020: EUR 113 246 214
- Horizon Europe: EUR 72 740 594

### 2.3.7 Operational budget per programme

IHI JU's operational budget (Title 3) reflects expenses linked to the implementation of the IHI JU. It should be noted that since November 2021, IHI JU has been managing three programmes in parallel:

- IHI (under Horizon Europe)
- IMI2 (under H2020)
- IMI1 (under FP7)

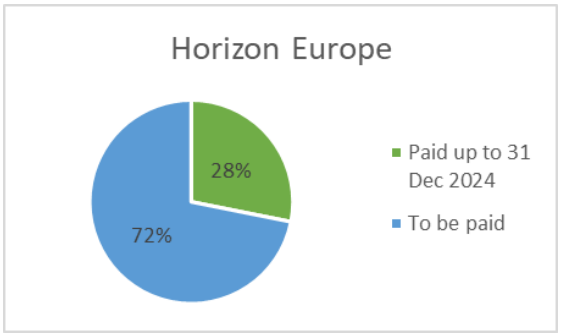
#### IHI (under Horizon Europe)

*Table: Breakdown per call of EU committed funds for IHI JU (Horizon Europe) in EUR '000*

| IHI JU (HE) | Committed EU 1 | De-committed 2 | Paid up to 31/12/2024 3 | To be paid 4 = 1-2-3 |
|---|---|---|---|---|
| Call 1 | 95 000 | 19 146 | 40 861 | 34 993 |
| Call 2 | 21 929 | 1 454 | 8 190 | 12 285 |
| Call 3 | 138 000 | 50 491 | 36 241 | 51 268 |
| Call 4 | 83 350 | 7 996 | 17 358 | 57 996 |
| Call 5 | 115 000 | 32 601 | 35 818 | 46 581 |
| Call 6 | 24 600 | | - | 24 600 |
| Call 7 | 95 000 | | 4 292 | 90 708 |

| IHI JU (HE) | Committed EU 1 | De-committed 2 | Paid up to 31/12/2024 3 | To be paid 4 = 1-2-3 |
|---|---|---|---|---|
| Call 8 | 47 550 | | - | 47 550 |
| Evaluation experts | 1 380 | 119 | 723 | 538 |
| **Total HE (IHI JU)** | **621 809** | **111 808** | **143 483** | **366 518** |

At the end of 2024, 28 % of the commitment appropriations had been paid out. The graph below shows the percentage of what has been paid and what remains to be paid out of committed funds for Horizon Europe.



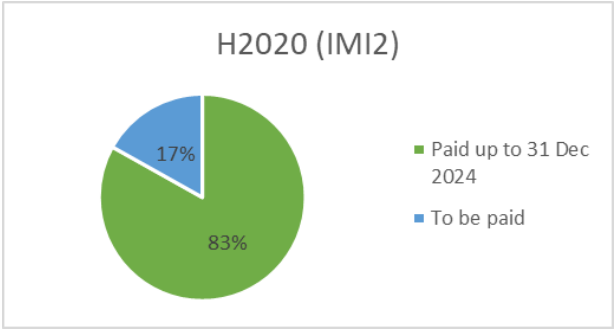

### IMI2 (under Horizon 2020)

*Table: Breakdown per call of EU committed funds for IMI2 (H2020)*

| H2020 (IMI2) | Committed EU (level 1) | Committed AP and other members | De-committed | Paid up to 31/12/2024 | To be paid |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5=1+2-3-4 |
| Call 1 | 17 630 | | | 17 630 | - |
| Call 2 | 114 090 | | 10 051 | 104 040 | - |
| Call 3 | 49 060 | 7 000 | | 56 060 | - |
| Call 4 | 1 130 | | 52 | 1 078 | - |
| Call 5 | 47 477 | | | 46 535 | 942 |
| Call 6 | 46 496 | 200 | 153 | 43 622 | 2 921 |
| Call 7 | 46 795 | | 366 | 43 363 | 3 065 |
| Call 8 | 47 462 | | 3 089 | 41 433 | 2 940 |
| Call 9 | 53 606 | 4 000 | | 55 405 | 2 201 |
| Call 10 | 173 874 | | 989 | 160 684 | 12 200 |
| Call 11 | 3 284 | | 18 | 3 092 | 175 |
| Call 12 | 64 052 | | 25 | 59 886 | 4 140 |
| Call 13 | 114 152 | | 376 | 102 177 | 11 599 |
| Call 14 | 82 310 | | | 65 205 | 17 105 |
| Call 15 | 165 608 | | | 117 628 | 47 980 |

| H2020 (IMI2) | Committed EU (level 1) | Committed AP and other members | De-committed | Paid up to 31/12/2024 | To be paid |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5=1+2-3-4 |
| Call 16 | 35 184 | | | 31 939 | 3 245 |
| Call 17 | 40 786 | | | 35 376 | 5 410 |
| Call 18 | 74 866 | | 6 | 52 512 | 22 347 |
| Call 19 | 12 736 | | | 12 292 | 444 |
| Call 20 | 133 009 | | | 54 442 | 78 567 |
| Call 21 | 72 000 | | 2 | 64 967 | 7 031 |
| Call 22 | 11 427 | | 2 702 | 7 906 | 819 |
| Call 23 | 47 817 | | 3 | 26 388 | 21 427 |
| **Total H2020 (IMI2)** | **1 454 851** | **11 200** | **17 833** | **1 203 659** | **244 559** |

At the end of 2024, 83 % of the commitment appropriations had been paid out. The graph below shows the percentage of what has been paid and what remains to be paid out of committed funds for IMI2 (H2020).



### IMI1 (under FP7)

*Table: Breakdown per call of EU committed funds for IMI1 (FP7)*

| FP7 (IMI1) | Committed | De-committed up to 2024 | Paid up to 31/12/2024 | To be paid |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4=1-2-3 |
| Call 1 | 116 082 | 1 475 | 114 607 | - |
| Call 2 | 85 765 | 549 | 85 216 | - |
| Call 3 | 112 854 | 306 | 112 548 | - |
| Call 4 | 97 944 | 776 | 97 168 | - |
| Call 5 | 80 021 | 644 | 79 377 | - |
| Call 6 | 125 417 | | 119 294 | 6 123 |
| Call 7 | 13 000 | 936 | 12 064 | - |
| Call 8 | 98 774 | 5 911 | 85 064 | 7 799 |
| Call 9 | 56 441 | 5 870 | 50 571 | - |
| Call 10 | 6 100 | 501 | 5 599 | - |
| Call 11 | 173 410 | 21 192 | 140 932 | 11 286 |
| **Total FP7 (IMI1)** | **965 808** | **38 161** | **902 439** | **25 207** |

98% of the adjusted commitment appropriations had been paid out at the end of 2024. [5]

[5] By the end of 2024, the last FP7 project had finished its activities. The Programme Office is in the process of establishing the final balances and validation of in-kind contributions. The unused amount of prefinancing will be recovered and no further payments are expected.

## 2.4 Financial and in-kind contributions from Members other than the Union

This chapter presents the contributions of members other than the Union for the three different programmes IHI JU is managing in parallel (IMI1, IMI2, IHI).

IHI JU is a public-private partnership between the EU (represented by the European Commission) and life science industries represented by COCIR, EFPIA (also representing Vaccines Europe), EuropaBio and MedTech Europe (hereafter 'the members other than the Union'). IHI JU's prior initiatives, the IMI1 and IMI2 programmes, were public-private partnerships between the EU and the European pharmaceutical industry represented by EFPIA.

All IMI and IHI projects are based on the same co-funding principle between public and private funds:

- In each IMI/IHI project, legal entities eligible for JU funding receive financial support from IMI/IHI to fund their project activities.
- Members other than the Union contribute their own resources to the projects. Some projects also include the own resources of contributing partners (for IHI projects) or associated partners (for IMI2 projects). These contributions consist of in-kind and financial contributions as explained below in the respective sections of each programme.

This chapter presents the commitments made by members other than the Union as well as associated partners / contributing partners (when applicable) at call and project launch, and actual contributions made during the lifetime of the projects. The equivalent EU commitments / actual contributions are also provided throughout this chapter to facilitate the comparison between public and private contributions, which should match by the end of each respective programme.

Members other than the Union and associated partners / contributing partners are contractually obliged to report to the Programme Office all costs that they incur in IMI and IHI projects. The Programme Office controls the eligibility and regularity of the contributions and carefully monitors the development of the total contributions to the three programmes. For each programme, Council Regulations clearly define the matching requirements.

### 2.4.1 IMI1 programme

#### IMI1 EU and EFPIA commitments

This section highlights the commitments pledged by EFPIA companies to the 59 projects in the IMI1 portfolio. These commitments are made up of:

- in-kind contributions[6], i.e. costs incurred by EFPIA companies in the implementation of the IMI1 projects for researchers, research equipment, and materials;
- financial contributions at project level to beneficiaries receiving JU funding.

[6] In-kind contribution is defined as follows: Article 11(4)(a) of the IMI JU Statutes annexed to the Council Regulation No 73/2008 – 'non-monetary contributions (hereinafter referred to as contributions in kind) by the research based pharmaceutical companies that are members of EFPIA, with resources (such as personnel, equipment, consumables, etc.) at least equal to the financial contribution of the Community'.

The table below shows the EU and EFPIA commitments to IMI1 programme at the end of 2024.

| IMI1<br>million EUR | EU commitment | EFPIA commitment |
|---|---|---|
| Number of projects | 59 | |
| Total on 31/12/2024 | 926.0 | 894.9 |

### IMI1 EU and EFPIA validated contributions - comparison by year

As of 31 December 2024, EFPIA contributions of EUR 836.5 million had been formally validated (checked by IHI staff and / or audited by external auditors). The table below gives an overview of validated IMI1 contributions, in EUR millions, since the start of the programme.

| Year | Validated cost claims from beneficiaries (*) | EFPIA in-kind validated contributions |
|---|---|---|
| **Up to 31.12.2023** | 851.4 | 816.3 |
| **2024** | 17.5 | 20.2 |
| Total on 31.12.2024 | **868.9** | **836.5** |

(*) excluding pre-financing

The difference between validated EU cost claims and EFPIA contributions results from the fact that, in some projects, tasks for the different consortium partners do not run in parallel but are often sequential.

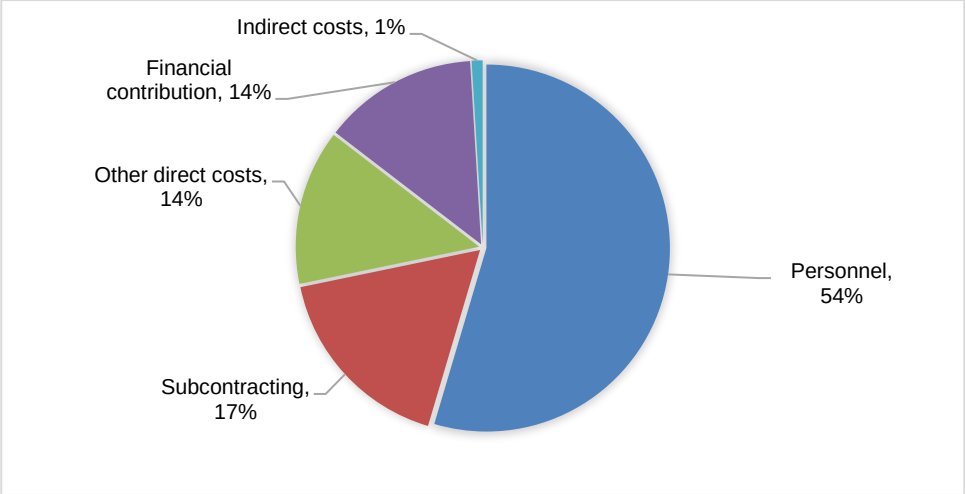
Since 2016-2017, the number of IMI1 projects significantly decreased as the IMI1 programme wound down. Accordingly, the value of EU cost claims validated as well as EFPIA in kind reported per year has been decreasing steadily since 2018. By the end of 2024 the last FP7 project had finished its activities. IHI is in the process of establishing the final balances and validation of in-kind contributions. The unused amount of prefinancing will be recovered and no further payments are expected.

### IMI1 EFPIA contributions

At least 50 EFPIA companies contributed to IMI1 projects. The EFPIA contributions at project level can be broken down into the following cost categories:

- Personnel: staff employed by EFPIA companies directly working on IMI projects.
- Other direct costs: consumables, equipment depreciation, samples, compounds.
- Subcontracting: clinical trials, subcontracting to clinical research organisations, subcontracting to data management companies, lab services, communication, project management support, etc.
- Financial Contribution: In addition, EFPIA contributions can also be provided through financial contributions (FC), i.e., a transfer of funds from an EFPIA company to an academic institution within the same project/consortium. This financial contribution can be used by the academics to hire researchers during the lifetime of the IMI project or to cover project costs, such as the purchase of consumables or equipment.
- Indirect costs: Overheads

The share of each cost category is shown in the chart below.




## 2.4.2 IMI2 programme

### IMI2 EU, EFPIA and Associated Partner commitments

This section highlights the commitments pledged by EFPIA companies and Associated Partners (APs) in IMI2 projects. Both EFPIA and Associated Partner commitments include in-kind contributions, as well as financial contributions directly to the IMI2 programme's operational costs, or at project level to beneficiaries receiving JU funding.

In total 123 IMI2 projects were launched resulting in the following commitments, at the end of 2024:

- EUR 1 452.1 million in EU funding.
- EUR 1 510.1 million in commitments from EFPIA companies (EUR 1 306.6 million) and Associated Partners (EUR 203.5 million).

The following table provides an overview of EU, EFPIA and Associated Partner commitments to IMI2 projects:

| IMI2<br>million EUR | EFPIA commitment | AP commitment | Total EFPIA + AP commitment | EU commitment |
|---|---|---|---|---|
| Number of signed projects | 123 | | | |
| Up to 31.12.2023 | 1 302.6 | 203.5 | 1 506.1 | 1 452.1 |
| 2024 | +3.9 | | +3.9 | 00 |
| **Total on 31/12/2024** | **1 306.6** | **203.5** | **1 510.1** | **1 452.1** |

Compared to 2023, the EU commitment remained unchanged at EUR 1 452.1 million while the commitment from EFPIA and APs increased by EUR 3.9 million from EUR 1 506.1 million to EUR 1 510.1 million, following amendments of several IMI2 projects, where some companies increased their contribution or new EFPIA companies joined the consortium and committed additional in-kind contribution to the projects.

Out of the overall commitment of EUR 1 452.1 million from the EU over the programme lifetime, at least 70% - which is EUR 1 016.4 million - should be matched by industry contributions incurred in the EU and H2020 Associated Countries, by the end of the IMI2 programme. At the end of 2024, from the total committed by EFPIA and Associated Partners, EUR 1 050.5 million was from the EU and H2020 Associated Countries, thus fulfilling the minimum requirement of 70%.

### IMI2 EU, EFPIA and Associated Partner validated contributions

In 2024, EFPIA companies and APs had contributed EUR 169.2 million to the IMI2 programme (amount certified by external auditors and validated by IHI). For comparison, accepted cost claims for JU funding from beneficiaries stood at EUR 163.6 million for the same period. The following table shows the validated EFPIA and Associated Partner contributions as well as validated cost claims from beneficiaries receiving EU funding.

| | EFPIA contributions | Associated Partner contributions | Total validated EFPIA and Associated Partner contributions (1) | Validated cost claims from beneficiaries receiving EU funding (2) |
|---|---|---|---|---|
| Up to 31.12.2023 | 944.80 | 138.7 | 1083.5 | 830.5 |
| 2024 | 151.7 | 17.5 | 169.2 | 164.2 |
| **Total on 31.12.2024** | **1096.5** | **156.2** | **1 252.7** | **994.7** |

*(1) Includes EUR 11.2 million paid directly by EFPIA and AP to IMI for projects PERISCOPE, DRIVE and HARMONY*

*(2) excluding pre-financing*

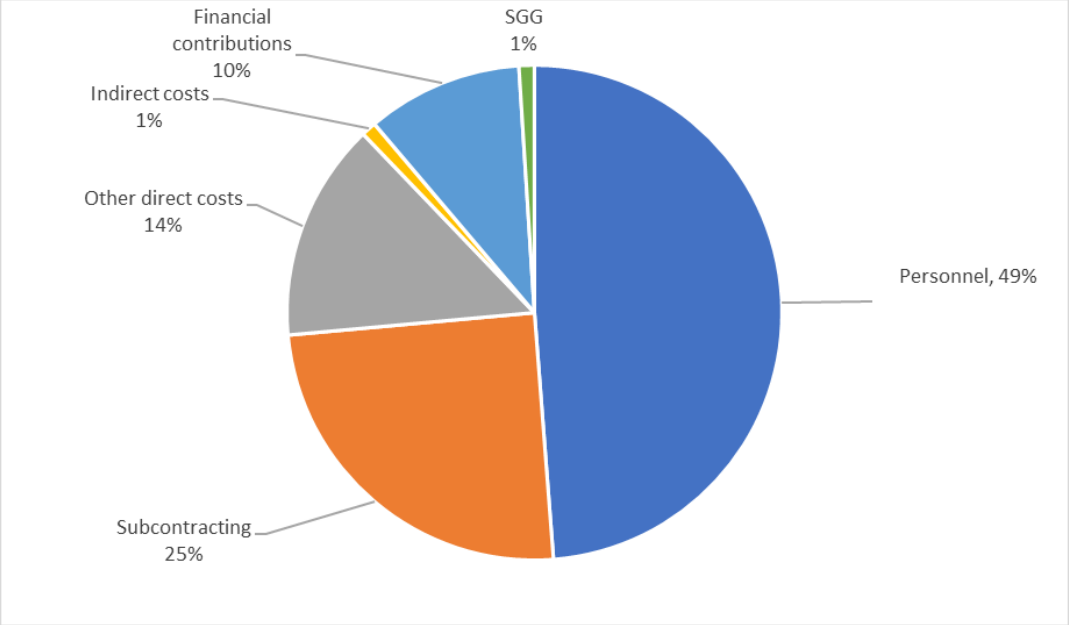
### IMI2 EFPIA and Associated Partner contributions

Up to the end of 2024, there were more than 65 EFPIA companies and 15 Associated Partners contributing to IMI2 projects.

EFPIA companies' and Associated Partners' contributions can be broken down into in-kind and financial contributions.

- Personnel costs: staff employed by EFPIA companies directly working on IMI projects.
- Subcontracting: clinical trials, subcontracting to clinical research organisations, subcontracting to data management companies, lab services, communication, project management support, etc.
- Other direct costs: consumables, equipment depreciation, samples, compounds.
- Indirect costs: overheads.
- Financial Contribution: EFPIA companies can also make a financial contribution (FC), i.e. a transfer of funds from an EFPIA company to beneficiaries receiving IMI2 JU funding within the same project/consortium. This financial contribution is used by the beneficiaries receiving funding to cover project costs, such as hiring researchers during the lifetime of the IMI project or buying consumables or equipment.
- SGG/Certification: In addition to costs incurred on projects, in-kind contributions also include costs (contributions) related to Strategic Governing Group (SGGs) and the costs of having their in-kind contribution certified by external auditors.

The share of each cost category is shown in the chart below.




The higher percentage of subcontracting costs in IMI2 projects compared to IMI1 projects is due to the particularities of the IMI2 projects with significant clinical trials (among others ERA4TB, AIMS-2-Trials, and Ebola projects), where significant tasks are subcontracted.

### 2.4.3 IHI programme

#### Commitments from JU Members other than the Union

This section highlights the commitments pledged by COCIR, EFPIA (also representing Vaccines Europe), EuropaBio and MedTech Europe (hereafter the IHI private members) as well as contributing partners to the IHI programme. These commitments are made up of:

- in-kind contributions to operational activities (IKOP)[7], i.e. costs incurred by IHI private members and contributing partners in the implementation of IHI projects for researchers, research equipment, and materials;
- financial contributions (FC) made by IHI private members and contributing partners to IHI project beneficiaries eligible to receive funding;
- in-kind contributions to additional activities (IKAA)[8], i.e. costs incurred by IHI private members in the implementation of additional activities, either contributing to IHI projects specifically (project-specific IKAA) or to the IHI JU Programme more generally (programme-specific IKAA). (IKAA is not applicable for contributing partners).

[7] In-kind contributions to operational activities ('IKOP') is defined in Article 2.8 of the Council Regulation (EU) 2021/2085 as follows: 'contributions made by private members and contributing partners, their constituent or affiliated entities consisting of the eligible costs incurred by them in implementing indirect actions less the contribution of the IHI JU and of the participating states of that JU to those costs'.

[8] In-kind contributions to additional activities ('IKAA') is defined in Article 2.10 of the Council Regulation (EU) 2021/2085 as follows: 'contributions made by the private members, their constituent or affiliated entities consisting of the costs incurred by them in implementing additional activities less any contribution to those costs from the Union and from the participating states of the IHI JU'. More information on IKAA can be found in the IHI JU Guidelines for in-kind contribution to additional activities (IKAA).

While IHI private members (PM) can contribute all types of contributions (IKOP, IKAA, FC), contributing partners (CP) can only contribute IKOP and FC, not IKAA.

In each IHI project, IHI private members and/or contributing partners must collectively contribute at least 45% of the project's eligible costs and costs for additional activities, if any. This minimum contribution threshold is an eligibility criterion for IHI proposals and is closely monitored by IHI JU Office during projects implementation.

During 2024, the grant agreements for IHI calls 4 and 5 as well as one grant agreement of IHI call 7 were signed, bringing the total number of IHI projects to 30.

The table below shows the commitments to the IHI programme from the EU, private members (PM), and contributing partners (CP) as of the end of 2024.

| IHI programme million EUR | Private members (PM) commitment | Contributing partners (CP) commitment | Total PM + CP commitment | EU commitment |
|---|---|---|---|---|
| 30 signed projects | 295.8 | 69.6 | 365.4 | 352.3 |
| IKAA (programme level) | 31.2 | | 31.2 | |
| **TOTAL on 31/12/2024** | **327** | **69.6** | **396.6** | **352.3** |

The following table provides an overview per IHI call of the commitment composition from IHI private members (PM) and contributing partners (CP) to the 30 signed IHI projects in terms of IKOP, FC and IKAA (excluding IKAA at program level), in EUR millions.

| IHI call | IKOP | FC (financial contributions) | IKAA at project level | Total commitment (PM + CP) |
|---|---|---|---|---|
| Call 1 | 47.7 | 5.8 | 15.0 | 68.5 |
| Call 2 | 16.7 | 2.2 | 1.1 | 20 |
| Call 3 | 83.1 | 13.6 | 5.6 | 102.3 |
| Call 4 | 79.2 | 2.6 | 8.9 | 90.7 |
| Call 5 | 63.7 | 0.5 | 8.8 | 73 |
| Call 7 | 8.7 | 1.7 | 0.5 | 10.9 |
| **Total** | **299.1** | **26.4** | **39.9** | **365.4** |

Note: call 6 is a two-stage call launched in 2024, which will be completed in 2025

### Validated contributions by JU Members other than the Union

In 2024, IHI private members and contributing partners reported a total contribution of EUR 18.7 million to the IHI programme, consisting of:

- EUR 6 million of IKOP and EUR 1 million of financial contributions in IHI projects for Call 1; and
- EUR 11.7 million of IKAA (both project and programme level), of which EUR 0.8 million were costs certified by external auditors and formally validated by IHI GB.

The reported contribution validated[9] in 2024 (checked by IHI staff and / or audited by external auditors) amounted to EUR 7.8 million.

As of 31 December 2024, the total validated contribution amounted to EUR 7.9 million, including EUR 7.1 million from IHI private members and EUR 0.8 million from IHI contributing partners.

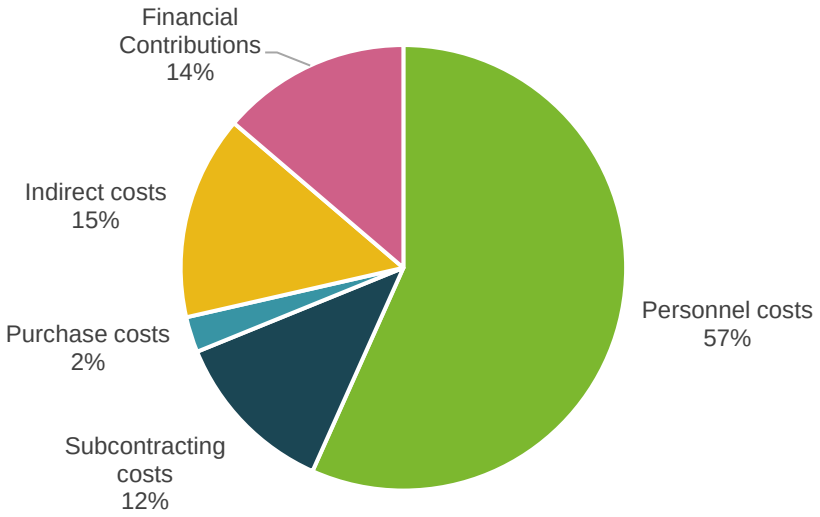
For comparison, accepted cost claims for EU funding amounted to EUR 10.4 million at the end of 2024.

The following table provides an overview per year of the validated contributions (IKOP, FC, IKAA) from IHI private members (PM) and contributing partners (CP) to the IHI programme as well as the validated cost claims from beneficiaries requesting EU funding in IHI projects, in EUR millions.

| Year | IKOP | FC (financial contributions) | IKAA (both project and programme level) | Total validated contributions (PM + CP) | Total validated EU contributions in cost claims* |
|---|---|---|---|---|---|
| 2023 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| 2024 | 6.0 | 1.0 | 0.8 | 7.8 | 10.4 |
| **Total** | **6.0** | **1.0** | **0.9** | **7.9** | **10.4** |

The total validated IKAA of EUR 0.9 million at the end of 2024 includes EUR 0.8 million of project level IKAA and EUR 0.1 million of programme level IKAA. As of 31 December 2024, the validated IKAA amounted 14.56% of the total validated in-kind (IKOP + IKAA) contributed by IHI private members to the IHI programme, which is below the maximum threshold allowed of 40% as per IHI Regulation. Annex 10 provides further details on the reported and validated IKAA until end 2024.

The pie chart below illustrates private members' and contributing partners' contributions of 6 million IKOP and 1 million financial contribution per cost category.




[9] Validated IKOP, Financial Contributions and IKAA are reflected differently in IHI annual accounts. Validated IKOP is recorded as net asset, Financial Contributions as accruals (it will be recorded as net asset only at project end) and validated IKAA is not recorded in IHI annual accounts.

## 2.5 Contributing partners

The ‘contributing partner’ category was created with the goal of opening up IHI to a wide range of stakeholders who may want to invest in IHI without becoming full members. Contributing partners invest their own resources (which can be researchers’ time, laboratories, data) or cash in a specific IHI project or projects.

In the application process an applicant contributing partner needs to demonstrate the relevance and potential added value of the proposed contribution (scientific relevance, activities in the context of a public private partnership, duration and nature of contributions) to the achievement of the proposal objectives but also to the overall objectives of IHI JU.

In 2024, IHI revised its procedures and guidance documents to provide clarity and legal certainty to potential applicant contributing partners. This complex revision included the following significant changes:

- Developing a two-criterion approach on the assessment of contributing partner applications by the IHI JU Governing Board; and
- Introducing a new procedure for submitting contributing partner applications. as of IHI call 9 all applications in single-stage calls need to be submitted as a part of the proposal by the proposal’s coordinator;

Consequently, the IHI Office revised all its guidance documents. A new version of the Guide for contributing partners was published in December 2024 together with the new content of the CP web page and updates to other call documentation (Guide for Applicants, FAQ, application letter templates). The updated resources provide a comprehensive source of information for entities interested in applying to become a contributing partner.

## 2.6 Administrative procurement and contracts

The majority of IHI's contractual commitments in 2024 were concluded on the basis of multiannual framework contracts (FWCs). In terms of volume, the FWCs were most used in the field of IT, human resources, audit and accounting services. Several of the framework contracts in question are interinstitutional, thus minimising the administrative burden and ensuring economies of scale.

The table below shows tender procedures in 2024 outside existing FWCs with a value exceeding EUR 15 000.

| Subject of the contract | Type of contract | Contractor | Tender procedure | Signature date | Amount in EUR |
|---|---|---|---|---|---|
| Venue for the IHI brokerage event | Service contract | Hotel Plaza Brussels SA | Negotiated procedure | 10/07/2024 | 95 050.64 |
| Participation in BIO-Europe | Service contract | EBD Group GmbH | Negotiated procedure without prior publication of a contract notice | 12/09/2024 | 41 000 |

## 2.7 IT and logistics

IT activities in 2024 were mainly focused on inter-JU collaboration, including formal adoption of the ICT back office arrangements (BOA) service-level agreement (SLA), the move to SharePoint as the main file sharing and collaboration tool, improvements to our cybersecurity posture and the development and maintenance of IT and business support tools.

### Management of the common IT infrastructure and BOA

IHI shares a common IT infrastructure and facilities with seven other joint undertakings and participates in formally established common IT governance. The final concept note and SLA on ICT BOA were adopted in 2024. Currently, signed annexes cover the following common services:

1. Inter-JU IT governance: this service group ensures the coordination of common ICT activities and services, planning, effort allocation, decision-making and reporting.
2. Management of shared ICT infrastructure: this service ensures provision of ICT infrastructure (servers, networks, IT security infrastructure, cloud services, teleconferencing systems, Wi-Fi provision, landlines and internet infrastructure) and related services to the JUs.
3. Security and compliance management.

IHI co-leads BOA ICT together with Clean Hydrogen (CH) JU and is a service leader for the “Security and compliance management” area.

The most notable achievements derived from the common JUs’ annual work plan 2024 are:

- Finalisation of migration of the common and IHI-specific IT infrastructure to the Cloud II DPS (dynamic purchasing systems) as successor of the EFSA (European Food Safety Agency) FWC for IaaS (internet as a service).
- Onboarding on "TESTA Cloud Breakout Solution", a new service proposed by the EC’s Directorate-General for Digital Services (DG DIGIT) facilitating access to the EC secure network and applications.
- Agreed on the design for the future upgrade of audio and video equipment in common meeting rooms 1, 2 and 4 which will be completed in 2025 under SLA with the EC’s Directorate-General for Interpretation (DG SCIC).
- Migration of the classical PSTN (publicly switched telephone network) landlines to the new FWC supplier via “operator connect” scenario, linking them directly to the unified communication cloud services, and eliminating the dependency on White Atrium building.

### SharePoint as the main collaboration tool

In 2024 the Programme Office deployed a completely new Intranet (IHInet) and Document Centre based on a modern SharePoint technology, which is a secure, centralised platform for internal communication, collaboration, and document management within IHI.

### Enhancements of in-house applications

IHI's in-house applications were continuously maintained, updated and further developed to serve the organisation's evolving business needs. Major new enhancements and change requests were as follows:

- SOFIA (Submission of Information Application, complementary grant management tool):
  - "Projects outputs", survey module, gathering data for IHI-specific KPIs, was decoupled from projects' reporting periods in order to ensure more frequently updated data.
  - IMI2 in-kind reporting functionality was almost completely redesigned to allow financial and science officers to share their checks and collaborate more efficiently in the evaluation process. All comments are consolidated in the tool and sent out as one single communication. Replies are recorded as well, which improves the process, ensures business continuity, facilitates audits and eliminates the need to keep records of significant number of e-mails.

- Data Warehouse and Qlik sense reporting
  The IHI data warehouse integrates data from SOFIA, the EC eGrants Datawarehouse, SEP Datastore, website CMS, publications data, IHI applicants' affiliation, topic ideas and some other reference files. Qlik Sense reports were continuously updated to align with feedback and evolving business needs, mainly linked to the progress in programme implementation.

- eCDR (electronic Career Development Report)
  The eCDR tool, based on the modern PowerApps technology, was revamped to deliver a seamless, efficient, and intuitive user experience. It complements the main HR system, SYSPER and covers the complete appraisal process from staff self-assessment to reporting and setting the objectives, etc.

### Cybersecurity and collaboration with Computer Emergency Response Team for the Institutions, Bodies and Agencies of the European Union (CERT-EU)

The main services delivered by CERT-EU in 2024, coordinated by IHI on behalf of the JUs, were: 1) red team exercise; 2) web application penetration testing of SOFIA; and 3) end-users' phishing awareness exercise.

The resulting reports provided valuable input on improving IHI's cybersecurity posture. All findings were analysed, and recommendations were implemented with the support of external contractors for IT managed services and software development.

IHI provided also 12 cybersecurity awareness sessions which were open to users from all JUs.

## 2.8 Human resources

### 2.8.1 HR management

#### Staff selection and recruitment

The IHI JU staff establishment plan (SEP) allows for 39 temporary agents and 15 contract agents, in total 54 staff members. On 31 December 2024 there were 48 positions occupied: 36 out of 39 temporary agents (92%), and 12 out of 15 contract agents (80%). The table below provides a summary of the staff planning:

| | Positions planned in SEP | Positions filled on 01.01.2024 | Resignations / end of service in 2024 | Recruitment / appointment in 2024 | Positions filled on 31.12.2024 |
|---|---|---|---|---|---|
| **Temporary Agents** | 39 | 34 | 2 | 4 | 36 |
| **Contract Agents** | 15 | 10 | 0 | 2 | 12 |
| **SNEs** | N/A | N/A | N/A | N/A | N/A |
| **Total** | 54 | 44 | 2 | 6 | 48 |

In 2024, IHI strengthened its talent acquisition strategy by further tailoring its vacancy notices and implementing a multi-channel approach for promoting job opportunities. This also resulted in attracting candidates with relevant IHI JU profiles from various EU member states, with an average of 20 different nationalities per selection procedure.

In 2024, IHI welcomed six new statutory staff, who were recruited either via existing reserve lists or via new selection procedures. The selection procedure for the position of IHI JU Executive Director was successfully concluded in 2023 and the new director joined the organisation on 16 January 2024.

In 2024, IHI JU completed one selection procedure launched at the end of 2023, and launched and organised six new selection procedures, as follows:

- 1 Ex-Post Control and Risk management Officer (temporary agent);
- 1 Scientific Project Officer (temporary agent);
- 1 Legal Officer (temporary agent);
- 1 Executive Assistant to the Executive Director (temporary agent);
- 1 Administrative Assistant (contract agent);
- 1 Financial and Administrative Assistant (contract agent);

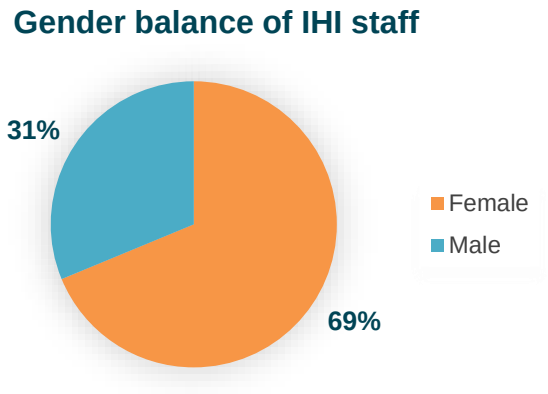
The IHI JU traineeship programme 2024 was launched in May 2024 and finalised in July 2024, which gave the opportunity to a trainee to join the organisation in October 2024 for a period of 6 months. The traineeship provided the possibility for the trainee to gain hands-on professional experience and to develop and strengthen skills and competences.

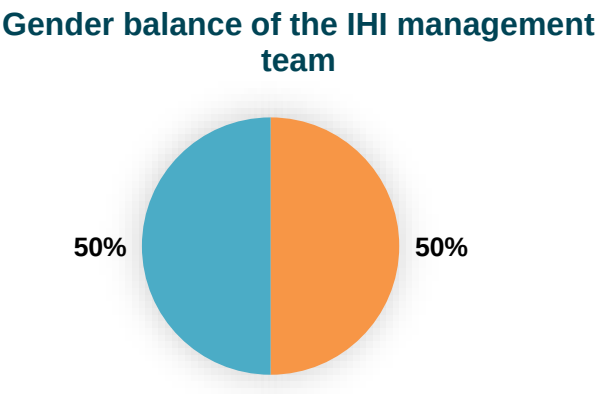
To cope with the peak period of workload and vacant positions, IHI JU concluded – via the EC framework contract for interim services – several short-term interim contracts to address specific needs of the Programme Office.

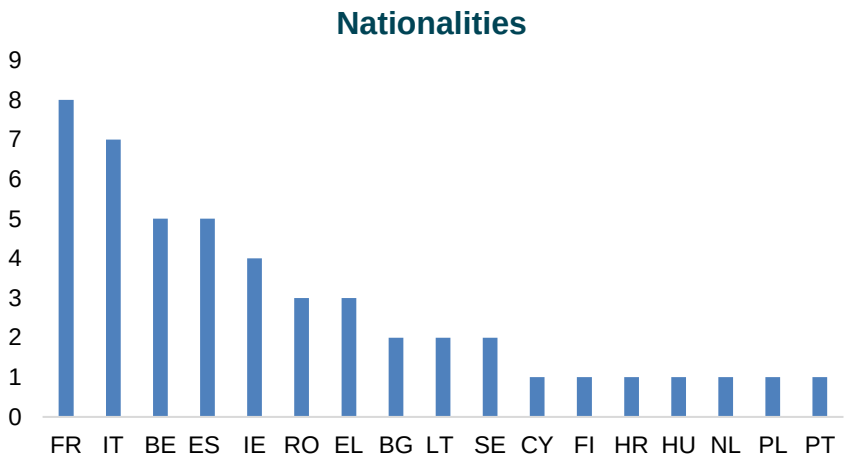
In 2024, IHI prioritised staff engagement — from onboarding to outboarding — resulting in a low staff turnover rate of 4.3% (2 employees). This will remain a key area in 2025.

The two graphs below highlight IHI's strong focus on maintaining gender and geographical balance. In detail, in 2024 69% of the staff were women, whereas 31% were men. The IHI management team is equally balanced, with 50% women and 50% men.

Regarding the geographical balance, IHI JU ensures a wide representation of EU countries among its staff. In 2024, 17 EU nationalities were represented in IHI JU.




### Learning and professional development

IHI JU fosters the continuous development of its staff by organizing training activities aimed at (i) supporting their personal and professional growth and (ii) keeping their knowledge up to date. In 2024, the HR team, in collaboration with the staff, organised several training activities, as follows:

- *Hands-on training courses for operational staff*: on IKAA, on IMI2 IKC in SOFIA tool, on monitoring of IHI Project Outputs, on TERA (termination of project participant), bankruptcies and the Mutual Insurance Mechanism (MIM) intervention (for financial officers).
- *Data protection training: a* tailored session was organised for all IHI JU staff to enhance awareness of the importance of data protection.
- *Document management and Document Centre:* dedicated training sessions were organised in order support IHI staff using the new document management system.

- *IHI Academy:* an introduction to IHI JU, its objectives and operations and how these are reflected in and through the legal basis, the core regulations. Introduction to, and focus on certain aspects, on the Horizon Europe grant agreement and various consortium agreement templates with particular emphasis on IHI JU specificities such as availability, accessibility and affordability (3A), Right to Object (RtO), and Associated Partners (case b).
- *Bite-Sized HR Learning Modules*: targeted sessions on key HR topics including appraisal exercises, performance management, reclassification etc, designed to deepen IHI staff's understanding of HR procedures and processes while enhancing transparency.
- *Ethics training course and Ethics Week*: to raise awareness of professional ethics and to help IHI JU staff recognise and minimise risks situations.
- *Induction training for newcomers:* a programme that facilitates the integration of newcomers and ensures compliance with IHI JU policies and legal requirements.
- *Online soft and technical skills courses*, *language training and well-being lunchtime conferences and courses* were followed using the 'EU Learn' catalogue which helped IHI staff in the selection of the trainings according to their learning needs.

In addition, some in-house training courses were organised by IHI JU and delivered also to staff from other joint undertakings. These included 12 half-day sessions on cybersecurity and 6 half-day sessions on the prevention of psychological and sexual harassment training for JU staff.

### Staff well-being and new ways of working

To promote and guarantee staff well-being, IHI fully implemented the European Commission's decision on working time and hybrid working and conducted a staff survey to assess the impact of the new ways of working.

### Reclassification exercise

The reclassification exercise is a valuable tool to recognise and promote the performance of highly qualified staff members. In accordance with the Staff Regulations, the reclassification exercises for temporary and contract agents successfully took place in 2024. As a result, six staff members (four temporary agents and two contract agents) were reclassified to the immediate higher grade.

### Staff implementing rules (SIR) implemented in 2024

In 2024, IHI HR continued strengthening the legal framework of the IHI JU and implemented the General Implementing Provisions (GIP) on the conduct of administrative inquiries and disciplinary proceedings.

| Title of the SIR | Reference and date of the GB decision (if relevant) |
|---|---|
| Derogation GIP on prevention of and fight against psychological and sexual harassment | IHI-GB_DEC-2024-04 |
| Model decision - GIP on rules as regards to middle management staff | IHI-GB_DEC-2024-18 |

### 2.8.2 Efficiency gains and synergies

The Council Regulation establishing IHI and the other Joint Undertakings (SBA) states that the JUs shall achieve synergies via the establishment of back-office arrangements (BOA), operating in some identified areas. The Regulation also underlines that these synergies should be implemented where screening of resources has proved to be efficient and cost effective, while respecting the autonomy and the responsibility of each Authorising Officer.

The JUs jointly commissioned an independent analysis (provided by an external contractor in June 2022) to identify the areas most appropriate for the establishment of formal back-office arrangements. The study concluded that the estimated efficiency gains in terms of full time equivalent (FTE) savings were modest for most synergies, but there were potential benefits in terms of harmonisation of current practices, standardisation of procedures, establishment of critical mass for effective negotiation, coordination and cost savings. The largely preferred model for the BOA among JUs is a setup with one JU taking the lead in coordinating tasks with one backup JU, organising the work among staff of several JUs and having a clear scope and decision-making power.

In 2024 IHI JU continued the good collaboration with the other JUs in the identified BOA areas, but also shared its experience and knowledge on different matters. This exchange of best practices takes place also via the regular meetings of the Executive Directors, Head of Administration and Finance, HR and legal officers etc.

Furthermore, the eight JUs located in WA collaborated closely on the office and common meeting rooms space and the facility services. IHI JU continued to sub-lease its previous office to GH EDCTP3 until the end of September 2024.

#### BOA Accounting

Following the termination of the accounting services by DG BUDG, the JUs took over the accounting from 1 December 2022. Accounting services are provided by three JUs: Clean Aviation (CA), Single European Sky ATM [air traffic management] Research (SESAR) 3, and Europe's Rail (EU-Rail). The three accounting officers deliver the services currently to 10 JUs and are responsible for the accounts they sign off, while counting on the support and coordination by EU-Rail JU which is the lead JU for the accounting services. The accounting officer for IHI JU is from SESAR JU and was appointed by the IHI JU GB in November 2022.

The BOA for Accounting services is delivering the accounting services, including the preparation of the Annual Accounts for 10 Joint Undertakings. As of January 2024, the BOA team is composed of three accounting officers supported by three accounting assistants. The BOA team is also supported by an external accounting services provider. Also, every JU has an accounting correspondent to provide the required inputs for the BOA Accounting Services.

The IHI JU annual accounts for 2023 JU were signed off in 2024 with the clean audit opinion.

#### BOA ICT

Clean Hydrogen JU and IHI JU co-lead the BOA ICT, which continues the common approach to ICT services before 2024. In 2024, in continuation of the practice over the previous years, the JUs held four ICT coordination meetings, during which:

- The implementation of the common ICT annual work plan and budget for 2024 (AWP2024) was reported.
- The common ICT annual work plan and budget for 2025 (AWP2025) was defined, with an adoption during the meeting of November 2024.

The actions of the AWP 2024 were implemented in accordance with the plan which contained different actions and related budgets. These activities or services are either provided within the JU and/or with the support of external service provider, or fully delivered by others (e.g. EC services).

In parallel, the JUs drafted the service level agreement and description of services, describing the services to be provided under the BOA ICT in accordance with the priorities set forth in the BOA ICT concept note adopted by the Governing Boards in early 2024, namely:

- Service area #1 - inter-JU IT governance;
- Service area #2 - management of shared ICT infrastructure and Service area #4 - workplace services provision;
- Service area #5 - security and compliance management.

IHI JU is leading the service area 5 and successfully coordinated the update of the business continuity plan for all JUs located in WA premises, including the two new JUs. IHI JU is also leading the work on the cybersecurity for the common IT infrastructure and preparing the baseline for an initial cybersecurity plan in accordance with the new cybersecurity regulation for the eight JUs located in the White Atrium as well as the European High Performance Computing (EuroHPC) JU, which is located in Luxembourg. IHI JU also organised a number of cybersecurity trainings which were open to the other JUs as well.

The SLA and description of services were approved by the EDs of 10 Joint Undertakings in December 2024, continuing the implementation of the shared practices of the past 14 years.

### BOA HR

In 2024, under the BOA HR, the Joint Undertakings have continuously maximised their synergies and have implemented several actions in three HR main areas: selection and recruitment, HR legal framework and HR digitisation. In particular, by holding bi-monthly meetings the JUs have continued to promote best practices, ensure consistent HR support services, and achieve efficiencies and economies of scale.

In line with the HB BOA action plan 2024, the JUs have:

- implemented a common online assessment solution for remote proctoring services to support the running of written tests as part of selection procedures. To this end, an SLA among JUs was signed in September 2024 to proceed with the purchase of the above-mentioned services;
- launched a series of workshops to align and harmonise the selection recruitment procedures practices among JUs;
- strengthened their cooperation by:
  - organising an HR Officers Away Day to share best practise and shape collaboration;

- sharing reserve lists to shorten time to recruit, in particular IHI JU has shared 6 reserve lists with JUs and Executive Agencies allowing the recruitment of 6 staff members in different organisations;
- providing expertise and resources allowing staff members to be panel members in several selection procedures at other JUs;
- supporting new joint undertakings during their on-boarding/start-up phase, providing guidance, advice and templates;
- centralising the organisation of training courses of general interest for all JUs (e.g. ethics and integrity, antifraud, etc.) – here IHI JU contributed by organising six half-day sessions on respect and dignity at the workplace for JU staff members, and 12 half-day sessions on cybersecurity for JU staff;
- contributing to developing a common JU HR legal framework by sharing ED and GB decisions on diverse HR regulatory topics;
- launching a new call for interests for the JUs' confidential counsellors, and supporting the communication campaign on the role of confidential counsellors in the JUs;

The JUs, as interinstitutional partners, have also attended meetings held by the European Commission on the HR transformation programme that intends to set up a new IT platform to replace SYSPER.

The JUs will further strengthen this collaboration in 2025.

### BOA Procurement

This BOA has been established with the objective of centralising administrative procurement capability and processes to maximise open tenders for award of inter-JU FWCs and middle value negotiated procedures.

In 2024, IHI JU participated in the following common procurements under BOA procurement:

- Usufruct contract for the eight JUs in the WA
- Online data protection register services
- Facility management contract
- Assets and furniture insurance
- Legal and operational support to data protection activities
- CEI renumerated legal experts
- Communication services
- First aid training

### EU Agencies Network (EUAN)

IHI JU participates actively in the EUAN meetings at the level of the Heads of Agencies, Heads of Resources and Heads of HR. In addition, the operational level convenes together annually under the EUAN umbrella on the following topics: accounting, internal control, procurement, legal matters.

IHI JU staff are also actively involved in different EUAN thematic sub-networks and working groups. These relate e.g. to internal control, risk management, IT, performance development and HR.

## 2.9 Data protection

Throughout 2024 the JU pursued its efforts to render its processes and working methods fully compliant with Regulation (EU) 2018/1725. Foremost among these efforts were updating and improving the JU's online register of processing operations, data protection documentation for use by the Programme Office, updating/implementing data protection measures for IHI's new electronic platforms and tools, and ensuring that IHI JU staff were kept informed of data protection issues.

The JU participated in various interinstitutional data protection activities, including events held by the European Data Protection Supervisor (EDPS).

In December 2024, a staff training was held on the general principles of data protection Regulation (EU) 2018/1725 to continue acquainting staff with data protection principles and terminology, and obligations arising under the data protection rules.

# 3 Governance

## 3.1 Major developments

Dr Niklas Blomberg, appointed by the GB, joined IHI as the Executive Director of the organisation on16 January 2024.

## 3.2 Phasing-out plan monitoring

2024 corresponded to the first year of monitoring of the IHI JU phasing-out plan adopted by the Governing Board in December 2023[10]. In that context, the IHI Programme Office started to assess whether any additional updates regarding the necessary administrative and operational adaptions and steps were needed, especially in light of the growing IHI portfolio and new BOA adopted by the Governing Board.

The Programme Office also reported to the SRG and the SIP on the first version of the phasing-out plan adopted by the Governing Board, as a living one and subject to be modified with time. This report focussed on the main necessary administrative and operational adaptions and steps needed for a winding-up procedure, including procedural and process aspects, as extensively described in the phasing-out plan.

In 2024, the IHI founding members discussed how to further define some sections (notably in relation to long- and short-term targets aligned with the IHI objectives, contributions to the EU research ecosystem and EU competitiveness and synergies with other relevant initiatives as part of the strategic alignment) with wordings that concern and fit all the founding members. An updated version is expected to be approved by the Governing Board in 2025, including elements to be considered on strategic alignment and financial sustainability in line with the IHI objectives beyond the duration of the Union's participation under Horizon Europe.

## 3.3 Governing Board

The Governing Board (GB) is the main decision-making body of IHI JU and is composed of eight members (four from the EC and four from the industry trade associations). Information on GB membership, including CVs and declarations of interest, can be found on the IHI website. At the end of 2024, 6 members were women and two were men. The GB met three times in April, July and December. The agendas are available on the IHI website.

Until 15 December 2024, the Chairperson was Irene Norstedt (EC), and the Vice-Chairperson was Nathalie Virag (Medtronic Global Technology and Innovation and MedTech Europe). As of 16 December 2024, Nathalie Virag and Irene Norstedt were appointed respectively for the positions of Chairperson and Vice-Chairperson for a period of one year.

Several decisions were adopted by the GB, mostly by means of a written procedure. The key decisions are those adopting the amended Work Programmes for 2024, the Work Programme 2025, the list of proposals selected under calls 4, 5, 7 and 8 stage 1, a range of contributing partners in specific call topics, the reported in-kind contributions to additional activities for costs incurred in 2023, the back-office arrangements on ICT, and the appointment of the Executive Director. The full list of decisions adopted is available on the IHI website.

[10] GB decision IHI-GB-DEC-2023-34.

The Programme Office ensured a smooth and effective communication with the GB, notably through the GB platform where all GB meetings documents and draft decisions that undergo written procedure are posted.

In addition, the GB, with the support of the Programme Office, initiated strategic discussions on orientations for priorities from 2025 onwards.

## 3.4 Executive Director

The Executive Director (ED) is responsible for the day-to-day running of IHI JU activities and leading the organisation.

Dr Hugh Laverty was appointed by the GB as acting ED until 15 January 2024. On 16 January 2024, Dr Niklas Blomberg took up his duties as the new ED of the organisation. His CV and declaration of interest are available on the IHI website.

## 3.5 States' Representatives Group

The States' Representatives Group (SRG) is composed of up to 2 representatives and up to 2 alternates from EU Member States and countries associated to Horizon Europe. A description of the role and duties of the SRG, meeting agendas, SRG annual report and information on the members can be found on the IHI website.

In 2023, the SRG elected Martha Cahill (Ireland) and Jasper Claessen (The Netherlands) as respectively the Chairperson and Vice-Chairperson of the SRG. At the end of 2024, 25 representatives were women, and 16 were men.

The SRG met in February, May and October, and the meetings included discussions on IHI activities and future plans (including the proposed applicant-driven approach of call 9), and feedback from the SRG on IHI's first calls and best practices regarding promoting IHI and identifying potential synergies with national programmes. The SRG was also kept updated on engagements with contributing partners and synergies initiated by IHI with other Horizon Europe activities, including other European partnerships as well as other EU and national programmes.

During 2024, the SRG was consulted on the IHI corporate documents such as the CAAR 2023, the amendment to the Work Programme 2024, and the Work Programme 2025. Moreover, in compliance with the Council Regulation, the SRG provided its annual report to the GB, and this was published on the IHI website. In addition, the SRG was invited to provide feedback on IHI's future strategic priorities.

The Programme Office continued to ensure a smooth, effective and transparent communication with the SRG via the dedicated SRG private site. There were also regular interactions between the Programme Office and the Chairperson and Vice-Chairperson. In addition, the QlikSense business intelligence platform provides SRG members with information and data concerning IHI calls and projects. Additionally, preliminary information on topic generation was shared with the SRG.

Finally, the Programme Office organised dedicated workshops either to facilitate the rapid integration of new members into the group (such as on the use of the SRG private site and QlikSense), or to organise preliminary consultations on specific topics (such as on the proposed Call 9, via a dedicated meeting organised in September also addressed to the SIP) or to give specific training courses (such as a workshop on in-kind contributions in November, to which the Programme Office also invited the SIP and the Health NCPs). SRG members were also invited to several other public workshops organised by the Programme Office.

## 3.6 Science and Innovation Panel

The Science and Innovation Panel (SIP) is an advisory body to the GB which has been set up to gain input from a wider range of health and research stakeholders much earlier in the call topic design process. The 18 members come from the European Commission, the industry members of IHI, the SRG, the scientific community, and the wider healthcare community. Anna Chioti and Ralf Herold were Chairperson and Vice Chairperson respectively throughout 2024. In terms of gender balance, 9 members of the SIP are female, and 9 are male. Information on the members and the role of the SIP as well as agendas and reports from meetings can be found on the IHI website.

In 2024, the SIP met in March and September. The agendas of the meetings are available on the IHI website.

During the year, the SIP focused mainly on discussing and providing opinions on the annual scientific priorities, the applicant-driven call 9, ideas submitted by the wider health and research community (the SIP outcomes on the ideas that passed the completeness check are available on the IHI website), and draft topic texts proposed by the IHI JU founding members. The SIP was also consulted on whether to review the process for collecting ideas, the amendment to the Work Programme 2024, the Work Programme 2025, the IKAA planning, and how to best create synergies with other Horizon Europe activities, including other European partnerships as well as other EU and national programmes. The SIP was also kept updated on engagements with contributing partners. More horizontal discussions were also initiated by the SIP about optimising IHI's relevance for and impact on healthcare.

In addition, the SIP provided feedback following the strategic discussions initiated by the GB, which aim to provide high-level orientations of priorities for 2025-2027, a background for discussions on topic definition and budget allocation.

After each meeting, the SIP issued a report to the GB that includes its opinion and recommendations on the matters discussed as required by the Council Regulation. The reports are available on the IHI website.

The Programme Office also invited the SIP to the SRG dedicated workshops and several other public IHI workshops.

In order to maximise the communication with the SIP, the Programme Office further developed a secure IT environment that ensures adequate sharing of data and information between IHI JU and the SIP panellists.

### Promoting interactions between the governance bodies

Regular interactions between the SRG and the SIP are enabled by the fact that the SRG Chairperson and Vice-Chairperson are panellists of the SIP, while the Chairperson of the SIP is invited to the SRG meetings. Regular interactions between the SRG and SIP and the GB were enabled by the fact that the SRG and SIP Chairpersons or Vice-Chairpersons participated as observers in the GB meetings and reported to the GB on their activities. Finally, the agendas and minutes of the meetings of each governance body are shared with the others.

# 4 Financial management and internal control

## 4.1 Control results

IHI JU implements an internal control framework applicable at all levels of management which is designed to provide reasonable assurance that operations are effective and efficient, but also that the financial reporting is reliable, and that the JU complies with applicable laws and regulations.

This section explains how the results described in the previous sections have been achieved by the JU. It focuses on the results generated by the whole internal control system and presents other relevant information that supports management assurance on the achievement of the financial management and internal control objectives.

Moreover, the Innovative Health Initiative (IHI JU) has adopted a revised guidance for the implementation and measurement of the IHI JU internal control framework, defining new internal control indicators and targets and which is used as a basis for the internal control self-assessment 2024.

### 4.1.1 Effectiveness of controls (ex-ante and ex-post)

To assure the effective and efficient implementation of expenditure, IHI JU has set out an internal control framework[11] embedded across its organisational structure, which relies on a combination of ex-ante and ex-post controls as summarised in the following table.

| | Ex-ante controls | Ex-post controls |
|---|---|---|
| Timing | Before the transaction is authorised. | After execution of the authorised transaction[12]. |
| Frequency | Mandatory for all transactions. | Made on a sample basis. |
| Methodology | At least a desk review of documents (e.g. proposal received, reports, etc.) and available results of controls already carried out on the operational and financial operations. | On-the-spot checks at the beneficiary's premises. |
| Impact | Errors detected are rectified before the transaction is approved. | Errors detected are corrected. Where the error gives rise to an ineligible expenditure, a recovery order is issued, or offsetting is made with future payments. |
| Level of assurance | Primary means of ensuring sound financial management and the legality and regularity of transactions, based on desk review of available documentation. | Secondary means of ensuring sound financial management and legality and regularity of transactions, but more robust as normally carried out on the spot. |

In order to prevent errors and irregularities before the authorisation of operations, and to mitigate risks of non-achievement of objectives, each operation is subject, at least, to an ex-ante control. This type of control relates to the operational and financial aspects of the operation. This is based on a multiannual control strategy which takes risk into account.

[11] The Internal Control Framework of IHI JU adopted by the Governing Board on the 16 December 2021 (IHI-GB-DEC-2021-03) as amended by GB decision No 14/2023.

[12] Ex post controls can be carried out up to two years after the payment of the balance for the HE and H2020 programmes.

Overall, the purpose of the ex-ante controls is to ascertain that:

- the expenditure is correct and complies with the applicable provisions
- the principle of sound financial management set out in Article 13 of the IHI Financial Rules[13] has been properly applied.

### a. Ex-ante controls on operational and administrative expenditure

In order to support the statement of assurance on the achievement of the internal control objectives, this section covers reporting on and assessments of various kinds of expenditure, i.e. operational and administrative, with reference to the budget coverage and the indicators set out.

The JU's annual budget is implemented through the administrative expenditure (i.e. related to staff and day-to-day activities – Titles 1 and 2 of the budget) and the operational expenditure (i.e. related to the research programme and payments to the beneficiaries - Title 3 of the budget)[14].

IHI JU has developed and continues to apply comprehensive procedures defining the controls to be performed by scientific project and financial officers for every commitment, payment of financial claim, payment of invoice, and recovery order, taking into account risk-based and cost-effectiveness considerations.

For operational expenditure, the processing and recording of transactions in the IT accounting system (ABAC)[15] are performed via the corporate IT tools (SyGMa/COMPASS) for H2020 and HE grants and evaluation experts, which ensures a high degree of automation as the controls are embedded in each workflow.

[13] Decision of the Governing Board of the Innovative Medicines Initiative 2 Joint Undertaking Adopting the Financial Rules of the Innovative Medicines initiative 2 Joint Undertaking on 27.05.2020 (IMI2-GB-DEC-2020-16) and readopted by IHI JU GB decision on 16.12.2021 (IHI-GB-DEC-2021-03).

[14] See Section 2.3 'Budget and financial management'.

[15] ABAC will be replaced by SUMMA in 2026.

### Overview and ex-ante control results on operational expenditure

The tables below show the balance between the actions implemented under the IMI1/FP7, IMI2/H2020 and IHI/HE programmes in terms of project portfolio and the value of operational expenditure at the cut-off date of 31 December 2024.

| | IM1 | IMI2 | IHI | TOTAL |
|---|---|---|---|---|
| Pre-financing in EUR | - | - | 61 901 912 | 61 901 912 |
| Interim and final payments in EUR | - | 113 246 214 | 10 367 352 | 123 613 566 |
| Number of running projects at year-end | - | 42 | 30 | 72 |
| Started projects in 2024 | - | - | 15 | 15 |
| Ended projects in 2024 | 1 | 17 | - | 18 |

### Costs rejected following ex-ante controls

In order to monitor and measure the efficiency of the ex-ante controls, another key indicator is the percentage of declared costs considered ineligible (i.e. rejected costs) by IHI.

| | Reported costs in EUR | Accepted costs in EUR | Rejected costs in EUR | Accepted costs in % | Rejection rate in % |
|---|---|---|---|---|---|
| IMI1 | 17 560 867 | 17 549 846 | 11 021 | 99.94 % | 0.06 % |
| IMI2 | 184 247 552 | 171 711 803 | 12 535 749 | 93.20 % | 6.80 % |
| IHI | 10 367 352 | 10 367 352 | - | 100 % | - |
| **TOTAL** | **212 175 771** | **199 629 001** | **12 546 770** | | |

### Overview and ex-ante control results on administrative transactions

The following table shows the number and amount of all administrative transactions in 2024, including experts for project monitoring under Title 2. Regarding administrative expenditure, the time to pay (TTP) indicators presented further refer to all transactions (excluding budget Title 1 salary-related costs).

| Administrative transactions made in 2024<br>- Title I and Title II | No | Amount<br>*in EUR* | % | TTP average in days |
|---|---|---|---|---|
| Total # payments (including experts) | 426 | 3 180 190.18 | 100% | 11 |
| # payments on time (within 30 days) | 425 | 3 178 390.18 | 99.8% | |
| No. late payments | 1 | 1 800 | 0.2% | |

The rate of payments on time reached 99.8% in 2024 which is an excellent rate and has further improved in comparison to the 2023 rate which amounted to 99.3%. This demonstrates efficient implementation of the workflows and monitoring in place.

### b. Ex-post controls of operational expenditure and error rates identified

Ex-post controls are the final stage of Programme Office's control strategy in the project lifecycle. This stage includes the ex-post audits as well as the recovery / correction of any unduly paid amounts. Ex-post audits are carried out on the cost claims accepted and paid following the ex-ante controls.

For Horizon 2020 (H2020) and Horizon Europe (HE), the Common Audit Service (CAS) of the Common Implementation Centre (CIC) carries out all the financial audits, including those concerning grants managed by Programme Office. This ensures efficiency gains, a harmonised approach, legal certainty, equality of treatment of beneficiaries and lesser audit burden on beneficiaries.

Ex-post controls have three main objectives:

- to assess the legality and regularity of expenditure on a multi-annual basis;
- to provide an indication of the effectiveness of the ex-ante controls;
- to provide the basis for corrective and recovery mechanisms.

IHI mainly uses two types of audits to reach a substantial representative coverage of its portfolio across beneficiaries as well as to identify and correct irregularities by providing coverage of certain participants' risk profiles:

- **Representative audit:** it contributes to an error rate representative of the whole population. This kind of audit is conducted on the basis of representative samples in accordance with the sampling methodology identified in the ex-post audit strategy. Each sample includes a combination of the largest cost claims by beneficiaries and randomly selected entities.
- **Corrective audit:** it aims to identify and correct irregularities and allows the coverage of certain risk profiles through **risk-based audits**. There may be populations which are not sufficiently covered by representative audits and which may present specific risks. This kind of audit provides IHI with flexibility, ensuring that particular risks are adequately managed and mitigated.

The main legality and regularity indicators for payments made to beneficiaries, as defined in the ex post audit strategy, are the **representative** and **residual error rates** detected through financial ex post audits.

- The ***representative error rate*** **(RepER)** is the detected error rate resulting from the representative audits. It provides a reasonable estimate of the level of error in the population relating to the accepted IHI contributions on completion of the audits but does not take into account the corrections and follow-up undertaken by IHI. The formula for the calculation of the representative error rate is presented in Annex 12 – Materiality Criteria.
- The ***residual error rate*** (**ResER**) is the level of error remaining in the population after deducting corrections and recoveries made by IHI. This includes the extension of audit results to non-audited financial statements of the audited beneficiaries to correct systemic errors. The formula for the calculation of the residual error rate is presented in Annex 12 – Materiality Criteria.

These error rates are calculated on the basis of the audit results available when drafting the Consolidated Annual Activity Report and, as such, should be treated with caution. The effectiveness of the control strategy of the R&I Family can only be measured and assessed fully in the final stages of the EU Framework Programme, once the ex-post audit strategy has been fully implemented, and errors, including those of a systemic nature, have been detected and corrected.

Given the multi-annual nature of IHI JU's programmes and individual research projects, the **residual error rate** calculated on the duration of the programmes provides the most meaningful indication of the financial impact of errors. It takes into account the corrections made by the Programme Office and the fact that the Programme Office extrapolates the systemic findings of the audits, significantly increasing the cleaning effect of audits. Moreover, as the programmes advance, beneficiaries learn from their errors. Drawing from the lessons learned from the audit findings, IHI also works continuously to better inform beneficiaries of any pitfalls to help them to report the costs according to the rules.

Since the legal basis and the budgetary frameworks are different for FP7 (IMI1), Horizon 2020 programme (IMI2) and Horizon Europe programme (IHI), the Programme Office reports the ex-post control activities separately on FP7, Horizon 2020 programme (IMI2) and Horizon Europe programme (IHI).

### *Ex-post control of operational expenditure under FP7*

The last FP7 project completed its activities in 2024 (the final report is due in 2025). The FP7 ex-post audit strategy is completed and there have been no additional financial audits carried out in 2024. However, the additional costs accepted in 2024 do not have any significant impact on the error rates. The FP7 (IMI1) residual error rate remains stable and below 2% materiality.

Indicators of coverage: Number of audits and audit coverage (cumulative):

| | Total population | Audited | Audit coverage |
|---|---|---|---|
| Beneficiaries | 681 | 254 | 37 % |
| Projects | 59 | 58 | 98 % |
| **Contributions** accepted by IHI (EUR, cumulative) | **868 963 970.54**[16] | **149** 877 115 | **17.**25 % |

[16] Figure as of 31/12/2024

Representative and residual error rates as of 31 December 2024:

- Cumulative Representative Error Rate (RepER): 2.07 %
- Cumulative Residual Error Rate (ResER): 0.81 %. The residual error rate is thus below the 2 % materiality threshold established in Annex 12 of this report.

*Ex-post control of operational expenditure under H2020*

As mentioned above, the CAS carries out the H2020 audits for all entities implementing the H2020 programme. The Programme Office works closely with the CAS in the implementation of the common audit strategy, contributes to the relevant working groups, provides inputs during the entire audit cycle from selection of audits to implementation of audit findings, and provides opinions on draft audit reports and extensions of audit findings.

As part of the H2020 programme with a harmonised legal framework, the cost claims are included in the programme level sampling, notably the H2020 common representative sample (CRS). Accordingly, the Programme Office reports on the error rates drawn from these programme level controls.

***Ex-post control of the H2020 programme globally in 2024***

The Horizon 2020 audit campaign started in 2016. At this stage, 6 Common Representative Samples with a total of 944 expected results were selected. By the end of 2024, cost claims amounting to EUR 56.7 billion had been submitted by the beneficiaries to the services. The error rates based on the audit work for Horizon 2020 Framework Programme for Research and Innovation on 31 December 2024[17] are:

- Cumulative representative detected error rate**:** 3.55%[18],
- Cumulative residual error rate for the R&I Family of DGs: 1.79% (1.99% for DG Research and Innovation[19]).

The relatively high level of error in Horizon 2020 grants is linked to the applicable funding model, which is based on the reimbursement of eligible actual costs. Most of the errors relate to incorrect claims for personnel costs that are mainly due to beneficiaries' lack of a thorough understanding of the inherently complex calculation rules. Newcomers and small and medium-sized enterprises (SMEs) are more prone to errors in comparison to more experienced/large size beneficiaries.

There is evidence that the simplifications introduced under Horizon 2020, along with the ever-increasing experience, help in reducing the number of errors made by the beneficiaries, especially when compared to the Seventh Framework Programme (FP7).

### Ex-post control specific to the JU's H2020 population

The tables below show H2020 ex-post control key performance indicators as of 31 December 2024 (cumulative).

[17] Data provided by DG RTD

[18] Based on the 765 representative results out of the 944 expected in the six Common Representative Samples

[19] It should be noted that in 2021 most of Horizon 2020 grants managed by DG Research and Innovation were delegated to Executive Agencies. Hence, this figure is based only on the actions that remained with the DG.

### 1. Audit coverage and number of audits

The table below shows the cumulative audit coverage, i.e. completed representative and risk-based audits compared to accepted financial contributions.

| | Total population[20] | Audited | Audit coverage |
|---|---|---|---|
| Financial EU contributions accepted by IHI (EUR, cumulative) | 998 882 792 | 110 889 563 | 11.10 % |

The following table provides an overview of the status of the cumulative:

- number of audits: total, closed and ongoing
- number of participations covered by the audits as an audit can cover one or several participations

| | Total audits | | Audits finalised | | Audits ongoing | |
|---|---|---|---|---|---|---|
| | Number of audits | Number of participations audited | Number of audits | Number of participations audited | Number of audits | Number of participations audited |
| **Representative** | 128 | 205 | 113 | 177 | 15 | 28 |
| **Risk-based** | 43 | 56 | 28 | 35 | 15 | 21 |
| **Total** | **171** | **261** | **141** | **212** | **30** | **49** |

In 2024, 20 audits covering 31 participations were finalised.

### 2. Representative and residual error rates

As of 31/12/2024, the cumulative error rates in IHI population are as follows:

- Cumulative Representative Error Rate (RepER) 3.54 %
- Cumulative Residual Error Rate (ResER): 0.79 %

### 3. Implementation of audit results and extensions (negative, positive and neutral results) – H2020

Following the finalisation of each audit by the CAS, the Programme Office launches the necessary corrective actions to recover or offset against subsequent claims of the same beneficiaries any amounts that have been found to be unduly paid.

Furthermore, when an audit detects findings of a systemic nature, these are extrapolated to all other non-audited cost claims of the same beneficiary (‘extension of audit findings’). The unduly paid amounts thus identified are recovered or offset against subsequent cost claims of the beneficiary.

[20] Refers to the cumulative reported costs in IHI current portfolio. Figure as of 31/12/2024 (from IHI accounting system)

Extension of audit findings may also be triggered by ex-post audits performed by other EU services on beneficiaries that are also JU beneficiaries. In these cases, the Programme Office provides its opinion to the Common Audit Service and implements the correction. As of 31 December 2024, the Programme Office has implemented 38 out of the 39 extensions of audit findings triggered by audits performed by other EU services on beneficiaries that are also H2020 beneficiaries.

For implementations done outside the grant management module, therefore outside the audit result implementation Compass workflow (called “AURI”), such as non-joint ECA audits and implementation processed before the entry into service of Compass tools on 24 May 2018, the results are manually added to the statistics produced by Compass.

**Implementation of audit and extension results as of 31 December 2024 (cumulative) – H2020**

The table below shows the implementation of all audit and extension results (cumulative), including negative, neutral and positive results:

| JU / H2020 *(target)* | Audit results processed | % Audit results processed | Audit results pending | % Audit results pending | Total |
|---|---|---|---|---|---|
| **Audits** | 196 | 95% | 11 | 5% | 207 |
| **Extensions** | 78 | 87% | 12 | 13% | 90 |
| **Total *(80%)*** | **274** | **92%** | **23** | **8%** | **297** |

The table below shows the number of cumulative cases of unduly paid amounts as well as the cumulative amount recovered or offset:

| JU / H2020 | Number of cases of unduly paid amounts | Number of cases implemented | % of cases implemented | Amount implemented (EUR) |
|---|---|---|---|---|
| **Audits** | 92 | 88 | 96% | 4 412 219 |
| **Extensions** | 28 | 25 | 89% | 823 441 |
| **Total** | **120** | **113** | **94%** | **5 235 650** |

**Time to implement audit and extension results in financial year 2024 (negative, neutral and positive results) – H2020**

| JU / H2020 *(target)* | 0-6 months | % 0–6 months | above 6 months | % above 6 months) | Total number |
|---|---|---|---|---|---|
| **Closed projects** | **14** | **82%** | **3** | **18%** | **17** |
| Negative adjustments with recovery *(50%)* | 4 | 67% | 2 | 33% | 6 |
| Negative adjustments without recovery *(100%)* | 2 | 67% | 1 | 33% | 3 |
| Positive or zero adjustment *(100%)* | 8 | 100% | - | - | 8 |
| **Ongoing projects *(100%)*** | **43** | **100%** | **-** | **-** | **43** |

| | | | | | |
|---|---|---|---|---|---|
| Negative adjustments *(100%)* | 19 | 100% | - | - | 19 |
| Positive or zero adjustment *(100%)* | 24 | 100% | - | - | 24 |
| **Total** | **57** | | **3** | | **60** |

The above figures demonstrate that the JU implements in a timely manner all audit and extension results enabling the Programme Office to meet the targets set by the EC guidance note on monitoring of the implementation of ex-post audit results.

### Ex-post control specific to IHI JU HE population

2024 was the fourth year of implementation of the Horizon Europe Framework Programme. No representative error rate for Horizon Europe is available in 2024 as the ex-post audit campaign for the Programme was launched in the second half of 2024, once a meaningful number of payments was available for audit. Consequently, without elements allowing an assessment of the level of errors and taking into account the simplifications introduced for Horizon Europe that aim to reduce the error rate, a 2%[21] detected and residual error rate will be considered for DG Research and Innovation.

IHI JU signed 30 grant agreements under HE and proceeded with five interim payments in 2024. IHI payments and accepted costs will be included in the next sample of CAS sampling procedure.

[21] These rates correspond to the objective set for Horizon Europe.

### 4.1.2 Efficiency of controls ('time to')

#### a. Definitions

In 2024, IHI JU continued to ensure the efficiency and robustness of its granting process as reflected by the three performance indicators described in the following table.

- **Time to Inform (TTI)** represents the time needed by IHI JU to manage the evaluation and selection phase from the call deadline to informing the participants.
- **Time to Grant (TTG)** represents the maximum eight months between the call deadline and grant signature.
- **Time to Pay (TTP)** represents the outcome of the process for the payment of costs claimed by beneficiaries.

#### b. Overview

| IHI Indicators - in days[22] | Legal target | 2022 | 2023 | 2024 |
|---|---|---|---|---|
| Total average Time to Inform (TTI) | 153 days | 72 | 68 | 67 |
| Total average Time to Grant (TTG) | 245 days | N/A[1] | 234 | 222 |

| IMI1 + IMI2+ IHI Indicators - in days | Legal target | 2024 | | |
|---|---|---|---|---|
| | | IMI1 | IMI2 | IHI |
| Total average Time to Pay (TTP) - for cost-claims and final payments | 90 days | - | 67 | 59 |
| Total average Time to Pay (TTP) - for pre-financing | 30 days | - | | 6 |

The table above demonstrates the efficiency of the Programme Office by meeting all the targets for payments as defined in the Financial Rules[1]. The average TTP results (in days) are below the maximum threshold number of days for all types of operational transactions executed in 2024 and support the efficiency trend.

[22] The 2022 and 2023 data are the ones reported in the previous Annual Activity Reports and relate to the IHI programme.

### c. Experts payments

- **Payments to project monitoring experts**

| Expert payments made in 2024 - Title II | # | % |
|---|---|---|
| # of payments | 46 | 100% |
| # of late payments | 1 | 2% |
| # of payments on time | 45 | 98% |
| Average time to pay (days) | 15 | |
| Total amount paid (EUR) | 72 225 | |

- **Payments to evaluation experts**

| Expert payments made in 2024 -Title III | # | % |
|---|---|---|
| # of payments | 199 | 100% |
| # of late payments | 0 | 0% |
| # of payments on time | 199 | 100% |
| Average time to pay (days) | 10 | |
| Total amount paid (EUR) | 471 330 | |

## 4.1.3 Economy of controls

The section below describes the cost-effectiveness of the Programme Office's controls related to the overall control cycle (ex-ante controls on call management and evaluation, grant award and project implementation and ex post controls).

A complete assessment of the cost-effectiveness of the JU's control efficiency (full cost approach) implies a consideration of all costs related to the control of the overall programme life cycle, from submission, evaluation and selection to ex post audit, including validation of the in-kind contribution provided by industry.

The table below presents the cost-effectiveness ratio of all the controls.

| Cost-effectiveness ratio | 2022 | 2023 | 2024 |
|---|---|---|---|
| Cost of controls / Total expenditure (administrative and operational) | 1.69 % | 1.29 % | 1.50 % |
| Cost of controls / Operational expenditure | 1.75 % | 1.33 % | 1.56 % |
| Cost of controls / Total accepted costs (only beneficiaries' cost claims) | 1.80 % | 1.87 % | 1.98 % |
| Cost of controls / Total accepted costs (both beneficiaries' cost claims and validated industry contribution) | 0.77 % | 0.85 % | 0.99 % |

## 4.2 Audit observations and recommendations

### 4.2.1 Internal audit

The Internal Audit Service (IAS) of the European Commission performs the internal audit function for the JU as specified in Article 28 of the Financial Rules. In line with the International Standards for the Professional Practice of Internal Auditing, the internal auditor has confirmed the organisational independence of the internal audit activity to the Executive Director and the Governing Board.

In October 2024, IAS launched a joint audit on the set-up of back-office arrangements between the joint undertakings[23] with reference to the requirements of the Single Basic Act Article 13. The audit engagement will continue and be concluded in 2025.

The IAS has also performed an update of the risk assessment in preparation for the 2025 audit plan. The annual audit plans of the IAS are coordinated with the European Court of Auditors. The coordination activities aim to avoid duplication and to minimise any overlaps in thematic areas proposed for audits by internal and external auditors.

In December 2024, IAS concluded a performance audit on call topic development and stakeholder relations in the IHI JU as set out in 2023-2025 Strategic Internal Audit Plan[24]. The objective of this audit was to assess whether the IHI JU has designed and implemented effective processes for call topic development and stakeholder relations, allowing the JU to fulfil its objectives and tasks, in line with the relevant legal framework.

The scope of the audit included the assessment of the following processes: (i) call topic development (including the design and implementation of the SIP, SRG and GB working methods in relation to this process), and (ii) stakeholder relations.

The IAS concluded that the IHI JU has designed adequate and implemented effective processes for call topic development and stakeholder relations, allowing IHI to fulfil its objectives and tasks, in line with the relevant legal framework.

The audit did not identify any critical or very important issues[25]. However, the IAS considered that there was some room for further improvement and issued two ‘important’ recommendations.

| Reported | Audit title | Accepted recommendations | State of play in 2024 | Impact on the assurance for 2024 |
|---|---|---|---|---|
| 20/12/2024 | Call topic development and stakeholder relations | Important: 1, 2 | Preparation of action plan | Positive |

[23] IHI is one of the auditees together with CBE JU, Clean Hydrogen JU and EU-Rail JU

[24] Ref. Ares(2023)638585 of 27 January 2023

[25] According to the IAS methodology the significance of the IAS recommendations is classified as Critical, Very Important, Important

### 4.2.2 Audit of the European Court of Auditors

#### Audit on IHI JU annual accounts for the financial year 2023

On 13 November 2024 the European Court of Auditors (ECA) published its 'Annual report on the EU Joint Undertakings for the financial year 2023[26]. The ECA gave a clean bill of health for IHI JU, issuing an unqualified ('clean') opinion on the reliability of the accounts as well as on the legality and regularity of the revenue and payments underlying the annual accounts.

Without calling into question its 'clean opinion', the ECA also provided some observations in the specific chapter on IHI JU on the following subjects:

- Implementation of the FP7 programme

IHI JU provided an up-to-date overview of the progress of FP7 implementation progress. The last ongoing FP7 project finished its activities in October 2024. The programme closure is foreseen for 2025 when all the closing balances are established, and in-kind contributions are validated.

- Low implementation of the 2023 infrastructure expenditure budget (Title 2)

IHI JU took note of the observation and further clarified that the unused amount of payment appropriations under the infrastructure expenditure budget (title 2) at the end of 2023 was around EUR 1 million (or 0.5% of the JU's total 2023 payment budget). The implementation rate of budget title 2 at the end of 2024 reached 92%.

- Weaknesses in the design and evaluation of a significant procurement procedure

The IHI JU took immediate actions and implemented a number of rectifying measures. Namely:

- a review of procurement process and workflows ensuring process ownership as well as four eyes principle to reinforce the verification process of procurement documentation;
- reinforced control of high value tenders;
- mandatory, regular trainings for all staff members involved in procurement tasks;
- even greater use of interinstitutional framework contracts.

- Out-of-date business continuity plan and disaster recovery plan

The IHI JU, together with other Joint Undertakings, established Back Office Arrangements for information and communication technology (BOA ICT) in line with Article 13 of the Single Basic Act. The Common Annual Work Plan 2024 for BOA ICT included a specific action to review and update the Business Continuity Plan/Disaster Recovery Plan in 2024. The IHI JU led the implementation of this action, and the new common JU BCP was approved by the Executive Directors on 16 December 2024.

#### Audit on IHI JU annual accounts for the financial year 2024

In accordance with Article 54 of the JU Financial Rules, the annual accounts are audited by the external audit company. The specific contract was signed in 2024 with Baker Tilly Belgium to cover the audit of financial years 2024 and 2025. The audit work for the accounts for 2024 is ongoing and will be completed with an audit opinion on the final accounts by 20 June 2025.

[26] https://www.eca.europa.eu/en/publications/SAR-JUS-2023

The Court of Auditors will draw the final audit opinion on the 2024 accounts, revenue and transactions on the basis of the work by independent external auditors as well as the substantial audit work performed by the ECA's dedicated team. The final report is due in November 2025.

### 4.2.3 Follow-up of audit recommendations

In 2024 IHI JU did not have any open recommendations from previous IAS audits.

ECA closed its observations from audit 2022 Special Annual Report about disclosure of important information regarding members' contributions at programme level. ECA has acknowledged that: 'Detailed information on the different types of members' contributions were disclosed in the JU's 2023 annual accounts at programme level. This information also allowed a comparison between actual achievements and the legal targets.'

| Reported | ECA audit title | Accepted actions | State of play in 2024 | Impact on the assurance for 2024 |
|---|---|---|---|---|
| 13/11/2023 | Annual report financial year 2022 | accounting | Implemented and closed | Positive |
| 13/11/2024 | Annual report financial year 2023 | FP7 closure<br>Title 2 budget implementation, procurement procedures<br>Business Continuity plan | Implemented, awaiting ECA review | Positive |
| 2025 | Annual report financial year 2024 | Ongoing audit | | |

## 4.3 Assessment of the effectiveness of internal control systems

### 4.3.1 Continous monitoring

IHI JU's internal control framework is designed to provide reasonable assurance regarding the achievement of the following five objectives:

- effectiveness, efficiency and economy of operations;
- reliability of reporting;
- safeguarding of assets and information;
- prevention, detection, correction and follow-up of fraud and irregularities;
- adequate management of the risks relating to the legality and regularity of the underlying transactions, taking into account the multi-annual character of programmes as well as the nature of the payments concerned.

The JU's internal control framework is based on 17 control principles[27] which are aligned with the European Commission control framework. All the principles of the control model are embedded across the JU's organisational structure and rely on a combination of ex ante and ex post controls, segregation of duties, documented processes and procedures, control of deviations, control of data quality, promotion of ethical behaviour and zero tolerance to fraud, prevention of conflict of interest and integrated risk management. The Programme Office at all levels ensures the implementation of the internal control framework.

The self-assessment of the effectiveness of the internal control framework in 2024 is based on the criteria set out in the internal guidance, namely:

- a set of indicators with targets and baselines;
- staff and management surveys and analysis of the results on the functioning of internal control;
- state of implementation of internal control action plan;
- state of implementation of recommendations and observations by internal (Internal Audit Service) and external auditors (independent financial auditors and the European Court of Auditors).

In order to assure that all aspects of the internal control system and business operations were covered by the self-assessment, the 17 control principles have been analysed both individually and as part of the corresponding control component.

### 4.3.2 Risk assessment and management

Risk management is a proactive process for identifying and assessing any event that could pose a threat to the achievement of the IHI JU objectives and determining how the corresponding risks should be managed.

Therefore, risk management is an integral element of the strategic planning and monitoring cycle.

Following the risk assessment exercise carried out by the Programme Office, none of the risks assessed by the IHI management are considered to present a critical residual risk level, taking into account the mitigating actions implemented and/or planned.

[27] https://commission.europa.eu/document/download/f163e193-bf9b-4823-bd4b-dceb8739f46e_en?filename=revision-internal-control-framework-c-2017-2373_2017_en.pdf

In order to control the risks, the Programme Office ensures their monitoring and continuous reviewing, considering the corresponding mitigating measures identified and taking further actions where necessary to ensure controls remain effective. Relevant IHI JU financial needs and the budget for 2024 have also been appropriately estimated.

The staff is regularly informed on the objectives, activities and new planning.

### 4.3.3 Ethics and prevention of conflicts of interest

In accordance with the IHI JU legal framework, the Executive Director and staff of the Programme Office ensure transparency and compliance with ethical rules including the absence of any conflict of interest with the operational and administrative activities of the JU.

The objective of controls on the conflicts of interest is to prevent, detect and address any situation that can undermine the reputation of the IHI JU partnership but also situations that would compromise its impartiality and objectiveness.

The JU has developed a comprehensive set of rules and procedures that are effectively implemented across its entire governance structure, as follows.

- When joining the Programme Office team, each staff member agrees to follow and comply with the Staff Regulations and signs a declaration of honour on the management of conflicts of interest, including the declaration of potential conflict of interest.
- IHI JU applies by analogy, mutatis mutandis, the 'Code of Good Administrative Behaviour[28]' for staff of the European Commission in their relations with the public. The IHI JU has implemented in 2024 an Ethics module in SYSPER (HR application) to ease the declaration and the tracking of conflicts of interest, gifts and hospitalities, publications, the authorisation of outside activities, and spouse employment declarations.
- Mitigating measures are implemented and closely followed up in case of a conflict of interest (real or perceived) declaration.
- Conflict of interest procedures are in place for the members of the IHI JU Governing Board as adopted in December 2021 in the scope of the rules of procedure of the GB for the IHI JU[29]. The declarations are made available on IHI JU website[30]. The rules of procedure for IHI State's Representative Group[31] as well as the rules of procedure of the IHI Science and Innovation Panel[32] include explicit requirements for declarations of conflict of interest.
- The conflict-of-interest prevention policies for staff and for governing bodies were updated in 2023 and 2024 and are in the process of adoption by the Governing Board.
- Specific measures have been implemented for the prevention and management of conflicts of interest of experts in charge of the evaluation of grant applications and of the review of projects and tenders.
- A holistic conflict of interest prevention and detection campaign ('Ethics Week') was conducted within the Programme Office in 2024.
- All IHI JU staff members are trained on ethics and integrity topics during the year.

[28] https://commission.europa.eu/about-european-commission/service-standards-and-principles/ethics-and-good-administration/good-administration/code-good-administrative-behaviour-and-complaints_en

[29] HI-GB-DEC-2023-21_Decision of 17 August 2023 repealing IHI-GB-DEC-2021-01

[30] https://www.ihi.europa.eu/about-ihi/who-we-are

[31] www.ihi.europa.eu/about-ihi/who-we-are/states-representatives-group

[32] www.ihi.europa.eu/about-ihi/who-we-are/science-and-innovation-panel

### 4.3.4 Fraud prevention, detection and correction

The JU has been implementing anti-fraud prevention, detection and correction measures aligned with the Commission Anti-Fraud Strategy (CAFS 2019 and 2023 update) and the Common Anti-Fraud Strategy for the Research family (RAFS 2023 update).

The Common Anti-Fraud Strategy for the Research family addresses the common risks affecting grant expenditure when implementing the Framework Programmes for Research and Innovation. The strategy ensures a coherent and coordinated approach on anti-fraud measures, actions, and resources relevant to the entire R&I family. It pays particular attention to fraud prevention and detection, in accordance with the CAFS, and to reinforcing the early detection of emerging risks of irregularities and fraud.

Anti-fraud measures and actions implemented on research grant expenditure are coordinated with the Directorate-General for Research and Innovation (DG RTD) and other research agencies in joint network - the Fraud and Irregularities in Research (FAIR) Committee, which is mandated to develop this common umbrella strategy and to regularly monitor its implementation.

In addition to the common approach for the research sector, IHI JU is implementing a specific JU-level anti-fraud strategy and action plan adopted in December 2022. The action plan is built to meet four core objectives, namely to:

- maintain and enhance a culture of fraud prevention underpinned by high levels of awareness, integrity and transparency within the JU and its stakeholders;
- strengthen capacities and measures for fraud detection;
- develop and maintain effective coordination and synergies within the research family (FAIR, CIC /CAS, JUs);
- maintain good cooperation and responsiveness to the European Anti-Fraud Office (OLAF) and European Public Prosecutor's Office (EPPO).

In 2024, IHI JU anti-fraud activities were directed towards:

- participation in the FAIR Committee and cooperation on the implementation of the common action plan (e.g. awareness-raising actions (surveys) and update of the common training materials);
- anti-fraud awareness-raising actions and trainings.

All new IHI staff members followed a mandatory training on fraud prevention in 2024. A few trainings were made available to IHI staff via the EULearn training portal, CIC and SESAR JU:

- Fraud Prevention and Detection in Research and Innovation Grants
- Fraud: staying vigilant
- Anti-fraud awareness sessions for all JUs organised by SESAR.

Additionally, attention was given to cross-cutting issues such as risks linked with conflicts of interest, outside activities, gifts and hospitalities, use of IHI resources, and individual obligations. An extensive ethics campaign was organised including:

- a mandatory workshop on ethics and integrity for all IHI staff (3 sessions in June);
- an ‘ethics week’ (in June) featuring a communication campaign.

The Programme Office recorded good results (well over the target of 85%) on fraud prevention awareness and fraud perception by means of the staff survey on internal control in 2024.

In 2024 OLAF closed one investigation without recommendations for actions to be taken additional to those already undertaken by IHI.

The Programme Office did not identify or report any new instances of suspected fraud to OLAF or EPPO.

The Programme Office is closely cooperating with OLAF whenever there is any request. No OLAF enquiries or requests for implementation were received during the year.

### 4.3.5 Assets and information, reliability of reporting

In view of the internal control objective to safeguard assets, the JU has established internal procedures and processes. The inventory check of fixed assets has been performed and documented, and relevant write-offs were done. The annual assessment (including declassification decision, calculations of net book value for IT and furniture to be disposed of, and SAP bookings) was performed before the year-end operations as set out in the internal procedure.

In view of the objective of reliability of reporting, the JU ensures data quality and accuracy via managerial supervision, segregation of duties, and external reviews and audits. The 2024 annual evaluation (related to the period July 2023 to June 2024) of IHI's local financial systems was performed by the accounting officer, part of the BOA, according to Article 25 (d) of the JU Financial Rules. The evaluation did not identify any internal control weakness which would have a material impact on the accuracy, completeness and timeliness of the information required to draft the annual accounts and produce reliable reporting.

On the basis of the available evidence, the accounting officer concluded that the internal control systems are working as intended.

### 4.3.6 Conclusion on internal control systems

The JU uses the organisational structure and the internal control system suited to achieving its policy and internal control objectives in accordance with the internal control principles and has due regard to the risks associated with the environment in which it operates.

IHI JU has systematically examined the available control results and indicators as well as the observations and recommendations issued by the internal auditor and the European Court of Auditors. These elements have been assessed to determine their impact on management's assurance about the achievement of the control objectives. In line with its internal control framework, the JU has assessed its internal control system during the reporting year 2024 and has concluded that it is effective, and the components and principles are present and functioning well. Areas where some further improvements can be made have been identified and will be prioritised in 2025.

## 4.4 Conclusion on the assurance

### 4.4.1 Review of the elements supporting assurance

Reasonable assurance is a judgement by the Executive Director, the Authorising Officer, based on all the information at his disposal.

IHI JU follows the 'three lines of defence' model for assurance and accountability. The Executive Director's assessment is based on the following sources supporting assurance, specifically:

Governance, risk management and internal control framework:

- reporting by the authorising officers by delegation[33];
- reporting by the internal control officer;
- reports and recommendations by the JU audit manager;
- results of ex-ante and ex-post controls
- Governing Board assessment and recommendations.

Findings and opinions from internal and external audits:

- reports and follow up notes by the Internal Audit Service;
- reports by independent financial auditors;
- reports and annual audit opinion by the European Court of Auditors.

External verifications and investigations (when available):

- reports by the JU Accounting Officer;
- reports by the Ombudsman;
- reports by the European Data Protection Supervisor;
- conclusions by the European Anti-fraud Office.

Independent external reviews (when available):

- interim and final evaluation reports;
- project interim review reports;
- bibliometric analysis

As demonstrated throughout this annual report, the results of the performance and control indicators positively support the statement of the declaration of assurance. Fraud prevention and detection mechanisms in place did not reveal anything that would impair the declaration of assurance. The audit results, the internal control self-assessment and the control indicators did not reveal any significant weaknesses that could have a material impact described in Annex 12. The overall cumulative residual error rate is below 2% for the operational programmes implemented by IHI. The control strategy sets out the implementation of further controls during subsequent years designed to detect and correct these errors. No significant weaknesses were identified or reported under Section 2 ('Support to operations') and Section 4 ('Financial management and internal control').

[33] Head of Administration and Finance, Head of Scientific Operations, Head of Communications and Institutional Relations

The total results of grant management operational indicators (time to pay, time to grant, time to inform) are below the legal targets. Overall, the results demonstrate the maturity of financial management and the robustness of IHI's control systems.

Furthermore, the management considers that, given the scope of the statement of assurance and taking into account the controls and monitoring system in place, there are no significant weaknesses that could call into question reasonable assurance on the use of resources for their intended purpose, in accordance with the principles of sound financial management. The implemented control procedures and control results provide the necessary assurance on the legality and regularity of the underlying transactions.

### 4.4.2 Reservations

There are no reasons for introducing any reservations

### 4.4.3 Overall conclusion

IHI's management has reasonable assurance that, overall, suitable controls are in place and work as intended; risks are being appropriately assessed, monitored and mitigated; and necessary process improvements and reinforcements are being implemented. The Executive Director, in his capacity as the Authorising Officer, has signed the Declaration of Assurance.

## 4.5 Statement on management reporting

**For the manager in charge of risk management and internal control:**

I declare that in accordance with the IMI2 JU Governing Board decision No 2017-28 on the Revision of the IMI2 JU internal control framework and IHI JU Governing Board Decision No 2021-3 as amended by Decision No 2023-14, I have reported my advice and recommendations on the overall state of internal control in the IHI JU to the Executive Director. I hereby certify that the information provided in the present Consolidated Annual Activity Report and in its annexes is, to the best of my knowledge, accurate and complete.

Brussels, 06.06.2025

*Signed*

Elise Oukka, Head of Administration and Finance

**For the manager taking responsibility for the completeness and reliability of management reporting on results and on the achievement of objectives:**

I hereby certify that the information provided in the present Consolidated Annual Activity Report and in its annexes is, to the best of my knowledge, accurate and complete.

Brussels, 06.06.2025

*Signed*

Hugh Laverty, Head of Scientific Operations

## 4.6 Declaration of assurance

I, the undersigned,

Executive Director of the Innovative Health Initiative Joint Undertaking

In my capacity as authorising officer

Declare that the information contained in this report gives a true and fair view[34].

State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment, ex-post controls, the observations of the Internal Audit Service and the lessons learnt from the reports of the Court of Auditors for years prior to the year of this declaration.

Confirm that I am not aware of anything not reported here which could harm the interests of the Innovative Health Initiative Joint Undertaking.

Brussels, 06.06.2025

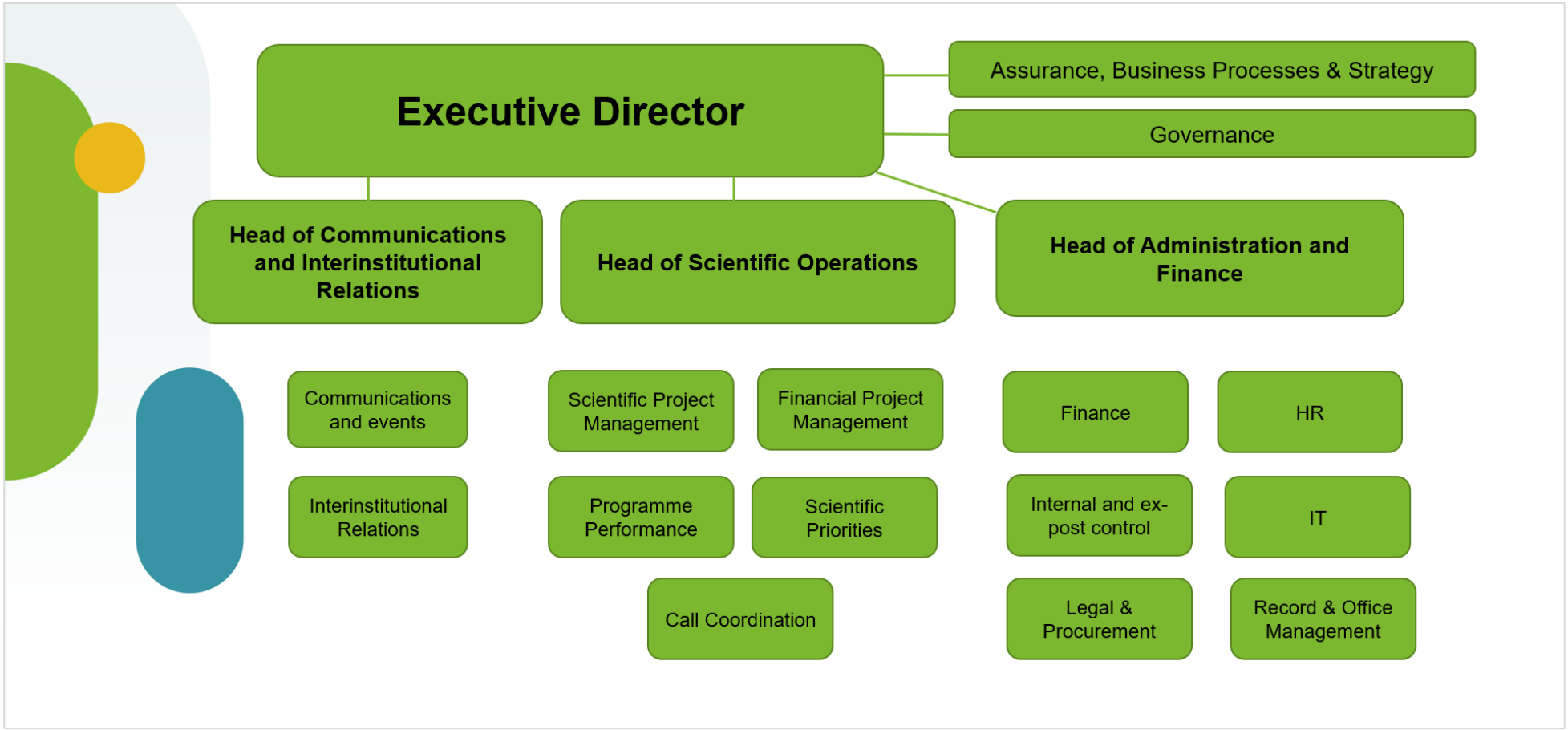
*Signed*

**Niklas Blomberg**
Executive Director

[34] True and fair in this context means a reliable, complete and correct view on the state of affairs in the Joint Undertaking.

# Annexes

## Annex 1 – Organisational chart



## Annex 2 - Establishment plan and additional information on HR management

| Function group and grade | Year 2023 | | | | Year 2024 | | | |
|---|---|---|---|---|---|---|---|---|
| | Authorised posts | | Posts actually filled as of 31/12 | | Authorised posts | | Posts actually filled as of 31/12 | |
| | Perm. | Temp. | Perm. | Temp. | Perm. | Temp. | Perm. | Temp. |
| **AD 16** | | | | | | | | |
| **AD 15** | | | | | | | | |
| **AD 14** | | 1 | | 0 | | 1 | | 1 |
| **AD 13** | | | | | | | | |
| **AD 12** | | 2 | | 1 | | 2 | | 1 |
| **AD 11** | | 2 | | 2 | | 2 | | 2 |
| **AD 10** | | 1 | | 2 | | 1 | | 2 |
| **AD 9** | | 7 | | 4 | | 6 | | 4 |
| **AD 8** | | 6 | | 3 | | 6 | | 2 |
| **AD 7** | | 3 | | 3 | | 4 | | 4 |
| **AD 6** | | 10 | | 5 | | 10 | | 7 |
| **AD 5** | | 2 | | 11 | | 3 | | 10 |
| **TOTAL AD** | | 34 | | 31 | | 35 | | 33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **AST 11** | | | | | | | | |
| **AST10** | | | | | | | | |
| **AST 9** | | | | | | | | |
| **AST 8** | | 1 | | 1 | | 1 | | 1 |
| **AST 7** | | | | | | | | |
| **AST 6** | | | | | | | | |
| **AST 5** | | | | | | | | |
| **AST 4** | | 4 | | 2 | | 3 | | 2 |
| **AST 3** | | | | | | | | |
| **AST 2** | | | | | | | | |
| **AST 1** | | | | | | | | |
| **TOTAL AST** | | 5 | | 3 | | 4 | | 3 |
| **AST/SC 6** | | | | | | | | |
| **AST/SC 5** | | | | | | | | |
| **AST/SC 4** | | | | | | | | |
| **AST/SC 3** | | | | | | | | |
| **AST/SC 2** | | | | | | | | |
| **AST/SC 1** | | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TOTAL AST/SC** | | | | | | | |
| **TOTAL AD+AST+ AST/SC** | | | | | | | |
| **GRAND TOTAL** | **39** | | **34** | | **39** | | **36** |

| Contract Agents | Authorised | Actually filled as of 31/12/2024 |
|---|---|---|
| **Function Group IV** | 5 | 4 |
| **Function Group III** | 10 | 8 |
| **Function Group II** | | |
| **Function Group I** | | |
| **TOTAL** | **15** | **12** |

| Seconded National Experts | Authorised | Actually filled as of 31/12/2024 |
|---|---|---|
| | 0 | 0 |
| **TOTAL** | | |

## Annex 3 – Project outputs

In order to track progress against the ambitious goals of the programmes it manages, the Programme Office gathers details of project outputs. IMI project outputs are categorised according to the categories listed below. IHI project outputs are reported separately; categories for these will be devised once more outputs are available.

**New tools/resources for drug discovery & preclinical drug development:** IMI projects are adding to our understanding of disease, as well as delivering tools, resources and platforms to make it easier for researchers to study diseases and identify potential treatments.

**Biomarkers and tools developed to predict clinical outcomes (efficacy and safety):** How do you know which patients are on the path to recovery and which not? How can you identify patients who may be at greater risk of developing complications? How do you know which medicine will be safe and effective for which patients? Answering these questions is a key part of drug development, and requires an understanding of which biological markers ('biomarkers') could provide clues to help researchers answer these questions. Ideally, these biomarkers should be easily obtainable, for example through a simple blood test, scan, or patient-reported outcome (PRO). Ultimately, more reliable predictive tests will help to eliminate ineffective or unsafe compounds earlier in the development process, thereby avoiding unnecessary patient exposure and stopping investments in programmes that will ultimately prove unsuccessful.

**Improved protocols for clinical trial design and processes:** During clinical trials, medicines are tested for the first time in humans, firstly in healthy volunteers (to check that the drug is safe) and then in patients (to check that it works and to determine the best dose). Clinical trials can take years to run and are incredibly expensive. In addition, the results of clinical trials cannot always be extrapolated to the real world, as patients enrolled in a trial may not be fully representative of the wider patient community. IMI projects are investigating ways of improving the way clinical trials are run, so that they can generate reliable results, faster.

**Biomarkers for the efficacy and safety of vaccine candidates:** Vaccines are one of the most effective public health measures out, saving some two to three million lives worldwide every year. During vaccine development, biomarkers are an essential tool to help researchers identify vaccine candidates that will be both safe and effective. Ultimately, these biomarkers will advance the development of new vaccines and contribute to greater public confidence in vaccines.

**New taxonomies of diseases and new stratifications of patient sub-populations:** There is growing evidence that while two patients may be classified as having the same disease, the genetic or molecular causes of their symptoms may be very different. This means that a treatment that works in one patient will prove ineffective in another. In other cases, diseases that are currently defined as separate conditions may share a common molecular basis. There is therefore now broad recognition that the way diseases are classified needs to change. Many IMI projects are working to develop new ways of grouping or stratifying patients into more meaningful groups. In the long term, this will allow researchers to develop more targeted medicines, and increase the chances of patients receiving treatments that work for them.

**Development and use of cohorts, registries and clinical networks for clinical studies and trials:** Behind every clinical trial is a cohort of participants who are selected on the basis of a range of criteria. However, for many disease areas, finding the right number of appropriate patients is far from easy. IMI projects are setting up cohorts and networks of trial sites to facilitate the running of clinical trials in challenging areas such as dementia and antimicrobial resistance.

**Big data solutions to leverage knowledge / implementation of data standards:** Vast amounts of data are generated daily by researchers and in healthcare. If this data can be linked up and analysed, new information and insights can be gathered to further our understanding of diseases and help in the development of new treatments. However, combining data from lots of different sources brings technical challenges (if file formats and terminology are different) as well as legal and ethical challenges (depending on what permissions were asked of people, like patients, behind the data). IMI projects are devising innovative ways of overcoming these challenges in a number of ways.

**Education and training for new and existing R&D scientists and stakeholders:** If Europe is to stay at the forefront of medical research and drug development, it needs a highly-skilled workforce with a broad understanding of the viewpoints of the different stakeholders involved in the process. IMI's education and training projects have now trained large numbers of new and existing professionals from across Europe and from different sectors, giving them the skills and knowledge to advance in their careers.

**Impact on regulatory framework:** Before medicines can be used by patients, they must be approved by regulatory authorities, such as the European Medicines Agency (EMA). Regulatory authorities assess data on the benefits and risks of a new medicine that is gathered during drug development. Many IMI projects are developing innovative tools and methods of assessing the safety and effectiveness of medicines, and are liaising closely with regulatory authorities to be sure that results based on these are accepted as reliable and valid.

**Implementation of project results inside industry:** The ultimate goal of IMI is to make a very practical, concrete difference to the way new medicines are developed, by delivering tools, knowledge and methods to make the process faster and more efficient. With this in mind, the ultimate test of the significance of a project result is whether or not it has been taken up and used by the project partners, particularly those in industry. With the first IMI projects now closing, it is clear that many results have indeed been taken up by project participants.

**Accessibility of resources/outputs beyond consortium:** Many IMI projects have made their outputs available to researchers outside the consortium, thereby increasing their potential impact on drug development. Results include databases, tools, educational materials, glossaries, compound collections, and cell lines.

The following tables set out IMI project outputs per category. Unless stated otherwise, all projects listed are from IMI2.

### New tools/resources for drug discovery & preclinical drug development

| Project | Description of result(s) |
|---|---|
| AIMS-2-TRIALS | AIMS-2-TRIALS is a large-scale European research project focused on autism spectrum disorders (ASD). It aims to improve understanding, identify and validate biomarkers, foster development of new treatments and create a clinical trial network for autism across Europe.<br>The gut-brain axis is intimately associated with many neuro-psychiatric and neurodevelopmental disorders, including autism, and digestive symptoms are commonly observed in a substantial subset of autistic people. Using genotyping information from 528 unrelated individuals enrolled in the Longitudinal European Autism Project (LEAP) cohort (298 autism and 230 controls), the consortium found variants underpinning three independent genetic pathways which might mediate how the gut-brain axis links to autism pathoetiology and pathophysiology. The data suggest a link of autism risk with genetically regulated gut inflammatory processes. These findings might have implications for the prevention and treatment of ASD, via the targeting of gut-related processes. The research is published in Translational Psychiatry. |

| | |
|---|---|
| ARDAT | The goal of ARDAT is to create the knowledge, tools and standards needed to speed up the development of advanced therapy medical products (ATMPs). There is a lack of non-clinical models that are capable of recapitulating key aspects of liver (patho)-physiology, and this contributes to inefficiency in developing effective treatments for liver disease. The project has created an advanced liver model, described in the journal Biofabrication, which can facilitate the simultaneous testing of many drugs, which could potentially enhance the success rate for new liver disease treatments. |
| ARDAT | Gene replacement therapy using AAV9/hAP4B1 shows promise in treating Spastic paraplegia 47 (SPG47) by restoring AP-4 complex function in an SPG47 mouse model. This condition is characterised by global developmental delay, microcephaly, seizures, epilepsy, malformation of the brain, and hypotonia (low muscle tone) and there is currently no effective treatment. Safety and biodistribution studies reveal no significant adverse events, enabling an investigational new drug application to initiate clinical trials in SPG47 patients. |
| CARE | CARE worked on the development of therapeutics to address current and future coronavirus outbreaks and on the understanding of the physiopathology of the viruses.<br>CARE has developed various biophysical assays to assess compound interactions with the SARS-CoV-2 RNA-dependent RNA replication (RdRp) complex (Nsp7/8/12). These include:<br>• a size-exclusion chromatography (SEC) PAGE assay to determine if compounds could destabilize the SARS-CoV-2 replication complex both before and after its formation;<br>• an *in vitro* click chemistry assay to examine the mode of action of compounds targeting the RNA replication phase;<br>• a RdRp biochemical function assay, specifically an electrophoretic mobility shift assay (EMSA), to test if a compound can inhibit nascent RNA synthesis in de novo initiation or primer-extension phases. |
| CARE | Electron microscopy maps of the spike glycoprotein of the porcine deltacoronavirus (PDCoV) as well as atomic models were released. These findings, published in Nature Communications, provide structural insights into the humoral immune response against the PDCoV S protein, potentially guiding vaccine and therapeutic development for this zoonotic pathogen. |
| CARE | CARE described the nanobody 7F, targeting the spike receptor binding domain of sarbecoviruses and SARS-like coronaviruses, including up to more recent SARS-CoV-2 variants of concern. This work, described in a preprint, demonstrates the therapeutic potential against SARS-CoV-2 in differentiated tissue cultures. |
| CARE | Following identification of new hit compounds in the phenotypic and target-based approaches, prioritised antiviral hit series were further optimised via thorough medicinal chemistry efforts:<br>• A compound series targeting the viral membrane protein, which represents a novel mode-of-action, distinct from the currently approved antivirals. This series is in advanced lead optimisation and shows low nanomolar antiviral activity against all variants of concern of SARS-CoV-2 and against SARS-CoV-1, and yielded strong antiviral efficacy *in vivo.*<br>• A potent corona-antiviral compound series targeting the exonuclease NSP14. Hit-to-lead efforts led to compounds with potent activity in biochemical and cell-based assays and generated a good understanding of optimisation parameters, also helped by several co-crystals. This Nsp14 targeting programme formed the basis for a license agreement with Novartis.<br>• Another series that seems to act by inhibiting the replication and transcription complex of SARS-CoV-2 – also believed to be a novel mode-of-action. Further lead optimization is ongoing and will potentially be enabled with cryo-EM thereby allowing structure-based compound design. This is a compound series in lead optimisation by Nuvisan, which was identified from the Servier compound library and has yet another mechanism of action. This compound series has double-digit nM activity in several cell lines and has already obtained *in vivo* proof of concept.<br>Several of the series are being evaluated for further development by consortium industry partners. |
| ESCulab | The European Lead Factory (ELF; funded through the ESCulab IMI2 project) was a screening service with a vast chemical library derived from public and private company compound collections aiming at helping researchers to boost their drug discovery programmes. |

| | |
|---|---|
| | In total, ESCulab has ran 125 screening programmes from public partners, EFPIA, and the IMI2 associated partner Medicines for Malaria Venture (MMV). These resulted in over 100 qualified hit lists (QHLs).<br>More information on the overall achievements of ELF can be found here. |
| IM2PACT | IM2PACT investigates mechanisms and models predictive of accessibility of therapeutics into the brain.<br>The project has published an article in Nature Communications showing that endothelial cells are enriched in those genes associated with a genetic risk for Alzheimer's disease. This suggests that there may be a causal link between endothelial cells and Alzheimer's disease, indicating that reducing vascular inflammatory activation and restoring effective blood vessel growth could reduce the dysfunction in the endothelial cells that leads to Alzheimer's disease. |
| IM2PACT | The project has developed a protocol for the generation of brain endothelial-like cells from human induced pluripotent stem cells. This model exhibits a tight barrier function and expression of molecules involved in transport across the barrier and is a useful tool for blood-brain barrier investigations. |
| IMMUcan | The goal of IMMUcan is to understand how the immune system and tumours interact and the impact of therapeutic interventions to better understand why some patients respond to certain treatments and others not.<br>The IMMUcan platform has access to high-quality human biological material and clinical data from patients with colorectal, lung, head & neck, breast, and renal cancers from patients treated with immune checkpoint inhibitors and other standard-of-care treatments. Biological material is subject to detailed molecular analysis and immuno-profiling. As of December 2024, 2 650 patients' tumour samples were collected and 1 987 patients successfully analysed. The platform will be made accessible to the wider scientific community after project end for research purposes. |
| imSAVAR | The imSAVAR project aims to deliver a range of tools that will enhance the ability to assess the efficacy and safety of immunomodulatory therapies targeting certain cancers and autoimmune diseases much earlier in their development. Over the past year the consortium has delivered several new tools to help achieve this goal, including a computational workflow to identify shared characteristics and divergences within T cell-induced immune response between cynomolgus monkeys (*Macaca fascicularis*) and humans. This work has the potential to support preclinical drug development of immunomodulatory therapies.<br>The consortium has developed a CAR T cell atlas that supports the annotation and interpretation of newly generated (CAR) T cell data. The atlas also provides a reference landscape for different conditions (time, mutation status) and enables the correlation between nonclinical and clinical data.<br>The consortium finalised an immune-related adverse outcome pathways (irAOPs) map for cytokine release syndrome (CRS), following the study-a-thon in 2023. irAOPs provide the basis for combining individual clinical observations into an overall picture. The irAOPs allow the identification of possible key cellular and molecular events and the derivation of potential markers suggesting possible adverse effects. The map is publicly available. Two publicly available datasets were visualised on the map as a set of overlays accessible to all viewers.<br>The consortium developed a tumour-on-chip model incorporating patient-derived tumour organoids or tumour cell line aggregates and an endothelial barrier. This model, described in Cell Stem Cell, captures aspects of the efficacy and safety of CAR-T cell therapy and can be used to assess efficacy and safety of different immunotherapeutic modalities. |
| INNODIA HARVEST | The consortium showed that inflammatory cytokine-exposed human islets are prone to both enzymatic and biochemical deamidation, the products of which can promote the activation of autoreactive T cells in individuals with type 1 diabetes (T1D). These results, published in Immunology and Transplantation, pave the way for new diagnostic and therapeutic approaches for individuals living with T1D. |
| Mad-CoV 2 | The overall aim of the MAD-CoV 2 project was to develop and deliver a treatment for COVID-19 patients as well as a powerful new platform that can be used to develop new antivirals for past and future viruses The project developed a platform to identify host factors critical for filovirus infection and validate them using mutant cells, hepatocyte spheroids, and blood-vessel organoids. The CCZ1 gene was identified as a key factor for the entry of Marburg and Ebola viruses, as well as for endocytosis-dependent SARS-CoV-2 infections. Targeting CCZ1 could |

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| | offer a potential therapeutic strategy for combating infections caused by multiple viruses, including SARS-CoV-2, Marburg, and Ebola. The findings are published in Nature Communications. |
| Mad-CoV 2 | The project successfully tested JLP Health's (an SME in the project) high-throughput screening technology, demonstrating its potential for identifying vulnerabilities in viruses beyond Crimean–Congo haemorrhagic fever virus (CCHFV). By utilising single mutations in haploid cells, the system uncovered gene mutations that hinder viral infection without harming healthy cells. This approach not only enhances our understanding of viral resistance but also paves the way for the development of targeted, non-toxic antiviral therapies. The successful application of this system marks a significant advancement in antiviral drug discovery. |
| PRISM 2 | PRISM 2 aims to shed new light on the underlying causes of social withdrawal in schizophrenia, major depressive disorder and Alzheimer's disease. The project has identified a transdiagnostic, pathophysiological relationship between the integrity of the default mode network (DMN) and social dysfunction. To explore the causal link between DMN integrity and social behaviour, project partners employed a preclinical back-translation approach, using focal demyelination of the forceps minor to disrupt DMN connectivity in mice.<br>By applying advanced techniques such as functional ultrasound imaging and automated analysis of social behaviour, they demonstrated that reduced DMN connectivity leads to impaired social interactions and increased anxiety in mice. Notably, these effects were reversible, indicating that the forceps minor, a critical fibre tract connecting key DMN regions in the prefrontal cortex, plays a crucial role in social function. This finding, published in Scientific Reports, provides direct evidence for a causal relationship between DMN integrity and social dysfunction, with potential implications for developing targeted treatments in precision psychiatry. |
| PRISM 2 | The brain's default mode network (DMN) plays a role in social cognition, with altered DMN function being associated with social impairments across various neuropsychiatric disorders. PRISM 2 examined the genetic relationship between sociability and DMN-related resting-state functional magnetic resonance imaging (rs-fMRI) traits. Significant local genetic correlations were found between sociability and two rs-fMRI traits, particularly in the temporal cortex and the frontal/cingulate regions. By combining three methods for gene prioritisation, project partners identified 17 genes, with DRD2 and LINGO1 showing the most robust links. The results, published as a preprint, highlight potential biomarkers for social dysfunction in neuropsychiatric disorders. This gene prioritisation approach could guide future studies and drug development. |
| RealHOPE | RealHOPE aims to measure real-life events during drug handling to develop methods for simulating these events. A method for studying the effects of light exposure has been identified and is described in a paper in the International Journal of Pharmaceutics. The findings from light exposure studies could be helpful for developing more tuneable and specific instructions for the handling of monoclonal antibodies (mAbs) by healthcare personnel. As heat sterile glucose contains toxic and phototoxic products, sterile filtered glucose, preventing caramelisation of sugar, should be utilised for injectable drugs to prevent their oxidation. Moreover, the investigations of the combined effect of pH and light on the structure of therapeutic proteins could provide in-use mimicking stability protocols, helping pharmaceutical companies to adopt precautionary procedures to avoid the loss/reduction of mAb efficacy during manufacturing. |
| RespiriNTM | RespiriNTM aims to find new drug candidates that could be part of a new, more efficient drug regimen for non-tuberculous mycobacteria (NTM) with a shorter treatment time The project identified amiodarone as a potential host-directed therapeutic (HDT) against *Mycobacterium tuberculosis* (Mtb) and *Mycobacterium avium*. Amiodarone inhibited bacterial growth within human macrophages without direct antibacterial effects, promoting autophagy via enhanced transcription of transcription factor EB. Blocking lysosomal degradation impaired its beneficial effects. In vivo testing in zebrafish embryos confirmed its efficacy in reducing bacterial burden. The findings, published in Host-Microbial Interactions, suggest amiodarone as a promising HDT to improve host control of mycobacterial infections. |
| RespiriTB | Recent efforts to improve tuberculosis (TB) treatment focus on developing molecules with novel mechanisms and identifying optimal regimens. Inhibition of *Mycobacterium tuberculosis* cytochrome bc1 oxidase has emerged as a promising therapeutic target for TB combination therapies. The RespiriTB team demonstrated using a relapsing mouse model that cytochrome bc1 inhibitors could enhance regimen sterilisation. Novel regimens for both multidrug-resistant (MDR-TB) and drug-sensitive (DS-TB) TB have been proposed, with cytochrome bc1 inhibitors contributing to sterilisation and shorter treatment durations. The project also showed that clinical |

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| | isolates are more susceptible to these inhibitors than laboratory-adapted strains, supporting their potential. These findings, published as a preprint, suggest that cytochrome bc1 inhibitors could improve TB treatment outcomes, warranting further studies on their clinical contribution. |
| TRISTAN | TRISTAN aims to validate the use of imaging biomarkers to assess and predict the toxicity of potential medicines on the liver and lungs, while improving the use of imaging to avoid side-effects when certain types of drugs go to the wrong part of the body. The consortium developed a panel of two translational imaging biomarkers that enable quantification of effects of test drugs on rate constants for hepatic uptake (khe) and biliary excretion (kbh) of the tracer gadoxetate in vivo, in rats and in humans. It is proposed that these biomarkers will enable improved evaluation of hepatic transporter mediated drug-drug interaction risk in early clinical drug development. The biomarkers have been entered into the US FDA-CDER (Food and Drug Administration Center for Drug Evaluation and Research) Liver Biomarker Qualification Program and clinical validation studies are underway. |
| UNITE4TB | UNITE4TB aims to accelerate and improve clinical trials of combinations of existing and new drugs against TB. The project is developing assays able to measure the exposure to novel chemical entities under development within UNITE4TB in individuals on treatment. This will aid in further drug development process and may prove an important marker of treatment efficacy and/or toxicity. The work is described in The Lancet Microbe. |

## Biomarkers and tools developed to predict clinical outcomes (efficacy and safety)

| Project | Description of result(s) |
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| BIOMAP | BIOMAP aims to uncover the underlying causes of atopic dermatitis and psoriasis by studying data and samples from large datasets of patients and healthy individuals. Exploring genetic and environmental factors that influence disease progression and treatment response, the project seeks to identify new sub-types of the diseases and to enable personalized treatment decisions. New cohorts were added to the BIOMAP data platform. This data platform centralises and harmonises clinical and molecular data of over 60 different clinical and epidemiological studies, registries and trials, including 50 000 patients, allowing robust cross-cohort analyses and biomarker identification for personalised treatment decisions. |
| CANCER-ID | CANCER-ID worked to identify markers of cancer in the blood. A focus of the project was non-small-cell lung cancer (NSCLC), which is sometimes caused by a BRAF gene that is functioning incorrectly. In a paper published in the British Journal of Cancer, they describe how they used different molecular analyses to investigate whether mutant cells were causing patients to reject a commonly-used combination therapy for lung cancer. Their findings suggest that resistance to BRAF inhibitors treatments may not be driven by BRAF-mutation. This study contributes to a better understanding of how some patients' cancers resist these therapies, a step which is vital for the development of more effective therapeutic strategies against lung cancer. |
| CARE | Research with infectious viruses is normally undertaken in high-containment laboratories; however, it is often desirable to work with samples at lower-containment levels. To facilitate the study of infectious samples. CARE developed a novel tandem mass spectrometry method to detect the impact of damage of SARS-CoV-2 on cells after inactivation of tissue.<br>This helps to understand additional beneficial properties beside typical efficacy endpoints of small molecule treatments. |
| ConcePTION | The project aimed at establishing a trusted ecosystem to provide evidence-based information on the use of medicines during pregnancy and breastfeeding to women and their healthcare providers. An in vitro model based on human mammary epithelial cells to represent the blood-milk barrier in the mammary gland was developed to predict how medicines transfer to breast milk. This model, described in the International Journal of Molecular Science, provides quantitative data that could inform researchers for better *in vivo* study designs. |
| ConcePTION | Developed a first validated method for the assessment of the quality of information in real-world pregnancy pharmacovigilance case reports. In future studies, this novel method, can be used for |

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| | the comparison of the clinical quality of different pregnancy data collection sources. The method is described in Drug Safety. |
| ConcePTION | A standardised framework has been developed for long-term follow up of neurodevelopmental outcomes of children exposed to medicines during pregnancy. The LIFETIME framework tracks neurodevelopmental outcomes through to school age, providing an evidence-base for medicine safety in pregnancy. So far, the LIFETIME framework has been utilised in four European centres and 1 200+ mother-child pairs have been recruited. |
| IDEA-FAST | The goal of IDEA-FAST is to develop novel digital endpoints for fatigue and sleep disturbances that will provide more objective, sensitive and reliable measures of the severity and impact of these symptoms in patients' lives. The consortium published a paper on the preliminary insights from the IDEA-FAST feasibility study in which wearable devices were used to provide objective and reliable estimates of gait as objective measures of fatigue as an alternative to other measures such as patient reported outcomes (PROs). |
| IMI-PAINCARE | The aim of the PROMPT sub-project of IMI-PAINCARE is to develop patient-reported outcomes that will capture in a standardised way patients' perceptions of their pain. A cross-sectional study was conducted tracking the post-op activity of patients using ActiGraph devices to determine the association between average pain intensity and activity 1 week after surgery. No correlation was found between pain-related patient-reported outcome measures (PROMs) and physical activity, indicating that both pain intensity and activity levels should be measured after surgery to determine recovery and potential problems and treatment requirements. |
| IMI-PAINCARE | A systematic literature review was published on the use of functional magnetic resonance imaging (fMRI) to characterise brain mechanisms of hyperalgesia/allodynia and to evaluate the efficacy of analgesics as part of an overarching aim to validate fMRI as a biomarker of pharmacodynamic efficacy. The experimental evidence amassed over the past 20 years of neuroimaging research indicates functional imaging as a viable option to meet the need for objective biomarkers of analgesic efficacy in humans. |
| Immune-Image | Improving patient selection and the development of biological therapies such as vedolizumab in inflammatory bowel disease (IBD) requires a more thorough understanding of the mechanism of action and target binding, thereby providing more individualised treatment strategies. Immune-Image did a clinical trial to visualise the macroscopic and microscopic distribution of intravenous injected fluorescently labelled vedolizumab, vedo-800CW, and identify its target cells using fluorescence molecular imaging (FMI). A total of 43 FMI procedures were performed in 37 patients with IBD. The results indicated that FMI has the potential to macroscopically determine the local distribution of a drug in the inflamed target tissue and can identify novel drugs' target cells, providing new insights into targeted agents for use in treating IBD. The work is described in the journal Gut. |
| Immune-Image | Variations in immunotherapy responsiveness limit the broad applicability of such therapies. Diagnostic imaging of immune cells, and specifically CD8+ T cell dynamics could allow early patient stratification and result in improved therapy efficacy and safety. The project developed a more specific human CD8+ T-cell-targeting immunotracer for non-invasive imaging of CD8+ T-cell dynamics, enabling follow-up of immunotherapy responses. The immunotracer was developed using nanobodies targeting human CD8β and labelled for use in single-photon emission computed tomography (SPECT) and positron emission tomography (PET) imaging. This approach could enhance monitoring and personalised treatment strategies, ultimately improving patient outcomes. The work is published in the European Journal of Nuclear Medicine and Molecular Imaging. |
| Immune-Image | Increasing evidence highlights the important role of CD4+ T cells in cancer immunity. Non-invasive imaging of CD4+ T cell dynamics could provide new insights into their functions during cancer immunotherapy. The project developed 89Zr-labeled anti-mouse and anti-human CD4-targeting minibodies for positron emission tomography (PET) and magnetic resonance imaging (MRI) of CD4+ T cells in various preclinical models. These minibodies showed high radiolabelling efficiency and specific in vivo targeting, with enhanced uptake in tumour-bearing mice treated with immunotherapies. The approach enables monitoring of CD4+ T-cell distribution, offering potential for predicting sensitivity to cancer immunotherapy and providing insights into CD4-directed therapies. The work is described in the journal Theranostics. |

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| imSAVAR | In a research study performed on 57 patients on day 3-7 after CAR T cell therapy infusion, cytopenia following CAR T cell treatment was identified to be associated with markers of endothelial dysfunction. Furthermore, the consortium identified elevated endothelial dysfunction and hyperinflammation prior to lymphodepletion as markers for high risk of developing severe cytopenias. The work is published in Oncology Research and Treatment. |
| imSAVAR | In a patient research study, the consortium longitudinally collected blood from 213 patients that received CAR T cell therapy and assessed immune cell composition, serum cytokines and molecular characteristics by single cell RNA sequencing. This work enables the correlate of adverse events (CRS, cytopenias) with patient characteristics prior to treatment.<br>The consortium biobanked blood samples from CAR-T patients at four specific timepoints prior and after CAR-T infusion. They used serum samples from 57 patients already to identify markers associated with cytopenias and severe infections. In addition, the consortium grouped patients into responders and non-responders with and without prolonged cytopenias and characterise them by single RNA sequencing. |
| imSAVAR | SLE is an auto-immune disease that is characterised by a dysregulation of immune cells and production of specific auto-antibodies. Furthermore, an imbalance in regulatory T cells (Tregs) and effector cells can be mitigated by a low-dose supply of IL-2 which would favour Tregs generation and thus re-introduce tolerance. Since this association of immune modulation and outcome of viral infections cannot be monitored in clinical trials, the consortium established a murine model of SLE with six biomarkers to monitor disease development and assessed the efficacy of ld-IL-2 treatment. Among the biomarkers only the auto-antibody level in the serum was positively and significantly affected by intravenous application of ld-IL-2. Further work will determine the appropriate effective dose of IL-2, and the effect of ld-IL-2 treatment on viral susceptibility in respiratory virus infections. |
| imSAVAR | Differential expression of two interleukin-2 receptor subunits (IL-2R) found to be potential biomarkers for IL-2-induced skin rashes, published in two open access Research Articles (PMIDs 38430129 and 38950723). Potential mechanism for IL-2-induced skin rashes published as an open access Review (PMID 39655497). |
| LITMUS | LITMUS focussed on better understanding liver disease and its progression and on developing better techniques for diagnosing it. Metabolic dysfunction associated steatotic liver disease (MASLD) is a highly prevalent disease that often requires invasive techniques to be accurately diagnosed.<br>LITMUS has developed and/or defined the most accurate and promising diagnostic biomarkers relevant to MASLD. Samples and data from >2 500 histologically characterised cases have been analysed for a comprehensive range of biomarkers, LITMUS identified several novel high-performing biomarkers for diagnostics with data to support regulatory qualification and further validation of selected high-performing biomarkers. This is published in The Lancet Gastroenterology & Hepatology.<br>For example, new data on novel proteins and also miRNA biomarkers has been obtained using samples from LITMUS. In addition, a detailed analysis using the SOMAScan biomarker platform has been performed. Together, these represent substantial results that have advanced the field of RNA, miRNA and Protein biomarker discover across the MASLD spectrum - focussing on key clinical check points 'at risk' NASH and advanced fibrosis.<br>Finally, as described in PLoS One, a machine learning approach has been implemented to develop new composite biomarkers, including blood-based and imaging biomarkers, that could enhance the diagnosis and staging of patients with MASLD. |
| MACUSTAR | MACUSTAR aims to develop validated clinical endpoints for age-related macular degeneration (AMD) which currently has limited treatments. In collaboration with different international research consortia a major milestone was achieved to better understand the genetic risk underlying the development of reticular pseudodrusen in AMD. |
| NECESSITY | Primary Sjögren's disease (pSD) is an autoimmune condition marked by immune cell infiltration into exocrine glands, causing mucosal dryness, and the presence of autoantibodies. Its underlying mechanisms remain unclear, and no proven treatments exist. To explore pSD's biological diversity, the NECESSITY consortium identified consensus gene modules (CMs) from whole blood transcriptomic data in pSD patients. Using unsupervised gene classification across four datasets, NECESSITY discovered 13 CMs and annotated them via gene set enrichment analyses and sorted blood cell transcriptomes. These annotations were validated using flow |

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| | cytometry. The CMs aligned with prior patient classifications and revealed that pre-treatment expression of lymphocyte- and erythrocyte-related modules predicted response to hydroxychloroquine and leflunomide in a clinical trial. These CMs may guide the development of blood-based predictive biomarkers for pSD treatment. The work is published in Clinical Immunology. |
| NECESSITY | The NECESSITY project aimed to identify peripheral and salivary gland (SG) biomarkers of response/resistance to B cell depletion based on the novel concise composite of relevant endpoints for Sjögren's syndrome (cCRESS) and candidate Sjögren Tool for Assessing Response (STAR) composite endpoints. The results of their work, published in Arthritis and Rheumatology, demonstrated that Rituximab modulates both peripheral and SG inflammation, preventing the deterioration of exocrine function with functional and metabolic restoration of the glandular epithelium. Response assessed by newly developed cCRESS and STAR criteria was associated with differential modulation of peripheral and SG biomarkers, emerging as novel tools for patient stratification. |
| PROMISE | The goal of PROMISE is to deepen our understanding of respiratory syncytial virus (RSV) to aid in the design of public health strategies as well as the development and use of vaccines and therapeutics in both children and older people. Monocytes, especially in the respiratory tract, are suggested to contribute to RSV pathology and unravelling the monocytic response and its role in the immune response to RSV infection could help the development of therapeutics to prevent severe disease. Using transcriptomic profiling of blood and airway monocytes, the role of monocytes in severe RSV infection was investigated. The study indicated that RSV induces a migration-promoting transcriptional program in monocytes. |
| RADAR-AD | The aim of RADAR-AD is to use digital technologies to measure cognitive and functional decline in people with Alzheimer's Disease. The consortium published a paper on a cross-sectional pilot study conducted in a Smart Home in which the activities of daily living (ADL) were monitored for participants in different groups (i.e., healthy controls, participants with subjective cognitive decline (SCD) and participants with mild cognitive impairment (MCI)). The results indicate that for some activities there was a clear difference between the healthy controls and the SCD and MCI groups. This study shows the need to include people in preclinical stages of dementia in research to develop clinically relevant digital biomarkers. |
| RESCEU | The aim of RESCEU (forerunner of the PROMISE project) was to measure the burden of respiratory syncytial virus (RSV) on patients and healthcare systems. In a study investigating the relationship between the respiratory microbiome and RSV infection in infants, nasopharyngeal samples from a birth cohort and a paediatric case-control study were sequenced. 1 537 samples were collected shortly after birth ('baseline'), during RSV infection and convalescence, and from healthy controls. The study indicated that though neonatal respiratory microbiota is only modestly associated with RSV severity during the first year of life, the respiratory microbiota at the time of infection is strongly associated with disease severity and residual symptoms. |
| RESCEU | A study investigated serum and mucosal antibodies for protection against respiratory syncytial virus (RSV) infections in in a community-dwelling older-adult population. The results indicate that some antibodies (serum RSV-pre-F, RSV-G IgG, and mucosal pre-F binding IgA) showed correlations with protection against symptomatic RSV infection while other antibodies (RSV-pre-F IgG) were correlated with protection from RSV infections irrespective of the symptoms. |
| RESCEU | Targeted metagenomic sequencing of >100 pathogens (including all common respiratory viruses and bacteria) was used in a study on samples collected from 433 infants in the RESCEU case-control cohort. It was shown that that the burden of additional viruses is common but only modestly correlates with respiratory syncytial virus (RSV) disease severity. In contrast, there is strong evidence and across age groups that the presence of Haemophilus bacteria is associated with higher severity, including much higher rates of hospitalisation. There is no evidence for association between higher severity and other detected bacteria, and no difference in severity between RSV genotypes. The findings reveal the genomic diversity of additional pathogens during RSV infection in infants. |
| TransBioLine | The potential application of emerging urinary kidney safety biomarkers, urinary albumin and KIM-1 was shown in a study in rats. The performance of algorithms using these two biomarkers against the gold standard of kidney histopathologic examination showed high sensitivity in differentiating the location of the kidney damage to either the glomerulus or the proximal tubules. |

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| TransBioLine | The utility of emerging safety biomarkers of drug-induced nervous system injury was demonstrated in rats. Neurofilament light (NF-L) was the best performing biomarker with sensitivity in detecting injury in both central nervous system and peripheral nervous system.<br>Studies of the consortium in normal healthy volunteers and patients with drug-induced neuropathy, traumatic brain injury, and multiple sclerosis have confirmed the elevation of NF-L to be sensitive and specific indicator of nervous system injury. A Qualification Plan has been submitted to the EMA and FDA for NF-L as a blood-based safety biomarker in drug development for nervous system injury. |
| VALUE-Dx | VALUE-Dx aims to generate evidence on the medical, economic, and public health value of diagnostics in treating AMR. The project has optimised 82 potential biomarker proteins for evaluation using the Mesoscale Discovery platform. The optimised panel was applied to 400 ethylenediaminetetraacetic acid (EDTA) plasma samples collected within 107 patients from the PRUDENCE study. |
| VHFMoDRAD | VHFMoDRAD has successfully validated the use of lyophilised ready-to-use primers and probe (Lyoph-P&P) on Flex04 for several viral haemorrhagic fevers, as well as evaluated a paper-based extraction method. This is a very important result as it enables the development and deployment in the field of point of care diagnostics for several viral haemorrhagic fevers. For the next pandemic, the Lyophilized ready-to-use primers and probe (Lyoph-P&P) will enable a quick response to control the outbreak in the population by providing a ready to use point of care diagnostic solution.<br>The developed and validated Lyoph-P&P are available at European Virus Archive - GLOBAL (EVA-global) at the following links:<br>• Ref-SKU: 001K-05704<br>• Ref-SKU: 001K-05703<br>• Ref-SKU: 001K-05699<br>• Ref-SKU: 001K-05698<br>• Ref-SKU: 001K-05702<br>• Ref-SKU: 001K-05697<br>• Ref-SKU: 001K-04981<br>• Ref-SKU: 001K-05278 |
| VHFMoDRAD | VHFMoDRAD has developed several reagents essential for optimising lateral flow device (LFD) assays. The results have been published on the Horizon Results platform:<br>• Crimean-Congo haemorrhagic fever (CCHF) Antigen and antibodies (IgM and IgG) K-SeT<br>• Lassa fever antigen and antibodies (IgM and IgG) K-SeT<br>• Anti CCHF & Lassa viruses nucleoprotein antibodies and CCHF ELISA |

## Improved protocols for clinical trial design and processes

| Project | Description of result(s) |
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| AIMS-2-TRIALS | The results obtained in the Biomarkers of Neurodevelopmental Outcome (BONO) study in South Africa show that measuring electroencephalography (EEG) during ecologically valid social and non-social stimuli is feasible in low resource settings, is acceptable to most children (N=70) and produces robust indices of social brain function. This work provides preliminary support for testing longitudinal links between social brain function, environmental factors, and emerging behaviours for use in low- and middle-income settings. The work is currently published as a pre-print. |
| ARDAT | Conducted a systematic review on the immunosuppressive protocols used in 38 clinical trials and 35 real-world studies, considering a range of monogenic diseases, AAV serotypes, and administration routes. The study indicates the need for a better understanding of immunosuppressive regimens to enhance the safety and effectiveness of AAV-based gene therapy. |

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| BigData@Heart | BigData@Heart used big data approaches to study heart disease. In a paper published in Nature Medicine, they explain how they embedded a consumer wearable device into part of a randomised clinical trial on atrial fibrillation (AF). The team found that the results from the wearables were equivalent to the results from the standard tests the trial participants went through in the clinical. The approach could lead to wearable devices contributing to, or even replacing resource-intensive clinical tests and visits in the future. What's more, data from wearables may better reflect the real-life, day-to-day variations in heart rate and physical activity. |
| c4c | The 5th multistakeholder meeting (MSM) on paediatric irritability was successfully held gathering over 100 participants including young patients and advocates, clinicians, academics and researchers, pharmaceutical companies and regulators. The participants discussed the current scientific knowledge, treatments, regulatory framework and outcome measures and agreed on a strategy to accelerate development of therapeutic interventions. This was the 5th meeting of its kind since the start of the project demonstrating the value of having such a platform for open exchange and debate between all relevant stakeholders (patients, academia/investigators, regulators, and industry) on the best way to study new treatments, innovative approaches for study designs and use of devices. |
| C4c | Process of providing strategic feasibility advice to sponsors further consolidated. In total since this process became operational, over 60 advice requests have been received from industry and academic c4c partners (covering any clinical, methodology and patient and public involvement aspects of paediatric drug development), of which 42 advices have been completed. About 33% of these experts' advices have been used by sponsors when discussing their paediatric investigation plan with the Paediatric Committee at the European Medicines Agency (EMA). |
| CARE | CARE analysed the intra-host evolution in clinical patients infected by SARS-CoV-2 undergoing antiviral treatment, using novel computational techniques. |
| FACILITATE | FACILITATE published their Ethical framework for FACILITATE: a foundation for the return of clinical trial data to participants, a policy brief highlighting the need and requirements for an ethical framework to support the return of clinical trial data. |
| H2O | Currently, many measures of disease (and disease outcomes) are based largely on input from clinicians. As such they do not fully capture patients' own experiences of the disease and its impact on their lives. The aim of H2O is to create 'health outcomes observatories' that will amplify the patient voice both in their own healthcare and in healthcare systems more broadly.<br>The H2O Consortium identified four key aspects that inform protocol development for observational studies including patient-reported outcomes: 1) Development of a scalable and sustainable data quality assessment methodology, 2) Data quality rules as the foundation, 3) Continuous improvement and error management, and 4) Recommendations for sustainability. This document can inform comparable projects about the lessons learned from the H2O experiences. |
| HIPPOCRATES | Psoriasis is an autoimmune disease primarily affecting the skin and 20-30 % of people with psoriasis develop psoriatic arthritis. HIPPOCRATES aims to improve the diagnosis of psoriasis patients who are at the greatest risk of developing psoriatic arthritis. Assessing disease activity in psoriatic arthritis can be a problematic due to the heterogenous nature of clinical features and the absence in many patients of an acute phase marker which accurately reflects inflammation. A study using machine learning aimed to investigate the individual components of the Disease Activity Score 28 (DAS28-CRP) which is often used to assess patients with possible psoriatic arthritis. The study identified tenderness in the metacarpophalangeal joint of the right index finger as the most informative item of the DAS28-CRP. |
| IMI-PAINCARE | The primary results from the PROMPT NIT-1 study investigating the responsiveness of multiple patient-reported outcome measures (PROMs) for acute postsurgical pain were published. PROMs showing higher sensitivity-to-change from the same domain should be considered for inclusion in a core outcome set of patient-reported outcome measures to assess the effectiveness and efficacy of perioperative pain management. |
| IMI-PAINCARE | Two systematic literature reviews were published on patient-reported outcome measures (PROMs) on chronic pain associated with endometriosis and postoperative pain after total knee arthroplasty surgery. In the former study, significant heterogeneity of assessed domains and PROMs in clinical pain-related endometriosis trials was found which may make collating evidence |

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| | on efficacy of different treatments complicated limiting the therapeutic options available to patients. The latter study shows that the patient-centred postoperative assessment of physical function in pain-related clinical trials early after total knee arthroplasty is not common, even though patient-reported assessment is widely recommended. |
| Mobilise-D | Mobilise-D is developing digital mobility outcomes that can be used by clinicians to evaluate mobility in patients and also be used in clinical trials to assess treatments for diseases that affect mobility. Few older adults regain their pre-fracture mobility after a hip fracture and though mobility recovery is closely linked to health status and quality of life, it is not clear how gait has been evaluated in intervention studies on hip fracture patients. The results from a scoping review were published that aimed to identify what gait parameters have been used in randomized controlled trials to assess intervention effects on older people's mobility recovery after hip fracture. The results show that mobility improvement after interventions in hip fracture patients is largely limited to gait speed as assessed in a controlled setting. The transition from traditional clinical and in-lab to out-of-lab gait assessment is needed to assess effects of interventions on mobility recovery after hip fracture at higher granularity in all aspects of patients' lives so that optimal care pathways can be defined. |
| NECESSITY | To facilitate harmonisation of histopathologic analyses in clinical trials in Sjögren's disease, the NECESSITY project has established a protocol for digital image analysis of salivary gland histological parameters. The protocol is based on digital image analysis (DIA) using open-source software (QuPath), making the protocol widely applicable. After development of the protocol, three independent raters, among three centres (UMCG-Groningen, QMUL-London, Rheumatology-Udine), performed the analyses and inter-observer variability and agreement were assessed. The proposed DIA workflow is applicable to both labial and parotid salivary gland tissue and improves the standardization of the quantitative assessment of salivary gland histopathology. Histological parameters with high inter-rater agreement score across different centres were identified, thus facilitating harmonization between samples from different cohorts/sites. The results were summarised in abstracts and presented at scientific meetings (International Symposium for Sjögren's Disease 2024 & European Alliance of Associations for Rheumatology (EULAR) Congress 2024 ref. POS0265). |
| PrIMAVeRa | The aim of PRIMAVERA is to develop mathematical models and an epidemiological repository that will facilitate the assessment of different vaccines and mAbs in terms of their likely impact on AMR. The project organised an expert elicitation exercise following the delphi method in order to provide guidance for future research to support data-driven selection of target pathogens and populations for new preventive and treatment strategies, specifically vaccines and monoclonal antibodies (mAbs), to effectively address the human AMR burden in Europe. The results are published in Eurosurvaillance. |
| PROTECT-Trial | PROTECT-trial is testing the hypothesis that proton therapy will result in lower pulmonary complication rates in oesophageal cancer compared to standard photon therapy. A comprehensive quality assurance program for photon therapy, proton therapy and surgery has been implemented with published guidelines, workshops and audits leading to improved quality and international collaboration already during trial initiation. The protocols for radiation therapy QA and surgery QA are available online. |
| RADAR- AD | Published a paper on the feasibility and usability of deploying remote monitoring technologies (RMTs) in studies involving patients with Alzheimer's disease (AD). This work indicates that a highly complex RMT protocol is feasible even in a mild-to-moderate AD population. |
| UNITE4TB | Study protocols for the phase 2B trial (DECISION, BTZ-043 Dose Evaluation in Combination and Selection, NCT05926466) and 2B/C trial (PARADIGM4TB, Platform Assessing Regimens and Durations In a Global Multisite Consortium for TB, NCT06114628) were finalised including trial design, compounds and wave 1 combination regimens to be tested. For the PARADIGM4TB 2B part (regimen selection), a decision-making framework was developed to support the identification of combinations that perform better than the 6-months standard of care for the treatment of TB when given for 4 months, which has been published in Statistics in Medicine. |

## Biomarkers for the efficacy and safety of vaccine candidates

| Project | Description of result(s) |
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| Inno4Vac | Inno4Vac focuses on the development of predictive biological and mathematical models of vaccine performance and bio-manufacturing, aiming to accelerate vaccine development and manufacture.<br>The consortium made advances in the creation of models to improve prediction of vaccine stability to reduce vaccine waste by predicting whether a vaccine is still safe and effective after being exposed to environmental changes. The project's models helped save a batch of vaccines that had been exposed to suboptimal temperatures in Brazil, and results are already being used by the project partner Sanofi. |
| Inno4Vac | Inno4Vac organised a workshop on controlled human infection models (CHIMs) for vaccine development. The discussion facilitated a consensus on ethical considerations and design strategies, emphasising the need for standardised protocols to ensure robust and transparent research. A report was published to support therapeutic innovations and advance global health research. |
| Inno4Vac | The consortium published four reports with the International Alliance for Biological Standardization-Europe (IABS-EU) addressing crucial topics such as challenge strain development, regulatory frameworks, ethical considerations, and historical and social aspects of CHIMs in endemic countries. The reports highlight the importance of stakeholder engagement, comprehensive regulatory frameworks, and ethical rigour in advancing CHIM research, ultimately contributing to the development of effective vaccines against diseases such as influenza, respiratory syncytial virus (RSV), and Clostridium difficile.<br>• Regulatory Workshop on Challenge Strain Development and GMP Manufacture: A Stakeholder Meeting Report<br>• Fourth Controlled Human Infection Model (CHIM) Meeting: CHIMs in Endemic Countries<br>• Fourth Controlled Human Infection Model (CHIM) Meeting: CHIM Regulatory Issues<br>• Ethical Approval for Controlled Human Infectious Model Clinical Trial Protocols |
| INNODIA | The consortium has provided evidence, published in Science Advances, that Coxsackievirus B (CVB) vaccination strategy could prevent virus-induced T1D. This is a very important finding since CVB infections are considered as environmental triggers for T1D. In specific, this study defined the role of CVB infection in mediating primary β cell lysis, and showed that CVB infection induces limited antiviral CD8+ T cell responses, which mitigates the risk that CVB vaccination may precipitate the destruction of infected β cells. |
| VITAL | VITAL aims to investigate vaccinations and immunity to infections in the ageing population. The project has developed and used novel methods to study cell responsiveness to cytokines (phosphoSTAT assay), which could be linked to health outcomes such as infections and frailty. Moreover, VITAL has measured a large number of biomarkers in serum that are associated with low-grade inflammation that arises with age. VITAL has identified biomarkers that associate with age-corrected frailty, the four strongest being YKL-40, IL-1RA, IL-6 and CRP. |
| VITAL | A clinical vaccination cohort was set up to monitor the immune response to 2 different vaccines in 326 individuals. Due to the COVID pandemic and implementation of COVID vaccines, also SARS-CoV2 mRNA vaccination was monitored. Biological samples and data are stored for studies on immunosenescense and vaccination response. The primary outcome has been published in a manuscript reporting antibody levels after 3 vaccinations. One interesting result is that around 10% of participants, mainly older male adults, were found to be low responders to multiple vaccines. This study aids the identification of risk groups for low vaccine responsiveness and hence supports targeted vaccination strategies. |

## New taxonomies of diseases and new stratifications of patient sub-populations

| Project | Description of result(s) |
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| 3TR | For the first time molecular signalling pathways distinguishing low disease activity state and remission vs. active systemic lupus erythematosus (SLE) were demonstrated in a pan-European SLE cohort. The study findings are published in the Annals of the Rheumatic Diseases. They (i) support the clinical meaningfulness of low disease activity and remission as treatment goals in SLE, (ii) revealed the potential of existing drugs that could be repurposed to SLE treatment and (iii) revealed druggable targets for achieving SLE remission. |
| 3TR | An analysis across 13 chronic inflammatory diseases revealed a common metabolic phenomenon, the tryptophan degradation; a metabolic process that may directly affect systemic immunity. This common metabolic pathway, described in eBioMedicine revealed provides a deeper insight into the molecular origins of chronic inflammatory diseases' pathophysiology and could also lead to therapeutic concepts for targeted therapies. |
| AIMS-2-TRIALS | The consortium examined differences in cortical thickness (CT) and surface area (SA) and their genomic associations in a sample of 533 individuals from the Longitudinal European Autism Project LEAP cohort. They found that there are significant differences in cortical thickness (CT) and surface area (SA) of people with autism or attention deficit hyperactivity disorder (ADHD) in fronto-temporal, limbic, and occipital regions, but also a significant autism x ADHD interaction in the left precentral gyrus and the right frontal gyrus for measures of CT and SA, respectively. Moreover, autistic people with ADHD differed in CT to autistic people without ADHD. This is important, as it indicates that the neuroanatomy of autism is significantly modulated by ADHD, and the resulting neuroanatomical profile may be mediated by differential gene expression (enrichment for autism, but not ADHD related genes). This knowledge, published in Molecular Autism, can be used in the development of more personalised treatments and in diagnostics. |
| AIMS-2-TRIALS | Sensory atypicalities are particularly common in autism but there is very little knowledge about the divergent functioning of the underlying somatosensory region and its association with autism phenotype features. The consortium used a data-driven approach and functional imaging to map the fine-grained variations in functional connectivity of the primary somatosensory cortex (S1) to the rest of the brain, at rest and during an emotional face-matching task. Data were obtained from 240 autistic and 164 neurotypical individuals from the Longitudinal European Autism Project LEAP cohort. Results indicated that higher functional differentiation of S1 connectopies was linked to higher adaptive functioning skills (Vineland Adaptive Behaviour Scales), across the whole sample, and that this profile was also differentially modulated during rest and emotional processing, suggesting that variation in adaptive functioning may be reflected in neural circuitry. These data can be used to further understand the heterogeneity of the autism population. Additionally, these profiles may be potential quantitative biological markers of interest for use in clinical trials. The work is published in Translational Psychiatry. |
| DRAGON | Published a paper on the stratification of molecular phenotypes associated with COVID-19 using topological analysis of global blood gene expression. Whole blood from 173 patients was collected and RNA was sequenced. The study indicated three distinct molecular phenotypes of COVID-19 in two distinct cohorts and suggests that molecular phenotyping from topological analysis of blood gene expression may be used for personalised therapeutic strategies for COVID-19 and other diseases. |
| EPND | The EPND project has identified five molecular subtypes of Alzheimer's disease using mass spectrometry proteomics in cerebrospinal fluid (CSF). These subtypes are associated with different molecular processes and genetic risk variants, such as neuronal hyperplasticity or immune activation. The subtypes also correlate with variations in clinical outcomes, survival, and brain atrophy, emphasizing the importance of personalized treatment approaches for AD. The findings have been published in Nature aging. |
| HARMONY PLUS | Myeloma Risk Stratifier: The Multiple Myeloma (MM) Risk Calculator provides individualised risk predictions for newly diagnosed MM patients using machine learning models. It offers three model options: one incorporating cytogenetics, another excluding it, and a dynamic model that adjusts risk based on best response to induction therapy.<br>The output includes risk percentiles for Overall Survival (OS) and Progression-Free Survival (PFS), allowing comparison within a large cohort. Lower percentiles indicate lower risk. The |

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| | calculator also stratifies results by transplant eligibility and treatment type to aid in personalized clinical decision-making. |
| HIPPOCRATES | With the aim of identifying molecular biomarkers of progression from psoriasis to psoriatic arthritis, data statistical analysis of the Biomarkers for COMorbidities (BioCOM) study has revealed initial biomarker candidates. With the clinical and multi-omic data uploaded to the Secure HIPPOCRATES Data Management Platform (SHDMP), this has facilitated combined data analysis using artificial intelligence/machine learning methodologies. This analysis has resulted in the identification of further candidate biomarkers which can distinguish between the three clinical groups under investigation (psoriatic arthritis, psoriasis with and without clinical features to suggest musculoskeletal disease). These observations will require validation in larger datasets but if confirmed, will facilitate the stratification of psoriasis patients into those at risk or not at risk of psoriatic arthritis. |
| NECESSITY | The NECESSITY consortium used cluster analysis on two French patient cohorts (Paris-Saclay and ASSESS) to identify three disease subgroups: (1) mild symptoms, high B-cell activity; (2) significant systemic manifestations; and (3) severe symptoms, low systemic activity. Distinct cytokine profiles correlated with these three clusters have been explored. The results showed that group 1 faced worsening disease, including lymphoma risks. The findings may guide therapy stratification. They are published in Lancet Rheumatology and Arthritis and Rheumatology. |
| NECESSITY | Sjögren's disease (SjD) exhibits significant clinical and biological heterogeneity, with no effective immunomodulatory treatments currently available. Previous work identified four distinct patient clusters (endotypes) based on transcriptomic data. This study conducted by the Brest NECESSITY researchers assessed the efficacy of hydroxychloroquine-leflunomide (HCQ-LEF), rituximab (RTX), and abatacept (ABA) across these clusters using data from three randomized controlled trials. The analysis has yielded 4 distinct clusters: Cluster 1: Unique interferon (IFN) signature.; Cluster 2: Transcriptionally healthy-like; Cluster 3: IFN and B-cell signatures; Cluster 4: IFN, B-cell, and neutrophil signatures.<br>Analysing the treatment response, the consortium identified the useful clusters for patient stratification in clinical trials: Cluster 1: Significantly better response to treatment compared to placebo (60.5% vs. 23.7% STAR score in pooled data). Cluster 3: Responded well to HCQ-LEF treatment. Cluster 2 (Healthy-like): No significant response to any treatment, suggesting exclusion from future trials may be warranted.<br>Results presented during the 2024 ACR congress. Abstract number: 2634. |
| NECESSITY | The NECESSITY project implemented a data-driven stratification of Sjögren's Disease (SjD) and applied a deep learning model to identify transcriptomic biomarkers predictive of disease activity. Identified Biomarkers: 1) SERPING1: Correlated with both haematological and biological domain activity. 2) CD40LG: Key marker for haematological activity, linked to CD4+ T cells and inversely correlated with lymphopenia. 3) Interferon pathway genes (IFI44L, IFI27, SIGLEC1, CMPK2): reaffirming interferon signalling's role in SjD. These results have implications for future clinical trial in this area as the use of these biomarkers can stratify SjD patients, potentially enhancing targeted drug development and therapeutic strategies.<br>The results have been presented in an abstract to the 2024 American Congress of Rheumatology. |
| PRISM 2 | Social dysfunction is an early manifestation of neuropsychiatric disorders that may relate to altered Default Mode Network (DMN) integrity. A PRISM 2 study aimed to replicate previous findings linking social dysfunction with diminished resting-state DMN functional connectivity and altered task-based DMN functional activation in response to emotional faces across schizophrenia (SZ), Alzheimer's disease (AD), and healthy controls (HC), and to extend these findings to major depressive disorder (MDD). The researchers found that higher social dysfunction scores were associated with diminished DMN connectivity in the dorsomedial prefrontal cortex (DMPFC) across SZ, AD, and HC participants, and this association was also observed in MDD. This suggests that reduced DMN connectivity in the DMPFC could be a transdiagnostic marker for social dysfunction. However, there was no consistent relationship between social dysfunction and DMN activation in response to emotional faces, indicating that DMN responses to emotional stimuli may not be a sensitive biomarker for social dysfunction. This study highlights the potential for DMN connectivity as a treatment target in precision medicine |
| SOPHIA | Five distinct diagnostic profiles of BMI and cardiometabolic risk factors were identified, each with contrasting health consequences. Based on these profiles, a risk score was developed for the |

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| | prediction of major adverse cardiovascular events (e.g. myocardial infraction, stroke, cardiovascular death) and diabetes progression in the general population, which supports doctors in making decisions for treatment. More specifically, the risk prediction achieved with this new model leads to 4−15 additional correct interventions and 37−135 additional unnecessary interventions correctly avoided for every 10,000 individuals tested. The research is published in Nature Medicine. |
| SOPHIA | Distinct profiles of metabolic dysfunction-associated steatotic liver disease (MASLD) were identified among those living with obesity and MASLD. Each profile has specific underlying biological characteristics and different clinical trajectories, suggesting the need for tailored therapeutic strategies. The findings are published in Nature Medicine. |
| SOPHIA | Repeated cycles of weight loss and weight regain in individuals with type 2 diabetes was found to be an independent risk factor for three major adverse events (i.e. stroke, myocardial infraction and death) in three clinical trials and real-world datasets. Thus, treatment plans for individuals with type 2 diabetes should consider the adverse risk contributed by the so-called weight "cycling" or weight "fluctuation". The findings are published in Cardiovascular Diabetology. |

## Development and use of cohorts, registries and clinical networks for clinical studies and trials

| Project | Description of result(s) |
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| 3TR | The 3TR consortium builds a clinical network for the study of 7 immune-mediated, allergic and inflammatory diseases. The network now has 60 centres in 9 countries participating in 3TR prospective studies, where 2 258 patients have been recruited so far.<br>Rheumatoid arthritis: 9 centres in 6 countries<br>Multiple sclerosis: 10 centres in 9 countries<br>Systemic lupus erythematosus: 23 centres in 9 countries<br>Inflammatory bowel disease: 5 centres in 5 countries<br>Asthma / chronic obstructive pulmonary disease: 10 centres in 8 countries |
| AIMS-2-TRIALS | The collection of data from the 3rd timepoint of the Longitudinal European Autism Project (LEAP) cohort has finished, concluding the active phase of this unique study that followed over 700 individuals with or without autism with last assessment approximately 7 years after the first one. Each participant has been extensively characterised by their clinical, co-occurring medical/mental health profiles, functional outcomes, neurocognitive and behavioural profiles, brain structure/function, genomics and biochemical markers.<br>These unique longitudinal data help to show the prognostic utility of the project's candidate biomarker panel, and provide insights into individual developmental trajectories, including stability and/or change in phenotypic and neurobiological profiles across childhood, adolescence and into middle adulthood of value both for clinical studies and trials and for clinical practice. |
| AIMS-2-TRIALS | 12.1% of autistic people have or will develop epilepsy over the course of their lifetime. Epilepsy in autistic people (versus non-autistic people) has earlier onset of seizures and higher rates of treatment resistance. However, the mechanisms underlying the co-occurrence remain poorly understood. The LEAP Epilepsy Study completed recruitment of 80 participants aged 6-35 years, 36 with autism and epilepsy, 44 with epilepsy without autism. These have been characterised by their clinical profile, adaptive function abilities, cognitive and behavioural profiles, brain structure/function, and genetic markers. Results of analysis of the data will help to predict which autistic individuals will develop epilepsy and increase precision in targeting biological pathways therapeutically. |
| AIMS-2-TRIALS | The consortium completed recruitment for both in-person and remote assessment components (autism: in-person assessment total *N*=157; remote assessment total autism *N*=89; healthy volunteers N=25) using novel digital technologies. Data analysis is underway, evaluating acceptability and feasibility of the technologies, in-person assessment speech data, and remote assessment of sleep data. Results will allow progress in developing a set of candidate tools for objectively measuring clinical outcomes relevant to autism and co-occurring conditions |

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| BEAt-DKD | The recruitment to the iBEAt imaging study has been completed, with 608 participants enrolled (543 type 2 diabetes and 65 type 1 diabetes). This is the largest prospective multicentre observational diabetic kidney disease imaging study, which aims to contribute with novel prognostic markers for a more personalised approach to the management of diabetic kidney disease. Trial reference NCT03716401. |
| C4c | To test the viability of the paediatric network, the non-industry proof of viability (PoV) studies progressed towards completion.<br>The TREOCAPA phase III study (paracetamol in premature babies) achieved to recruit the targeted number of preterm infants of 23-28 weeks of gestation. 794 patients were recruited from 44 sites in 13 countries. Analysis of the results is ongoing. Trial reference NCT04459117.<br>The KD-CAAP study (Kawasaki disease coronary artery aneurysm prevention trial) had its last patient visit in October 2024. In total 103 participants were recruited across 10 countries and 35 sites. Analysis of the results is ongoing. EudraCT number 2019-004433-17.<br>In addition, 5 industry proof of viability studies are also ongoing involving c4c network sites, open for recruitment:<br>Operetta 2 phase 3 study in relapsing-remitting multiple sclerosis (RRMS) - clinical trial.gov number NCT05123703.<br>Fiona study in chronic kidney disease and proteinuria - EUCT number 2023-504885-50-00.<br>Phase 3 study on ulcerative colitis<br>Phase 3 study in asthma.<br>Study in cardio-renal-metabolic (hypercholesterolemia)<br>All these PoV trials covering all countries represented in the network involve a range of different designs, populations and outcomes, at distinct stages of trial delivery (i.e. some ongoing, others during trial setup or earlier at a product development level) and with different operational setups. The experience with these trials has contributed to refine the processes and ensure a functional and c4c network. |
| CARDIATEAM | CARDIATEAM aims to determine how distinct diabetic cardiomyopathy is from other forms of heart failure, and the extent to which type 2 diabetes contributes to its development and progression. In order to fulfil this objective, the consortium has developed a prospective multicentric cohort of diabetic and non-diabetic patients with and without heart failure with preserved ejection fraction (1 181 patients recruited, 1 600 patients expected). ClinicalTrials.gov: NCT04303364 |
| CARE | Within CARE, a platform of five clinical centres was established, uniting the expertise of a multi-disciplinary, international team, to achieve rapid design and conduct of clinical trials for COVID-19. The working instructions for the conduct of phase I and II trials in acute COVID-19 were updated. These documents enable rapid set-up of a clinical trial in a situation where compounds need to be assessed with minimum organisational delay. In addition, contract templates (sponsor-trial site, sponsor-partner) aimed to decrease time to first-patient-in were developed. |
| COMBACTE-NET (IMI1) | The project built a strong clinical, laboratory and research networks across Europe enabling more efficient clinical testing of novel antimicrobial drugs.<br>Publication of the results of the EXPECT-2 study, a prospective multinational observational study (NCT04117113) aiming at characterising the clinical profile of invasive *Escherichia coli* disease (IED) in hospitalised older adults. Results showed that the clinical profile of identified IED cases was characterised by high rates of sepsis and that IED was associated with high rates of AMR to clinically relevant antibiotics. |
| EBOVAC3 | Clinical trial EBL2007: In March 2024, the trial safety and immunogenicity results were published open access in Lancet Infectious Diseases.<br>Health-care providers and front-line workers are at risk of contracting Ebola virus disease during an Ebola virus outbreak and consequently of becoming drivers of the disease. This study aimed to assess the long-term immunogenicity of the Ad26.ZEBOV, MVA-BN-Filo vaccine regimen and the safety of and immune memory response to an Ad26.ZEBOV booster vaccination at 1 year or 2 years after the first dose in this at-risk population. The study supports the use of the regimen and flexibility of booster dose administration for prophylactic vaccination in at-risk populations. |

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| EBOVAC3 | The following clinical trials conducted under the EBOVAC3 project has shown significant results supporting the use of the Janssen Ebola vaccine regimen:<br>Clinical trial EBL3005: The Ad26.ZEBOV, MVA-BN-Filo Ebola vaccine regimen was well-tolerated and immunogenic for up to 5 years in adults and 4 years in children. An Ad26.ZEBOV booster enhanced immunity, supporting its use in Ebola virus disease prophylaxis.<br>Clinical trial EBL2012: The regimen was safe, immunogenic, and induced strong antibody and T-cell responses across age groups, reinforcing its use in Ebola vaccination.<br>The results from EBL3005 and EBL2012 were shared with the Pharmacy Board of Sierra Leone (PBSL). |
| EBOVAC3 | The project offered insights from mathematical modelling and social science on preparedness activities for future Ebola virus outbreaks.<br>Key findings highlight mistrust, poor communication, and disregard for local customs (such as funeral practices) as major barriers in past outbreak responses.<br>It emphasises the need for greater community involvement, integration of social science insights into outbreak modelling, and improving trust and transparency in vaccine deployment. |
| EPND | EPND aims to establish a collaborative platform that would link up existing European research infrastructures and so speed up the discovery of new biomarkers for neurodegenerative diseases. The EPND project has launched the EPND hub, a unified gateway for the discovery, access and sharing of datasets and biosamples from neurodegeneration research studies. The Hub currently includes over 80 cohorts, spanning 12 disease areas and representing more than 250 000 research participants in Europe and beyond. |
| H2O | H2O has established a procedure to facilitate collaboration between existing registries and the national H2O observatories. Examples are the CEDUR registry in Germany that also collects the H2O core outcomes sets for inflammatory bowel disease (IBD) patients and the Swedish diabetes registry. In addition, H2O established a procedure for onboarding new hospitals to the national H2O observatories and implementing the core outcome sets. Examples include the Rijnstate Hospital in the Netherlands, San Raffaele University Hospital in Milan, and four public hospitals under the Quiron umbrella that have joined the H2O network in the Spanish national observatory.<br>This expands the H2O network, enhances project sustainability, and broadens its impact. Additionally, as more institutions adopt the H2O Core Outcome Sets (COS), standardised data availability for research improves. |
| H2O | The project has patient reported outcome measures (PROMs) that form part of the H2O Core Outcome Sets (COS). The first patient was included in 2024, and 16 patients have provided data to date. This will add to the overall data volume of the project. |
| HIPPOCRATES | The HIPPOCRATES Prospective Observational Study (HPOS) has been designed to enable online recruitment of 25 000 people with skin psoriasis to be followed prospectively for the development of psoriatic arthritis. This highly innovative study has been successfully launched in 6 European countries, and 3 816 psoriasis patients had been recruited by the end of 2024. This study is of sufficient scale that it will enable validation of clinical, and potentially molecular, markers of progression from skin psoriasis to psoriatic arthritis. |
| iABC (IMI1) | The project built a European Bronchiectasis Registry (EMBARC), which includes data on bronchiectasis patients from across Europe and Israel. Results from additional analysis of the data from the EMBARC registry and samples that could inform novel outcome measures for clinical trials were published. These include an analysis investigating structural lung abnormalities (SLAs) on chest computed tomography (CT) scans of patients with bronchiectasis (BE) and the relationship of SLAs to clinical features. The paper, published in the American Journal of Respiratory and Critical Care Medicine, concluded that the type and extent of SLAs in patients with BE are highly heterogeneous. Strong relationships between radiological disease and clinical features suggest that CT analysis may be a useful tool for clinical phenotyping**.** |
| IDEA-FAST | IDEA-FAST is conducting a clinical observational study to identify digital endpoints that provide reliable, objective and sensitive evaluation of activities of daily life (ADL), disability and health related-quality of life (HRQoL) for the following neurodegenerative diseases (NDD): Parkinson's disease (PD), Huntington's disease (HD) and the following immune-mediated inflammatory |

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| | diseases (IMID): rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), primary Sjögren's syndrome (PSS), and inflammatory bowel disease (IBD).<br>By the end of 2024, regulatory approvals had been obtained and nearly 2 000 patients recruited across 20 clinical sites. The study is registered in the German Clinical Trial Registry (DRKS) under the number DRKS00021693. |
| IMMUcan | IMMUcan is accessing patient biological material and linked clinical data via the EORTC SPECTA platform. 175 principal investigators from 126 clinical sites from 20 countries have been authorised to recruit patients in SPECTA. |
| ImmUniverse | ImmUniverse aims to understand the crosstalk of tissue and immune cells in progression/remission of ulcerative colitis (UC) and atopic dermatitis (AD) and to correlate tissue-derived signatures with circulating signatures detectable in liquid biopsies, using omics technologies. The parallel study of two different immune-mediated inflammatory disorders (IMIDs) will enable the identification of both disease-specific as well as cross-disease signatures and underlying pathological pathways.<br>The consortium has established a network of clinical partners to create an open-label cohort of patients receiving first time targeted therapies during standard clinical care. A total of 199 AD (target: 300) and 275 (target 270) UC patients was prospectively recruited by the active centres. |
| INNODIA | The consortium completed in December 2024 (last patient/last visit) the MELD-ATG clinical trial (ClinicalTrials.gov ID: NCT04509791). This trial included 114 people with newly diagnosed stage 2 type 1 diabetes and the safety data have been reassuring. The final analysis will be completed in 2025. |
| INNODIA HARVEST | The status of the clinical trials undertaken in the project using the INNODIA network is the following:<br>VER-A-T1D (ClinicalTrials.gov ID: NCT04615910): 136 patients have been randomised and recruitment is closed. 67 patients have completed the 12- month treatment period (visit 6) and 31 patients completed the 24-month follow-up visit (visit 7) of the study. The final analysis will be completed in 2025.<br>IMPACT (ClinicalTrials.gov ID: NCT04524949): 110 patients have been randomised and recruitment is closed since February 2023; analysis of the 1-year dataset was completed in 2024. |
| LITMUS | LITMUS has expanded the European NAFLD Registry and associated biobank which is unique in its size and breadth. The registry has been used to support biomarker validations and submissions for regulatory approval.<br>The European NAFLD Registry has become the largest global cohort of patients with histologically characterised NAFLD/NASH under longitudinal follow-up. Actively recruiting patients across an expanded network of specialist centres across 14 countries, the registry holds a rich clinical dataset on >10 000 histologically characterised cases (with associated biological samples in the central IBBL biobank). The registry should grow beyond LITMUS and will progressively become more valuable as future follow-up records are added and the overall time and number of recorded events increases.<br>The registry database and biobank will be at the core of the continuation of the collaboration through the European Collaborative Research Network on NAFLD that support investigators across Europe and beyond. Furthermore the use of the registry to support post-marketing surveillance of the first medication for NASH approved by FDA is being explored. |
| Mobilise-D | Published results from the Mobilise-D technical validation study that aimed to validate a wearable device's walking speed estimation pipeline, considering complexity, speed, and walking bout duration and provide recommendations on the use of wearable devices for real-world mobility analysis. Participants with Parkinson's disease, multiple sclerosis, proximal femoral fracture, chronic obstructive pulmonary disease, congestive heart failure, and healthy older adults were monitored in the laboratory and the real-world using a wearable device. The analytical pipelines demonstrated moderate to good accuracy in estimating walking speed. |
| PROMISE | To assess the burden of non-medically attended respiratory syncytial virus (RSV) infections and compare with medically attended RSV, a surveillance study was conducted until the age of 1 year in a cohort nested within a prospective birth cohort study. Healthy term-born infants in five European countries were enrolled and symptoms, medication use, wheezing, and impact on family life were analysed. The study shows that even when medical attendance is not required, |

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| | RSV infection poses a substantial burden to infants, families, and society, an important finding for policy makers when considering the implementation of RSV immunisation. |
| PROMISE | PROMISE has established the European respiratory syncytial virus laboratory network (RSV-LabNet). A survey conducted among its members indicated scattered monitoring of RSV and the application of a broad array of techniques in their laboratories. The majority of the participants expressed strong interest in harmonisation and collaboration for setting up surveillance programs and the need for sharing laboratory protocols. |
| RESCEU | Published the results of a prospective study investigating outpatient-managed respiratory syncytial virus (RSV)-related exacerbations in patients with chronic obstructive pulmonary disease (COPD) in two well-characterised patient cohorts. RSV was found to be associated with 8.7% of outpatient-managed COPD exacerbations and the study suggests that antibodies to RSV Nucleoprotein may have a diagnostic value and are potentially important in a vaccinated population. This study adds to the field by defining the burden of RSV among an outpatient COPD group, including defining the severity of RSV exacerbations versus those caused by other pathogens. This is important information for decision makers and physicians with regard to the novel, effective adult RSV vaccines. |
| RespiriTB | The project has started their Phase I clinical trial with bedaquiline long-acting injectable (BDQ-LAI) - EUCT number: 2023-508810-41-00. BDQ is currently the cornerstone of drug-resistant tuberculosis (TB) treatment. A successful confirmation of the pharmacokinetics and safety of BDQ-LAI in the RespiriTB Phase I study could pave the way for shorter and simpler options for the treatment and prevention of active TB disease. |
| Screen4Care | A clinical trial for running genetic newborn screening for rare diseases has been set up with the participation of 5 centres in three European countries (France, Germany and Italy). The trial will screen for currently treatable rare diseases using the TREAT gene panel, which was designed in the Screen4Care project. Whole genome sequencing post-screening will be offered to newborns developing symptoms suggestive of a genetic disease. Recruitment started in December 2024 (reg. no NCT06549218). |
| STOPFOP | The STOPFOP clinical trial (EudraCT: 2019-003324-20; ClinicalTrials.gov: NCT04307953) investigates the repositioning of saracatinib, originally developed for ovarian cancer treatment, to treat patients with fibrodysplasia ossificans progressiva (FOP). FOP is a rare condition which causes bone to form in muscles, tendons and ligaments. Despite delays and difficulties due to COVID19 and BREXIT, 17 patients from 8 different countries have enrolled to the trial (all the patients required for this study). They also completed the first phase and moved to the second (final) phase of the trial with promising results obtained so far. This study will provide data to support the treatment of a serious condition for which no treatment currently exists. |
| UNITE4TB | Development of a clinical network of hospitals and healthcare centres able to recruit high numbers of patients to regulatory standard tuberculosis clinical trials. UNITE4TB currently has a portfolio of 36 sites in 13 countries across 4 continents.<br>Use of the UNITE4TB portfolio of trial sites for the PARADIGM4TB trial. 10 sites in 3 countries are currently recruiting to the PARADIGM4TB trial, while others are still in the preparation stages. A total number of 260 patients have been screened and 159 recruited.<br>Use of the UNITE4TB portfolio of trial sites for the DECISION trial. For this trial, UNITE4TB utilised 4 sites in 2 countries and completed the recruitment of 90 participants. |
| VALUE-Dx | VALUE-Dx aims to generate evidence on the medical, economic, and public health value of diagnostics in treating AMR. The VALUE-Dx trial was divided into two separate protocols for community care settings and paediatric settings.<br>The PRUDENCE (Platform Randomised controlled trial of point of care Diagnostics for Enhancing the quality of aNtibiotic prescribing for Community acquired acute respiratory tract infection in ambulatory care in Europe, IRAS ID: 285877) trial included participants recruited by primary care clinicians and in long term care facilities (LTCF). Recruitment ended on 28 January 2024. The overall trial recruitment target of 2 500 participants was achieved, with 2 649 participants recruited in total.<br>The ADEQUATE (Advanced Diagnostics for Enhanced Quality of Antibiotic prescription in respiratory Tract infections in Emergency rooms, NCT04547556) study achieved its recruitment target of 520 patients on 24 January 2024, with 522 patients enrolled in total. |

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| VITAL | VITAL has conducted a retrospective study into pneumococcal pneumonia and *Escherichia coli* disease in 2 European countries with data from more than 5 million older adults. A part of the results reporting the incidence of pneumococcal pneumonia in two countries has been published in the Journal of Infectious Diseases. |

## Big data solutions to leverage knowledge / implementation of data standards

| Project | Description of result(s) |
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| 3TR | A software tool named Convert-Pheno was developed to standardise variables and values across multi-site research studies and thus allow researchers to compare and validate results across different studies and datasets. This open-source software toolkit enables the interconversion of common data models for phenotypic data such as Beacon v2 Models, CDISC-ODM, OMOP-CDM, Phenopackets v2, and REDCap. The software, which is described in the Journal of Biomedical Informatics, has been tested with synthetic and real datasets. |
| BIGPICTURE | Released tools to convert existing image formats in pathology to the standardized DICOM format, benefiting AI producers and users in pathology. These tools convert proprietary whole slide image (WSI) formats to DICOM, enabling interoperability and allowing for the embedding of rich metadata without degrading image quality. This innovation consists of 3 software tools, making it easier to work with digital pathology images. |
| BIGPICTURE | Produced a set of Deep Learning-Based Artifact Segmentation and Quality Control tools for whole-slide imaging in histopathology to automatically segment six common artifacts - folds, markers, ink, bubbles, dust, and out-of-focus areas - in whole-slide images (WSI). This will help alleviate the manual inspection burden, ensuring quality control, and advancing pathology research and clinical practice. |
| C4c | Contributed to the set-up of the CDISC Paediatric User Network to share learnings and identify gaps in CDISC standards with regards to paediatric. The network welcomes stakeholders from all areas of research, e.g. academia & industry to actively meeting to discuss CDISC standards and foster awareness of CDISC standards in the paediatric community. |
| C4c | Publication of a report on a workshop on engaging with the European Health Data Space: the paediatric perspective. |
| C4c | The consortium drove the setting up of the GLObal PAediatric Data Forum (GLOPAD). This Forum gathers 60 global members in the domain of disease-related terminology and data interoperability with the aim to raise awareness of the need to avoid siloing data and to optimally use and reuse data from vulnerable populations. |
| C4c | In collaboration with IMI FAIRPlus, released the recipe in the FAIR Cookbook 'Creating a metadata profile for clinical trial protocols', outlining the steps taken to make the paediatric clinical trial metadata more FAIR (findable, accessible, interoperable, reusable). |
| ERA4TB | ERA4TB aims to accelerate the development of a new, more efficient treatment regimen against TB. More data generated by ERA4TB studies has been uploaded to the Drug Development Information Management (DDIM) platform. To this date, there is a total of 57 project pipeline jobs/activities in the DDIM platform. In 2024, 19 sources of data (5 x in vitro, 2 x DMPK, 4 x GLP Tox, 1 x non-GLP tox and 7 x modelling information) were standardised and integrated into the platform. All data sources are available to ERA4TB partners. |
| ERA4TB | Application of deep-learning approaches to analyse *Mycobacterium tuberculosis* time-lapse microscopy videos. The latest version of Omnipose was trained with newly annotated data to enable automated segmentation of single bacterial cells. Additionally, the most recent version of TrackMate was used to correct segmentation errors over time. New features were also implemented to compute single-cell measurements. |

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| Gravitate-Health | The aim of Gravitate-Health is to develop a digital health information tool called the Gravitate Lens (G-Lens). The G-Lens will focus approved information on medicines and guide patients to understandable, trustworthy, up-to-date information that meets the patient's needs and fits with their health context and literacy levels. The Gravitate Lens (G-lens®) uses electronic product information (ePI) to offer patients improved access to trusted, current information that better meets their needs.<br>The consortium has generated an FHIR (fast healthcare interoperability resources) ePI Implementation Guide (IG) that explains how to make ePIs in FHIR compliant formats (XML). The Gravitate-Health repository now has ~2 500 sample versions of ePIs in multiple EU languages to test the G-lens® services that the consortium is developing.<br>Gravitate-Health has developed five technical approaches for personalisation of ePI content; highlighting sections, hiding information, adding links to other sources, multimedia (picture, film), and via AI enabled summary of ePI. When applied the user can access personalised ePI content in the G-lens® end-user service, with the original ePI always only a click away. |
| H2O | The Digizorg dashboard was developed by the Dutch national observatory to help visualise patient data in diabetes, breast cancer, lung cancer, and IBD. |
| H2O | The consortium adapted two applications, For You With You and the MAIA.tools that can be used to collect the patient reported data of the H2O core outcome sets. H2O standardised the parameters to be measured to allow other hospitals, registries and data partners using these applications to measure the H2O core outcome sets (COS) to compare patients' outcomes across different centres and countries. |
| MACUSTAR | Published a paper detailing the development and validation of a deep learning algorithm for detecting and quantifying incomplete retinal pigment epithelium and outer retinal atrophy (iRORA) and complete retinal pigment epithelium and outer retinal atrophy (cRORA) in optical coherence tomography (OCT). The algorithm showed superior consistency compared to human annotations and good generalisation across different OCT devices. The application of this algorithm may help toward precise and automated tracking of lesion changes, which is crucial in clinical settings and multicentre longitudinal studies on intermediate age-related macular degeneration. |
| Screen4Care | Machine learning (ML) technologies have the potential to speed up and increase the precision of diagnosis in rare diseases (RD). Screen4Care carried out an online survey followed by a focus group discussion targeting 24 European Reference Networks (ERNs) to explore their readiness to use machine learning-based tools for RD diagnostics. They found a positive attitude to apply ML technologies as diagnostic tools but a lack of experience. The importance of the patient-physician relationship and the interpretation of diagnostic findings by health care professionals (HCPs), which cannot be replaced by technology, was highlighted. The results are published in Orphanet Journal of Rare Diseases. |
| Screen4Care | Screen4Care drew on a complexity science approach and qualitative methodology to understand how AI providers perceive and navigate the spread of AI in complex healthcare systems. Their results, published in Social Science & Medicine, suggest that AI providers, rather than attempting to exert direct control over adopters or AI adoption pathways, rely instead on strategies of stealth science, agility, and digital ambidexterity. This may raise concerns about future regulation and wider acceptance of AI in healthcare. |
| SOPHIA | SOHPIA has completed the development of a federated database for obesity which includes 16 cohorts. This federated database was described in a publication outlining new standards for reproducible, safe, federated analyses across multiple study types provided by multiple stakeholders. The consortium will make the federated database platform available for use by researchers globally, offering a robust resource for advancing obesity research. |
| T2EVOLVE | T2EVOLVE has supported the development and implementation of the Austrian CAR-T Cell Registry, which has been approved by national ethics committees and has already enrolled its first 20 patients, with over 100 expected by the end of 2025. The registry is pioneering the use of the OMOP (Observational Medical Outcomes Partnership) common data model (CDM) for standardized data collection, integration, and interoperability.<br>By structuring CAR-T patient data within OMOP CDM, the Austrian registry ensures that real-world evidence (RWE) from CAR-T-treated patients is harmonised across institutions and comparable with other international registries. The implementation of OMOP allows for |

automated data extraction, improved linkage with electronic health records (EHRs), and alignment with European regulatory frameworks for post-marketing surveillance.

T2EVOLVE is now working to expand OMOP adoption to additional European CAR-T registries, ensuring standardized data across regulatory, clinical, and research stakeholders.

## Education and training for new and existing R&D scientists and stakeholders

| Project | Description of result(s) |
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| C4c | The c4c Academy platform has continued with new courses or new courses editions as well as the launch of webinar series on practical guidance on EU Clinical Trials Regulation and Clinical Trial Information System (CTIS). The platform has over 2 400 enrolled users and 40 courses available thus far. All these courses are still currently internal to the c4c consortium and staff involved in the national hubs sites to build capacity of the network. |
| Conception | The e-learning package developed by European teratology experts is a comprehensive educational curriculum of 11 chapters, and designed as an online interactive self-study course. After an extensive pilot phase, the e-learning package is undergoing accreditation assessment by a European accreditation body before being rolled out. |
| EHDEN | The freely accessible EHDEN academy contains 24 courses for anyone working in the domain of real-world data and real-world evidence. As of the end of 2024, the academy has been used in 108 countries with over 5 000 enrolees worldwide since its launch. |
| ERA4TB | The project ran the TB drug regimens development school: Advanced preclinical and translational tools within the public-private ERA4TB consortium hub. |
| HARMONY PLUS | The HARMONY Alliance organized a bootcamp for early-career haematologists on 26 and 27 March 2024 in Bologna, Italy, in close collaboration with the European Hematology Association, the University of Bologna, and other partners. The project welcomed ambitious early-career haematologists, active in research and aware of the fact that data innovations are a substantial part of their work now and in the future. 23 young professionals working at HARMONY Alliance Partner organisations were selected to participate. Senior haematologists and expert data scientists joined the group to present and to mentor. The HARMONY data science team provided training sessions. |
| ImmUniverse | Developed two disease maps, describing the mechanisms of atopic dermatitis and ulcerative colitis. the maps are freely available online for the research community and summarise over 600 scientific articles. The maps feature data overlays of expression data from ExpressionAtlas and disease variants from OpenTargets. |
| LITMUS | An atlas of histological images is been made available online for educational purposes, including training of general pathologists in diagnosing human NAFLD/NASH, grading necro-inflammatory activity and staging fibrosis in liver biopsies. |
| OPTIMA | OPTIMA aims to develop a secure, sustainable, and interoperable platform for harmonization tools, federated learning, AI algorithms, and guideline-based decision support tools. In 2024, OPTIMA provided training on the use of lay language when communicating with patients and other lay audiences, organised by the European Lung Foundation (ELF). The project has also developed several educational materials aimed at introducing healthcare professionals and the public to the project's objectives and scope, e.g. the OPTIMA AI explainer. Additionally, OPTIMA has offered training and support for mapping datasets to the OMOP common data model. |
| T2EVOLVE | T2EVOLVE has developed a comprehensive education and training framework aimed at scientists, healthcare providers (HCPs), and patient communities to ensure better understanding and adoption of CAR-T therapies. A key element of this initiative is the T2EVOLVE patient hub, an open-access, multilingual resource offering explainer videos, scientific publications, and patient-friendly educational materials. |

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| | T2EVOLVE has also developed a Science Café series, which serves as an interactive platform for training R&D professionals and clinicians. The first Science Café focused on genotoxicity risks in CAR-T therapies, with leading academic and industry experts sharing insights on how to improve risk assessments and clinical safety. Future sessions will cover prehabilitation strategies, regulatory challenges, and biomarker-driven therapy refinements.<br>This education and training program is scaling up, with additional materials being developed in collaboration with academic institutions, regulatory bodies, and industry partners. T2EVOLVE aims to expand its Science Café and training workshops beyond the consortium, ensuring a wider impact on the field of engineered T-cell therapies. |
| UNITE4TB | In 2024, the pilot of the UNITE4TB Career Mentorship Programme was launched; an initiative that aims to offer a unique opportunity to early career researchers from the UNITE4TB Young Investigators Group, by helping them achieve excellence in their research in the field of tuberculosis (TB). The programme provides expert guidance and advice focused on career development and allows mentees to be able to acquire new knowledge and establish professional networks crucial to their future success. In the pilot programme 10 mentors (senior UNITE4TB researchers with a diverse range of experience in the field) are guiding 11 mentees. The pilot programme includes two evaluation phases. The first took place in October 2024, the next will be finalized in January 2025. In March 2025 learnings from the pilot will be used to launch the formal programme. |

## Impact on regulatory framework

| Project | Description of result(s) |
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| AMYPAD | The centiloid method developed by AMYPAD for the measurement of brain amyloid deposits in people with early or established Alzheimer's disease received a Biomarker Qualification Opinion from EMA. The endorsement means that the method can be confidently used in clinical trials by researchers who are seeking new treatments for Alzheimer's disease – the methodology can help to evaluate how effective new potential treatments are. |
| BEAt-DKD | A multiple parameter drug response score, called PRE score, developed by the consortium, has received support from EMA as a tool for drug development in kidney diseases.<br>The PRE score predicts the change in risk of reaching renal endpoints based on the effects of a drug on renal progression and protection. And can be a useful tool for improving the design of randomized clinical trials. |
| COMBACTE-CARE (IMI1) | Publication of the results of Phase 3 REVISIT study that evaluated the efficacy, safety and tolerability of the antibiotic combination aztreonam-avibactam (ATM-AVI) in treating serious bacterial infections caused by Gram-negative bacteria, including metallo-β-lactamase (MBL)-producing multidrug-resistant pathogens for which there are limited or no treatment DOI.<br>The efficacy and safety data provided support for aztreonam–avibactam as a potential therapeutic option for complicated intra-abdominal infection or HAP–VAP caused by Gram-negative bacteria.<br>The results were part of the marketing authorisation application submitted for aztreonam - avibactam.<br>In April 2024, marketing authorisation was granted in the EU for Pfizer's EMBLAVEO®, a fixed-dose combination of aztreonam and avibactam for adult patients with infections due to antibiotic-resistant bacteria.<br>EMBLAVEO® is indicated for the treatment of adult patients with complicated intra-abdominal infections (cIAI), hospital-acquired pneumonia (HAP) including ventilator-associated pneumonia (VAP), and complicated urinary tract infections (cUTI), including pyelonephritis and infections due to aerobic Gram-negative organisms with limited treatment options.<br>EMBLAVEO was reviewed under the European Medicines Agency (EMA) accelerated assessment procedure. |
| EU-PEARL | Published a paper on regulatory issues surrounding platform trials. It provides an overview of the current available regulatory guidelines specific to platform studies and HTA-related requirements |

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| | regarding IRPs, a summary of interactions with the EMA and the FDA, a description of the statistical challenges as well as s an outlook on what challenges remain to be solved in the context of platform trials from regulatory perspective in the future. |
| HARMONY PLUS | As of December 2024, the HARMONY Alliance became an official Data Partner of the DARWIN EU® Network. Being a data partner enables DARWIN EU to use the Harmony data in its scientific studies, and provide analysis results to the DARWIN EU Coordination Centre. This is recognition of the quality of the work as the Harmony Alliance will be working for the benefit of the EMA and EMRN with the generation of real-world evidence critical for medicines regulation at the European level, for example on diseases, patient populations, and the use, safety and effectiveness of medicines, including vaccines, throughout the lifecycle of a medicinal product. |
| ITCC-P4 | Based on the white paper that was previously developed by the consortium, ITCC-P4 gGmbH presented the services it offers to EMA and FDA representatives during an Innovation Task Force (ITF) briefing meeting. As a result, ITCC-P4 has qualified as an EMA stakeholder in the Non Clinical Working Party stakeholder group allowing regular interaction on the topic of preclinical data generation to support regulatory decisions. This recognition of the valuable contribution of ITCC-P4 is particularly relevant in the context of the revision of the paediatric regulation as part of the revision of the pharmaceutical legislation with the implementation of the mechanism of action Paediatric Investigation Plans. |
| MACUSTAR | EMA published a third letter of support. EMA's Committee for Medical Products for Human Use (CHMP) agreed that the data presented by MACUSTAR supported an association between visual function deficits in intermediate age-related macular degeneration (AMD) and the likelihood that a person will develop late-stage AMD, an important step towards biomarker identification. |
| MACUSTAR | The Vision Impairment in Low Luminance-33 (VILL-33) patient-reported outcome measure is psychometrically valid and captures vision-related quality of life in age-related macular degeneration (AMD) but cannot be used in its current form to inform economic evaluation because it does not have preference weights. MACUSTAR have developed a new preference-weighted measure VILL-UI (utility index), to inform the health economic assessment by enabling more precise assessments of future AMD treatments' impact on quality of life and quality-adjusted life years. |
| PREFER | Taking into account the IMI PREFER Recommendations and the EMA Qualification Opinion on IMI PREFER, a new Internation Conference on Harmonisation (ICH) efficacy guideline is proposed about general considerations for patient preference studies (PPS) to inform drug development and related decisions for medical products. |
| PREMIER | PREMIER aims to deliver a framework for assessing and characterising the environmental risks of active pharmaceutical ingredients (APIs). This framework could be used to prioritise and screen older ('legacy') APIs that have never been through an environmental risk assessment (ERA).<br>The revised pharmaceutical legislation proposed by the EC mentions the development of a data register from environmental risk assessment studies which shows similarities with the database that is being developed by PREMIER. Indeed, PREMIER is developing a centralised, transparent, public and easily accessible database. All information from past environmental risk assessments will be part of this database, and a sustainability plan for this database is discussed with EMA, which is a partner of this project. The database will be IUCLID compatible, and the consortium plans to make the database publicly available. The database developed by PREMIER is in line with the data register of Environmental Risk Assessment studies referred to in the revised pharmaceutical legislation proposed by the EC, showing the driving role of the project.<br>Reference to PREMIER project and the database is mentioned in response to comments received on the EMA 'Guideline on the environmental risk assessment of medicinal products for human use revision'. |
| RADAR-AD | Published a paper on the project's interactions with EMA to obtain guidance on how to develop a path for formal qualification for remote measurement technologies (RMT)-assessments. The paper summarises the feedback obtained from the regulator and the lessons learned which may be useful for future projects aiming to qualify RMT-based outcome assessments for use in Alzheimer's disease. |

## Implementation of project results inside industry

| Project | Description of result(s) |
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| ERA4TB | ERA4TB aims to accelerate the development of a new, more efficient treatment regimen against TB.<br>Due to the complex granulomatous lesions formed by *Mycobacterium tuberculosis* (Mtb), plasma drug concentrations often do not reflect tissue drug levels, making it crucial to assess drug exposure at the site of action. To address this, ERA4TB has developed MALDI-mass spectrometry imaging (MSI) methods to study the distribution of anti-TB drugs and their metabolites, including pyrazinoic acid, across both healthy and diseased tissues. These innovative methods are implemented by project partners in order to study pharmacokinetics at the site of action, refining PBPK models, studying mechanism of action, drug-drug interactions, or host pathogen interactions under treatment. |
| EU-PEARL | The Children's Tumor Foundation and the Global Coalition for Adaptive Research are partnering to implement the platform-basket trial for patients with neurofibromatosis-1 (NF-1), designed during the IMI-2 funded project EU-PEARL. The trial protocol was submitted to EMA for scientific review and drug selection is ongoing. After identifying adequate funding and EMA endorsement, it is hoped that the trial will be launched in late 2025 or early 2026. |
| EU-PEARL | Agreement was reached on establishing the first Europe-wide platform study on the safety and efficacy of treatments for depression using tools developed by EU-PEARL. The platform study, which will be led by Charité, will be rolled out in 6 European countries and receive EUR 13 million in funding from the Wellcome Trust. |
| H2O | H2O has developed documents comprising practical guidelines and advice and which are being used by industry and other members of the consortium.<br>A white paper 'Access Based on Trust: How to Safeguard and Access Patient Outcomes to Revolutionize Healthcare' describes H2O's process for safeguarding and providing access to patient-reported outcomes.<br>Another article sets out practical recommendations for the collection of PRO-data for patients with inflammatory bowel disease. |
| INNODIA | The new non-profit organisation established as legacy of the INNODIA project has expanded its network and has become fully operational. The INNODIA organisation currently provides the following services to medicine developers on an ability-to-pay basis:<br>i) access to an extensive accredited network of 83 clinical trial sites in 23 countries, laboratories, and an accredited network of people and families living with T1D (the INPACT);<br>ii) advisory services across a wide range of topics (e.g. biomarkers, paediatrics, master protocols, trial design);<br>iii) full service clinical trial support.<br>The INNODIA organisation is currently running three new clinical trials for T1D disease-modifying drugs sponsored by private companies: DIAGNODE-3 (ClinicalTrials.gov ID: NCT05018585), FABULINUS (ClinicalTrials.gov ID: NCT06111586) and STRIDE (EudraCT No: 2022-001713-39). |
| Mobilise-D | The algorithms developed in Mobilise-D to measure mobility performance in patients using digital technologies were integrated into products by the following companies: EMPATICA, Clario, McRoberts and Actigraph. |
| RESOLUTE | The project has developed 119 proof-of-concept, medium or high-throughput transport assays for 74 SLCs. Some of them were implemented by the industry and SME partners. Open access to the data and the protocols for 36 assays have been provided in the project's website and public repositories. This is a resource with novel approaches to functionally investigate SLCs available for the scientific community. |
| T2EVOLVE | EFPIA partners Janssen and BMS are integrating T2EVOLVE-developed standards into their European CAR-T programs. Moreover, T-Curx, a European SME specialising in non-viral CAR-T manufacturing, has actively incorporated T2EVOLVE's findings into their clinical development strategies. Insights from the project have helped accelerate the translation of T-Curx's pipeline |

into European clinical trials, highlighting the consortium's role in supporting emerging biotech companies.

Beyond clinical applications, T2EVOLVE has influenced manufacturing and process optimisation in CAR-T development. Standardised protocols for raw material selection and product release criteria have been disseminated among industry partners, ensuring a more robust and reproducible manufacturing process.

## Accessibility of resources/outputs beyond consortium

| Project | Description of result(s) |
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| CARE | CARE released a preprint on study aiming to identify genes and molecular phenotypes related to COVID-19 risk and severity. A web application has been made freely available that aids the identification of putative COVID-19 causal genes. |
| COMBINE | COMBINE supports the development of novel medicines to treat or prevent anti-microbial resistant (AMR) infections. The consortium has developed a machine learning algorithm for predicting whether a compound will be active for antimicrobial (Gram positive, Gram negative, acid-fast, and fungi) pathogen strains. The data and the models are deposited on the internet for use by the community. The model will help identify new hit compounds or prioritize existing anti-bacterial compounds for future antibiotic drug discovery. It will help improve the process and practice of antibacterial drug discovery. |
| ConcePTION | Launch of the Meds4Mums2B app designed to provide verified, trusted information to parents and their health care professionals, and collect information about medicine use in the UK. |
| ConcePTION | MUMS (Mothers Using Medicines Safely) is a free-to-use, easy-to-understand, publicly accessible bank of reliable information about the use of medicines during pregnancy. The information about the use of medicines in pregnancy is compiled from teratology information services and other trusted sources, based on published scientific literature. The overall goal is to become the primary, trusted, Europe-wide information source for pregnant and breastfeeding women, their families and healthcare professionals throughout Europe, complementing existing resources and available in all languages. |
| ConcePTION | A data pipeline was created for pharmacoepidemiology studies based on real-world data sources. The pipeline can be used to study the use and safety of medicines in pregnancy and lactation.<br>A description of the ConcePTION data pipeline is available on a GitHub wiki, along with the common data model documentation; catalogue of data sources; tools to support, extract, transform and load data sources to the ConcePTION common data model; the INSIGHT real world data quality checks; the ConcePTION pregnancy algorithm; open-source functions to build and document study scripts; repositories of studies using the ConcePTION pipeline, and published studies based on the ConcePTION pipeline. |
| DECISION | DECISION aims to develop an easy-to-use, low-cost, disposable test for COVID-19 that can give reliable results, on the spot, within minutes. Next generation sequencing was performed on 167 clinical samples and the Sars-CoV-2 data was made freely available at NCBI. |
| ERA4TB | All the pre-clinical data generated from ERA4TB studies have been uploaded to the TB Platform for the Aggregation of Preclinical Experiments data (TB-APEX). |
| EUbOPEN | EUbOPEN is developing openly accessible tools, accompanying data and protocols to support the study of the role of different proteins involved in diseases. To date, the project has delivered important results including:<br>• 91 freely available chemical probes were delivered that can be used to generate new knowledge on biological processes to support drug discovery. |

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| | • Over 2 300 candidate chemogenomic compounds covering 975 targets have been acquired and annotated regarding their cellular activity, selectivity and their physiochemical properties. These compounds are useful for the discovery and validation of targets.<br>• More than 2 000 high quality protein samples to be used as research tools were manufactured and over 450 crystal structures were deposited into the Protein Data Bank.<br>EUbOPEN follows an open science policy. Most of its results can be found on the project website and the project data portal. |
| H2O | The H2O Insights Centre has launched an interactive dashboard of aggregated data across the countries and diseases included in the H2O data collection. This is publicly available. Upon registration, trusted researchers can also access more detailed information such as treatment modality and drug interventions for analysis. |
| INNO4VAC | Contributed to the open-source software CADET for designing and optimising production processes in biotechnology. This software efficiently simulates coupled networks of chromatography, filtration, crystallization, and fermentation units. CADET has already attracted an active community of users and developers. |
| INNODIA | The consortium published clinical guidance for monitoring individuals with presymptomatic type 1 diabetes (T1D) to reduce the risk of diabetic ketoacidosis (DKA) at diagnosis. This guidance serves as a valuable resource for clinicians, providing practical recommendations tailored to an individual's age and disease stage, both within specialist and primary care settings. This clinical guidance is very important especially since T1D screening programs become more prevalent, such as the screening program developed in the IHI project EDENT1FI. |
| ITCC-P4 | ITCC-P4 gGmbH, is the first and only non-profit company in the world to offer access to laboratory models for systematic efficacy testing of compounds on fully characterised paediatric in vivo tumour models (large repertoire of more than 400 newly established well-characterised patient-derived paediatric tumour in vivo models, including RNA & DNA sequencing as well as methylation profiling and in vivo treatment with standard-of-care drugs (+/- irradiation) and experimental drugs as well as combinations thereof).<br>A subset of the characterisation data of the patient derived xenograft (PDX) models is publicly available at itccp4.com/database.<br>Since its full incorporation in April 2024, ITCC-P4 gGmbH became operationalised and offers services to help pharmaceutical companies and academic researchers to preclinically assess the efficacy of their assets against paediatric tumours. Almost 40 potential clients from Europe, the US and India approached ITCC-P4 so far, mainly from industry. One service agreement was concluded and experimental work performed; several other agreements are in preparation. |
| LITMUS | A new patient-reported outcome measure (PROM) called NASH-CHECK is the first measure disease-specific developed for non-cirrhotic (F1-F3) and compensated cirrhotic (F4) NASH patients and was developed with input from patients following FDA guidance for PROMs. This instrument has been submitted to EMA for biomarker qualification scientific advice, which could in future lead to its full qualification as a novel methodology (biomarker) and could become a well-accepted measure to assess symptoms and health-related quality of life (HRQoL) in clinical drug development programs and clinical practice. If further used in clinical trials, it could complement other biomarkers. The tool is freely available to the academic and industry drug development community. |
| Mobilise-D | Released the dataset from the technical validation study to identify the best algorithms to quantify real-world walking speed and other relevant characteristics. Key features of the dataset include demographic and clinical data (age, gender, height, weight, and clinical diagnoses), sensor data (raw and processed data from accelerometers, gyroscopes, and other wearable sensors) and reference gait parameters (stride length, stride frequency, gait speed, and variability measures). |
| Mobilise-D | The code used for the algorithms to generate digital mobility outcomes was rewritten in Python to enable wider take up as it will be easier to integrate the algorithms into other software systems. The Python code was made available on GitHub under a licence that allows for both research and commercial use. |

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| PREMIER | Information on the mode of action can play an important role in the environmental risk assessment of active pharmaceutical ingredients (APIs). To support this, PREMIER developed the EcoDrug+ database which integrates data on 7 770 pharmaceuticals and their metabolites (including 61,000 other chemicals), with information on chemical target conservation for 180 organisms across divers phyla. |
| PrIMAVeRa | Access to anonymised individual-level data from 12 countries, 5 pathogens, 17 comorbidities, 4 risk factors, and 9 clinical outcomes can now be applied by 3rd parties via an application form found on EPI-Net. |
| PROMISE | The PROMISE European respiratory syncytial virus (RSV) surveillance network with national public health institutes in the EU/EEA continued to collect and analyse RSV data. 7 countries provided weekly RSV surveillance data that was published in the PROMISE RSV surveillance bulletin bi-weekly until the end of the project in April 2024, after which the work was handed over to ECDC (the European Centre for Disease Prevention and Control) and WHO-Euro, who agreed to continue publishing the data on the ERVISS website. |
| RESOLUTE | RESOLUTE's aim was to generate new tools and knowledge to boost research on solute carriers (SLCs), and ultimately, facilitate their use as targets for drug development.<br>400 HCT116 KO cell lines (human colorectal carcinoma knock-out cell lines) were deposited in the repository ATCC. These cell lines can be used to determine the subcellular localisation of SLCs, identify their interacting partners, profile gene expression and, provide insight to their substrates and functions in general.<br>The project followed an open access policy. |
| REsolution | REsolution aimed at maximising the chances that solute carriers (SLCs) become successful drug targets and used data available on genetic variations and disease association to assign pathophysiological relevance to individual transporters. The project has delivered important results including:<br>• Over 200 plasmids and cell lines were generated for SLC genetic variants involved in human diseases. These reagents enabled the molecular characterisation of disease mutants.<br>• Deep mutational scanning (DMS) datasets were acquired for solute carriers SLC13A5, SLC19A1, and SLC2A1, providing valuable insights into the impact of genetic variations.<br>• Transport assays were developed to assess disease-related variants of various SLCs. This enabled the investigation of whether and how disease mutants impact the SLC's transport function.<br>The project's results are openly accessible through the SLC Knowledgebase and its web portal offering interactive tools like the genetic core board, compendium, and phenotypes dashboards. |
| VALUE-Dx | VALUE-Dx has developed an innovative health-economic framework that allows for the assessment of novel point of care diagnostics from a public health and economic perspective. This model, called MERIAM (Modelling the Economics of Respiratory tract Infections and AMr), has many applications within the field of health economics. Beyond VALUE-Dx, it certainly will be a useful tool for future research on the cost-effectiveness of diagnostics of community-acquired acute respiratory tract infections (CA-ARTI). MERIAM is available at GitHub. |
| VITAL | The project has released an atlas of age- and gender-stratified frailty prevalence estimates in all European countries. A manuscript on frailty prevalence in 42 European countries by age and gender has been published in Geroscience. |
| VITAL | The project has released an online interactive tool to visualize the burden of infectious diseases in older adults in Europe. |
| VITAL | A comprehensive sustainability plan was written which comes into effect now. The data, models, knowledge and the network will be sustained also after the project end date. The VITAL project will be embedded in the Ecraid foundation so that the basic coordination, grant management and communication and dissemination of the VITAL project will be ensured until at least 3 years after the end of the project. The VITAL website will stay accessible until at least 3 years after the end of the project. |

## IMI project results that don't fit into any of the categories above

| Project | Description of result(s) |
|---|---|
| BEAMER | The BEAMER Project aims to develop a disease-agnostic behavioural and adherence model to enhance healthcare quality, outcomes, and cost-effectiveness. Using real world data, it is attempting to personalise care, improve patient engagement, and optimize adherence throughout the healthcare journey.<br>The consortium developed the B-COMPASS, which stands for BEAMER-Computational Model for Patient Adherence and Support Solutions. Its primary objective is to identify and address patient needs and preferences, enabling the delivery of tailored, personalized support to enhance adherence to treatment plans effectively.<br>The model was developed through an extensive and systematic review of literature together with an empirical approach collecting information from more than 4 800 patients via online surveys.<br>The B-COMPASS is supported by the AIVP (adherence intelligence visualization platform) which is a versatile, modular platform that enables data entry by multiple users and provides a clear display of B-COMPASS patient groups and their corresponding reference guide, facilitating personalised support and adherence management for healthcare professionals. |
| DECISION | One point of care demonstrator was developed to rapidly detect SARS-CoV-2. The device was evaluated with 302 clinical samples from 3 centres. The 2 highly relevant settings, mobile laboratory and operation by non-laboratory personnel, were tested at 2 centres. |
| ESCulab | Additional funding beyond ESCulab has been received by programme owners (researchers that screened their drug targets against ELF's compound collection) to further progress their results obtained from ESCulab:<br>• the Fraunhofer Institute, owner of one of the fast tracked COVID-19 programmes has received funding through the EU-funded AVITHRAPID project for the screen follow up;<br>• the Vrije Universiteit in Amsterdam, the programme owner of a programme focused on the discovery of new antimicrobial agents has attracted funding from the TTW programme from Dutch funder NWO, for a follow up programme called Next Generation Antibiotics Targeting Gram-Negative Pathogens. |
| ESCulab | Two start-up companies were initiated based on results coming out of the ELF. More specifically, one programme owner (The Research Network) launched the companies Anocis and Betathera. Anocis focuses on the discovery and development of novel medicines to treat pain and itch. Betathera revolves around the discovery and development of novel antibiotics with low resistance potential. |
| PERSIST-SEQ | Drug-tolerant persisters (DTPs) are a rare subpopulation of cells within a tumour that can survive therapy to develop relapse and repopulate the tumour following drug withdrawal.<br>The project studied the inhibition of bromodomain and extraterminal domain (BET) proteins as a selective vulnerability of DTPs. This study, published in Cell Reports Medicine, suggests that combining standard of care therapy with BET inhibitors to eliminate residual persister cells is a promising therapeutic strategy. |
| PREMIER | Empirical toxicity tests are expensive and time-consuming. Using machine-learning approaches, PREMIER developed a new tool called VERA for predicting ecotoxicity of active pharmaceutical ingredients (APIs) in fish. The tool, which is described in the journal Chemosphere, can be used for ERA screening purposes and for directing empirical ecotoxicity testing. |
| PREMIER | One of the most important issues is the environmental risk assessment of 1000+ untested legacy pharmaceuticals that have been authorised before 2006. This will be time consuming, very costly and would require intensive animal testing. The gap to backfill is decades and perhaps costs billions of euros.<br>PREMIER has developed a framework to prioritise the environmental assessment of existing medicines. Combined with a database, PREMIER has also designed a novel information and assessment system for identifying and addressing environmental risks of medicines, especially for those with limited data availability. The work is described in Environment International. |

| | |
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| RAPID-COVID | The project developed two diagnostic kits for simultaneously detecting SARS-CoV-2 and 30 other common respiratory pathogens, using automated multiplex probe amplification technology. The consortium published evidence showing that their EasyNAT SARS-CoV-2 Assay, a rapid molecular diagnostic kit using crossing priming amplification (CPA), has high specificity (99.5%) and moderate sensitivity (79.1%), which improves to 91.4% for fresh samples. This makes the assay suitable for rapid screening in various clinical settings, especially where access to conventional molecular labs is limited. |
| RAPID-COVID | The consortium published data on the cost savings of using two high-throughput PCR panels (Respiratory 1 and 3) developed by the project to diagnose community-acquired pneumonia (CAP) in patients in three countries. Data show that using both panels could reduce diagnostic costs compared to standard methods. In the UK, savings per patient were €22.09–€26.12, in France €99.60–€108.77, and in Spain €27.07–€51.87. Overall, the panels showed potential for lowering costs in diagnosing CAP across all three countries. |
| SOPHIA | A qualitative study of the SOPHIA consortium aimed to understand healthcare professionals' (HCP) perceptions and approaches to obesity management. The study showed that most HCPs agreed that obesity is a chronic disease and that there is a need to optimise obesity care. The barriers identified were motivation and a lack of structure in the available care. |

## IHI project results

| Project | Description of result(s) |
|---|---|
| CLAIMS | The CLAIMS consortium's RECLAIM study has made significant progress, collecting longitudinal data from over 900 multiple sclerosis (MS) patients, including 13 000+ MRI scans. The study aims to improve MS care by combining real-world clinical data with clinical trial data to develop AI-powered models that predict disease progression and worsening, ultimately aiding clinicians in making informed treatment decisions and generating new insights into the disease. |
| COMBINE-CT | Demonstrator: Using the project current user interfaces and applications, both on the diagnostic and the interventional side, an integration was realised to show coronary arteries segmented from CCTA data on the monitor in the Cath lab. In addition, the coronary artery tree can be linked to the C-arm rotation to move synchronously. The first version of this integration was realised in May 2024. |
| EDENT1FI | A master protocol for screening of presymptomatic early-stage type 1 diabetes in children and adolescents has been published in BMJ Open. This master protocol aims to harmonise and standardise screening for early-stage type 1 diabetes and care across Europe’s health care systems. |
| EDENT1FI | Screening programmes in children and adolescents for early-stage T1D have been set up throughout Europe in the frame of EDENT1FI. The T1D screening programme is applied in four new European regions (Czechia, Italy, Poland, Portugal) and continued and optimized in regions where screening activities were already initiated (Germany, Öresund Region (Denmark/Sweden), UK). All these screening programs use the EDENT1FI master protocol for screening of presymptomatic early-stage type 1 diabetes So far, 38 742 children have been screened. The project plans to screen 200 000 children in total.<br>In addition, the EDENT1FI has set up a European pre-T1D Registry, where all screening regions register the children and adults diagnosed with early-stage T1D. |
| EDENT1FI | The Italian government announced the roll out of the first national screening programme for type 1 diabetes in children and adolescents in Europe and is cooperating closely with the EDENT1FI project in this process through the EDENT1FI partner in Milan. The EDENT1FI Master Protocol inspired the ongoing pilot screening program of the Italian government. Moreover, the Italian government has deployed in its screening programme the method of screening for multiple autoantibodies – indicators of type 1 diabetes. |

| | |
|---|---|
| GUIDE MRD | Initiation of three international multi-centre observational clinical studies:<br>GUIDE.MRD-01-CRC: 15 centres in 5 countries (Germany, Denmark, Sweden, France, Austria)<br>GUIDE.MRD-02-PDAC: 4 centres in 4 countries (Germany, Sweden, Spain, France)<br>GUIDE.MRD-03-NSCLC: 10 centres in 3 countries (Germany, The Netherlands, France) |
| iCARE4CVD | The project conducted a review to explore how patient-reported experience measures (PREMs) are used in digital healthcare, particularly in heart failure patients. the research concluded that while PREMs are crucial for understanding and improving the quality of care, especially in digital health settings, there is a significant lack of standardised and validated tools. Most PREMs are custom-made for specific studies, which makes it difficult to generalise findings or apply them broadly across different healthcare settings. Therefore future efforts should focus on developing and validating standardised PREMs that can be used consistently across different studies and healthcare settings. |
| IMAGIO | Project partners LUMC (Leiden University Medical Center) and Maastricht UMC+ have set up a large European observational cohort study A-IMAGIO with retro- and prospective data (Prospective Cohort Study on Thermal Ablation of Malignant Liver Tumors). At both centres, the study has been approved and is ongoing. Medical ethical approval for prospective inclusion is being obtained in Fondazione Irccs Istituto Nazionale Dei Tumori (Milan), Radboud (Nijmegen) and Amsterdam UMC (not part of the consortium); the registry study will be expanded to other centres throughout Europe. The first patients were enrolled in Milan in December 2024. |
| PREDICTOM | PREDICTOM aims to identify scalable biosignatures for early and accurate diagnosis of Alzheimer's disease and personalized preventive interventions. In 2024, the PREDICTOM project launched a new data catalogue aimed at making its research datasets more accessible to the wider scientific community. The catalogue provides a comprehensive overview of the different types of data collected throughout the PREDICTOM project. It not only highlights the datasets but also offers a clear pathway for researchers to reach out to the data providers. |
| SASICU | Launched the post intensive care syndrome (PICS) Study Clinic at the Medical University Vienna, which started operating on 1 March 2024. The centre offers comprehensive care through a team of experts, including an intensive care physician, clinical psychologist, physiotherapist, pharmacologist, ICU nurse, and social worker. This team will gather novel insights about the development and causes of PICS in its early stages, laying the foundation for a larger data pool to inform future studies and improve patient outcomes. |
| SASICU | Developed and launched the first iteration of the Silent-Care Package. This represents the first integrated product offering an interoperable "Silent-ICU" allowing muting medical devices at the bedside and forwarding relevant alarm data to caregivers. Impact on improved ICU recoveries will be evaluated in 2025 and 2026 in a clinical study at Erasmus MC, Rotterdam. |

# Annex 4 – Publications from projects

## Publications from IHI-funded projects

### Hot publications in 2024

Hot publications are those that received enough citations to place them in the top 0.1% of publications in their research field.

- Madhurima Chatterjee et al. (2024) Plasma extracellular vesicle tau and TDP-43 as diagnostic biomarkers in FTD and ALS, Nature Medicine 30: 1771-1783

### 2024 publications featured in the top 10 Journals by JIF

- Madhurima Chatterjee et al. (2024) Plasma extracellular vesicle tau and TDP-43 as diagnostic biomarkers in FTD and ALS, Nature Medicine 30: 1771-1783
- Christopher R S Belder et al. (2024) Brain volume change following anti-amyloid β immunotherapy for Alzheimer's disease: amyloid-removal-related pseudo-atrophy, The Lancet Neurology 23: 1025-1034
- Kurt J Griffin et al. (2024) Transitioning to stage 3 type 1 diabetes: when to start insulin, The Lancet Diabetes & Endocrinology 12: 692-694
- Anette-Gabriele Ziegler et al. (2024) Dysglycaemia definitions and progression to clinical type 1 diabetes in children with multiple islet autoantibodies, The Lancet Diabetes & Endocrinology 13: 010-012
- Jan van Ramshorst et al. (2024) Contemporary guideline-directed medical therapy in de novo, chronic, and worsening heart failure patients: First data from the TITRATE-HF study, European Journal of Heart Failure 26: 1549-1560
- Guohua Wang et al. (2024) Prevention of dementia using mobile phone applications (PRODEMOS): a multinational, randomised, controlled effectiveness–implementation trial, The Lancet Healthy Longevity 5: e431-e442
- Maëlenn Guerchet et al. (2024) The 2022 symposium on dementia and brain aging in low- and middle-income countries: Highlights on research, diagnosis, care, and impact, Alzheimer's & Dementia 20: 4290-4314
- Martha Therese Gjestsen et al. (2024) Screening for Alzheimer’s disease in primary care using an AI driven screening platform: design of the PREDICTOM study, Alzheimer's & Dementia 20: e087279
- Marta Milà-Alomà et al. (2024) CSF glial biomarkers are associated with cognition in individuals at risk of Alzheimer's disease, Alzheimer's & Dementia 20: 5819-5832

### Highly cited publications in 2024

Highly cited publications have received enough citations to place in the top 1% of publications in their research field.

- Madhurima Chatterjee et al. (2024) Plasma extracellular vesicle tau and TDP-43 as diagnostic biomarkers in FTD and ALS, Nature Medicine 30: 1771-1783

## Publications from IMI-funded projects

### Hot publications in 2024

Hot publications are those that received enough citations to place in the top 0.1% of publications in their research field.

- Philip Scheltens et al. (2024) Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup, Alzheimer's & Dementia 20: 5143-5169
- Tiago F Outeiro et al. (2024) A biological classification of Parkinson's disease: the SynNeurGe research diagnostic criteria, The Lancet Neurology 23: 191-204
- Amin Madani et al. (2024) Metrics reloaded: recommendations for image analysis validation, Nature Methods 21: 195-212
- Hedvig M E Nordeng et al. (2024) The effectiveness of COVID-19 vaccines to prevent long COVID symptoms: staggered cohort study of data from the UK, Spain, and Estonia, The Lancet Respiratory Medicine 12: 225-236
- Markus Otto et al. (2024) Neurofilaments as biomarkers in neurological disorders — towards clinical application, Nature Reviews Neurology 20: 269-287
- Sven van der Lee et al. (2024) Cerebrospinal fluid proteomics in patients with Alzheimer’s disease reveals five molecular subtypes with distinct genetic risk profiles, Nature Aging 4: 33-47
- Georg E. Winter et al. (2024) Targeted protein degradation via intramolecular bivalent glues, Nature 627: 204-211
- A Toby Prevost et al. (2024) Abatacept in individuals at high risk of rheumatoid arthritis (APIPPRA): a randomised, double-blind, multicentre, parallel, placebo-controlled, phase 2b clinical trial, The Lancet 403: 838-849
- Hiroaki Yashiro et al. (2024) An unbiased ranking of murine dietary models based on their proximity to human metabolic dysfunction-associated steatotic liver disease (MASLD), Nature Metabolism 6: 1178-1196
- David A. Long et al. (2024) A microfluidic platform integrating functional vascularized organoids-on-chip, Nature Communications 15: 1452
- Raquel Largo et al. (2024) Abatacept inhibits inflammation and onset of rheumatoid arthritis in individuals at high risk (ARIAA): a randomised, international, multicentre, double-blind, placebo-controlled trial, The Lancet 403: 850-859
- Richard D Riley et al. (2024) Global disease burden of and risk factors for acute lower respiratory infections caused by respiratory syncytial virus in preterm infants and young children in 2019: a systematic review and meta-analysis of aggregated and individual participant data, The Lancet 403: 1241-1253
- Maximilian Buser et al. (2024) Generation of complex bone marrow organoids from human induced pluripotent stem cells, Nature Methods 21: 868-881
- Richard J B Dobson et al. (2024) Foresight—a generative pretrained transformer for modelling of patient timelines using electronic health records: a retrospective modelling study, The Lancet Digital Health 6: e281-e290
- Nhung Th Trinh et al. (2024) Effectiveness of COVID-19 vaccines to prevent long COVID: data from Norway, The Lancet Respiratory Medicine 12: e33-e34

**2024 publications featured in the top 10 Journals by JIF**

- Michel Pieren et al. (2024) The AMR Accelerator: from individual organizations to efficient antibiotic development partnerships, Nature Reviews Drug Discovery 24: 001 - 002
- Karim Raza et al. (2024) Abatacept in individuals at high risk of rheumatoid arthritis (APIPPRA): a randomised, double-blind, multicentre, parallel, placebo-controlled, phase 2b clinical trial, The Lancet 403: 838-849
- David M Kofler et al. (2024) Abatacept inhibits inflammation and onset of rheumatoid arthritis in individuals at high risk (ARIAA): a randomised, international, multicentre, double-blind, placebo-controlled trial, The Lancet 403: 850-859
- Terho Heikkinen et al. (2024) Global disease burden of and risk factors for acute lower respiratory infections caused by respiratory syncytial virus in preterm infants and young children in 2019: a systematic review and meta-analysis of aggregated and individual participant data, The Lancet 403: 1241-1253
- Ramanan Laxminarayan et al. (2024) Ensuring progress on sustainable access to effective antibiotics at the 2024 UN General Assembly: a target-based approach, The Lancet 403: 2551-2564
- Natalija Novak et al. (2024) Hand eczema, The Lancet 404: 2476-2486
- Ailsa L Hart et al. (2024) Inflammatory bowel disease has no borders: engaging patients as partners to deliver global, equitable and holistic health care, The Lancet 404: 414-417
- Darren J. Baker et al. (2024) Neuroinflammation in Alzheimer disease, Nature Reviews Immunology: 001 - 032

**Highly cited publications in 2024**

Highly cited publications have received enough citations to place them in the top 1% of publications in their research field.

- J. Scott Andrews et al. (2024) Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup, Alzheimer's & Dementia 20: 5143-5169
- Tiago F Outeiro et al. (2024) A biological classification of Parkinson's disease: the SynNeurGe research diagnostic criteria, The Lancet Neurology 23: 191-204
- Annika Reinke et al. (2024) Metrics reloaded: recommendations for image analysis validation, Nature Methods 21: 195-212
- Wai Yi Man et al. (2024) The effectiveness of COVID-19 vaccines to prevent long COVID symptoms: staggered cohort study of data from the UK, Spain, and Estonia, The Lancet Respiratory Medicine 12: 225-236
- Kaj Blennow et al. (2024) Neurofilaments as biomarkers in neurological disorders — towards clinical application, Nature Reviews Neurology 20: 269-287
- Lianne M. Reus et al. (2024) Cerebrospinal fluid proteomics in patients with Alzheimer’s disease reveals five molecular subtypes with distinct genetic risk profiles, Nature Aging 4: 33-47
- Alessio Ciulli et al. (2024) Targeted protein degradation via intramolecular bivalent glues, Nature 627: 204-211
- Michael A. Riegler et al. (2024) Understanding metric-related pitfalls in image analysis validation, Nature Methods 21: 182-194
- Sujith Subesinghe et al. (2024) Abatacept in individuals at high risk of rheumatoid arthritis (APIPPRA): a randomised, double-blind, multicentre, parallel, placebo-controlled, phase 2b clinical trial, The Lancet 403: 838-849

- Jonathon Marioneaux et al. (2024) An unbiased ranking of murine dietary models based on their proximity to human metabolic dysfunction-associated steatotic liver disease (MASLD), Nature Metabolism 6: 1178-1196
- Alexandra Leopoldi et al. (2024) A microfluidic platform integrating functional vascularized organoids-on-chip, Nature Communications 15: 1452
- Bernhard Manger et al. (2024) Abatacept inhibits inflammation and onset of rheumatoid arthritis in individuals at high risk (ARIAA): a randomised, international, multicentre, double-blind, placebo-controlled trial, The Lancet 403: 850-859
- Richard D Riley et al. (2024) Global disease burden of and risk factors for acute lower respiratory infections caused by respiratory syncytial virus in preterm infants and young children in 2019: a systematic review and meta-analysis of aggregated and individual participant data, The Lancet 403: 1241-1253
- Silvia D Morbelli et al. (2024) European intersocietal recommendations for the biomarker-based diagnosis of neurocognitive disorders, The Lancet Neurology 23: 302-312
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- James T Teo et al. (2024) Foresight—a generative pretrained transformer for modelling of patient timelines using electronic health records: a retrospective modelling study, The Lancet Digital Health 6: e281-e290
- Koen B Pouwels et al. (2024) Ensuring progress on sustainable access to effective antibiotics at the 2024 UN General Assembly: a target-based approach, The Lancet 403: 2551-2564
- C. Bonini et al. (2024) Regulatory T cells expressing CD19-targeted chimeric antigen receptor restore homeostasis in Systemic Lupus Erythematosus, Nature Communications 15: 2542
- Michal J. Rokicki et al. (2024) A single nuclear transcriptomic characterisation of mechanisms responsible for impaired angiogenesis and blood-brain barrier function in Alzheimer’s disease, Nature Communications 15: 2243
- Rohit Loomba et al. (2024) New and emerging treatments for metabolic dysfunction-associated steatohepatitis, Cell Metabolism 36: 912-926
- Oskar Hansson et al. (2024) Head-to-head study of diagnostic accuracy of plasma and cerebrospinal fluid p-tau217 versus p-tau181 and p-tau231 in a memory clinic cohort, Journal of Neurology 271: 2053-2066
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- Jeremias Motte et al. (2024) Clinical efficacy and autoantibody seroconversion with CD19-CAR T cell therapy in a patient with rheumatoid arthritis and coexisting myasthenia gravis, Annals of the Rheumatic Diseases 83: 1597-1598
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- Peter Lindquist et al. (2024) Characterization of genetic variants of GIPR reveals a contribution of β-arrestin to metabolic phenotypes, Nature Metabolism 6: 1268-1281
- Kevin Wei et al. (2024) The chromatin landscape of pathogenic transcriptional cell states in rheumatoid arthritis, Nature Communications 15: 4650
- Frans G. M. Kroese et al. (2024) Increased Diagnostic Accuracy of the Labial Gland Biopsy in Primary Sjögren Syndrome When Multiple Histopathological Features Are Included, Arthritis & Rheumatology 76: 421-428
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- Susann Weihrauch-Blüher et al. (2024) Clinical characteristics and outcomes of children, adolescents and young adults with overweight or obesity and mental health disorders, International Journal of Obesity 48: 423-432

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## Annex 5 – Patents from projects

Since the start of the IMI2 programme, projects have been patenting developed technologies. The statistics below encompass 10 patent/trademark/registered design applications, and 14 patents/trademarks awarded from the beginning of IMI2 until 31 December 2024.

- FILODAG – 1 patent application on ‘superparamagnetic particles modified with samarium, gadolinium and yttrium for use in the detection of Ebola virus’.
- MOFINA – 1 registered design and 1 trademark application on ‘Alere Q filovirus detector’.
- EBOVAC 1 – 1 patent awarded on ‘methods and compositions for enhancing immune responses’ and 2 patents awarded on ‘methods and compositions for inducing protective immunity against filovirus infection’.
- PHAGO – 1 patent awarded on ‘TREM2 cleavage modulators and uses thereof’ and 1 patent awarded on ‘up-scaled production of microglia-like/-precursor cells and macrophage cells using mesh macro carriers’.
- PEVIA – 2 patent applications on ‘mélanges d’epitopes t cd8 immunogènes du virus Ebola’ and ‘peptides immunogènes issus de la nucléoprotéine du virus Ebola’.
- EBiSC2 – trademark applications for the EBiSC trademark.
- TRIC-TB – 6 patents awarded for ‘novel compounds’.
- GRAVITATE-HEALTH – 3 trademarks awarded and 1 trademark application on ‘G-lens’, a digital health information tool.
- KRONO – 1 patent application on ‘an apparatus and associated methods for thermal cycling’.
- PRISM 2 - 1 application on ‘systems and methods for identifying transdiagnostic neurological disorder subtypes using DNA methylation marker analysis’.

There are no patent applications or patents awarded under IHI due to the early stage of the programme.

# Annex 6 – Scoreboard of Horizon 2020 H2020 legacy KPIs

## KPIs specific to the Innovative Medicines Initiative 2 (IMI2) programme[35]

| KPI | Definition | Comment | Relates to | IMI2 target | IMI2 results | IMI1 + IMI2 results |
|---|---|---|---|---|---|---|
| 1 | Number of relevant priority areas in the WHO "Priority Medicines for Europe and the World 2013 Update" reflected in the IMI2 Strategic Research Agenda (SRA) and addressed by IMI2 projects. | Based on the SRA and including the WHO priority medicines therapeutic areas:<br>- Expressed as a number of areas reflected in the IMI2 portfolio.<br>- Complemented by the number and budget of grant agreements that delivered them. | IMI2 Regulation objective b1:<br>b1: 'increase the success rate in clinical trials of priority medicines identified by the WHO' | 12 | 11 out of 12 SRA priority areas are addressed by IMI2 projects.<br>Number of projects: 80<br>Budget committed: EUR 2 256 118 476 | n/a |
| 2 | The number of project developed assets that completed a significant milestone during the course of an IMI2 project. | Assets are defined as new drug or diagnostic candidates, targets, biomarkers or other tools that can be shown to have reached a significant milestone or pass a significant stage gate. | IMI2 Regulation objectives b1, b2, b4, b5 and b6:<br>b1: 'increase the success rate in clinical trials of priority medicines identified by the WHO'<br>b2: 'reduce the time to reach clinical proof of concept in medicine development…'<br>b4: 'develop diagnostic and treatment biomarkers for diseases clearly linked to clinical relevance and approved by regulators'<br>b5: 'reduce the failure rate of vaccine candidates in phase III of clinical trials through new biomarkers for initial efficacy and safety checks'<br>b6: 'improve the current drug development process by providing the support for the | 50 | 682 | 833 |

[35] In this table, the budgets given include the EFPIA and Associated Partner contributions to the projects.

| KPI | Definition | Comment | Relates to | IMI2 target | IMI2 results | IMI1 + IMI2 results |
|---|---|---|---|---|---|---|
| | | | development of tools, standards and approaches to assess efficacy, safety and quality of regulated health products' | | | |
| 3 | New or improved guidelines, methodologies, tools, technologies or solutions accepted by regulatory authorities for use in the context of R&D, specifically for:<br>- new tools for preclinical drug development,<br>- biomarkers and tools developed to predict clinical outcomes,<br>- improved protocols to design and process of clinical trials,<br>- new biomarkers developed for the efficacy and safety of vaccine candidates. | - Measured by the number of the formal qualification procedures completed (letters of support, qualification opinions received).<br>- Complemented by number of qualification procedures launched.<br>- Expressed as net figure.<br>- Complemented by the number and budget of grant agreements that delivered them. | IMI2 Regulation objectives b1, b2, b4, b5 and b6:<br>b1: 'increase the success rate in clinical trials of priority medicines identified by the WHO'<br>b2: 'reduce the time to reach clinical proof of concept in medicine development…'<br>b4: 'develop diagnostic and treatment biomarkers for diseases clearly linked to clinical relevance and approved by regulators'<br>b5: 'reduce the failure rate of vaccine candidates in phase III of clinical trials through new biomarkers for initial efficacy and safety checks'<br>b6: 'improve the current drug development process by providing the support for the development of tools, standards and approaches to assess efficacy, safety and quality of regulated health products' | 10<br>(for completed procedures) | 32 completed procedures:<br>CE mark:4<br>Inclusion in regulatory guidelines: 11<br>Regulatory letter of support: 2<br>Regulatory qualified opinion: 10<br>Submission for qualification opinion: 5<br>Number of projects: 23<br>Project budget:<br>EUR 642 870 786 | 54 completed procedures:<br>CE mark: 4<br>Inclusion in regulatory guidelines: 22<br>Regulatory letter of support: 8<br>Regulatory qualified opinion: 13<br>Submission for qualification opinion: 7<br>Number of projects: 39<br>Projects' budget:<br>EUR 1 321 341 387 |
| 4 | New taxonomies of diseases and new stratifications (such as the definition of patient subpopulations, development, validation and use of new diagnostics) developed. | - Expressed as net figure.<br>- As published and/or implemented by industrial partners and evidenced in annual reporting.<br>- Complemented by the number and budget of grant agreements that delivered them. | IMI2 Regulation objectives b3 and b4:<br>b3: 'develop new therapies for diseases for which there is a high unmet need…'<br>b4: 'develop diagnostic and treatment biomarkers for diseases clearly linked to clinical relevance and approved by regulators' | 30 | 63<br>Number of projects: 23<br>Projects budget:<br>EUR 538 352 590 | 79<br>Number of projects: 30<br>Projects budget:<br>EUR 895 481 129 |

| KPI | Definition | Comment | Relates to | IMI2 target | IMI2 results | IMI1 + IMI2 results |
|---|---|---|---|---|---|---|
| 5 | Contribution (in-kind or in-cash) from non-pharma actors (e.g. non-pharma industries, foundations, charities, professional organisations). | Expressed as total amount in EUR. | IMI2 Regulation objective a:<br>a: 'to support… the development and implementation of pre-competitive research and of innovation activities of strategic importance to the Union's competitiveness and industrial leadership…'<br>and IMI2 Regulation recital 8:<br>'The initiative should consequently seek to involve a broader range of partners, including mid-caps, from different sectors, such as biomedical imaging, medical information technology, diagnostic and animal health industries.' | EUR 300 million | EUR 272.8 million<br>(AP: EUR 203.5 million<br>Partners in Research: EUR 69.3 million) | n/a |
| 6 | Share of IMI projects whose resources/outputs are made accessible beyond the consortia partners (with or without fee), such as major databases, bio-banks, in silico tools, training materials, clinical trial networks, guidance etc. | - Complemented by the number and budget of grant agreements that delivered them.<br>- Accessibility to be evidenced by online availability (with or without fee), and documented by project reports. | IMI2 Regulation objectives a, b2 and b6:<br>a: 'to support… the development and implementation of pre-competitive research and of innovation activities of strategic importance to the Union's competitiveness and industrial leadership…'<br>b2: 'reduce the time to reach clinical proof of concept in medicine development'<br>b6: 'improve the current drug development process by providing the support for the development of tools, standards and approaches to assess efficacy, safety and quality of regulated health products' | 50% | 72.73%<br>Number of projects: 88<br>Projects budget: EUR 2 457 642 931 | 74.72%<br>Number of projects: 133<br>Projects budget: EUR 4 056 385 102 |
| 7 | Co-authorships and cross-sector publications between European researchers on IMI2 projects (sectors include academia, small and mid-sized companies, pharma, regulators, patient organisations, etc.). | - Expressed as net figure<br>- Complemented by the number and budget of grant agreements that delivered them. | IMI2 Regulation objective a:<br>a: 'to support… the development and implementation of pre-competitive research and of innovation activities of strategic importance to the Union's competitiveness and industrial leadership…' | 1 500 | 4 764 | 9 433 |

| KPI | Definition | Comment | Relates to | IMI2 target | IMI2 results | IMI1 + IMI2 results |
|---|---|---|---|---|---|---|
| 8 | New tools and processes generated by IMI2 projects that have been implemented by the industry participants of IMI projects. | - New tools and processes: e.g. animal models, standards, biomarkers, SOPs, use of screening platforms and clinical trial networks.<br>- Expressed as net figure.<br>- Complemented by the number and budget of grant agreements that delivered them.<br>- Assessment based on yearly reporting by industrial partners until the project close-out meetings. | IMI2 Regulation objectives a, b2 and b6:<br>a: 'to support… the development and implementation of pre-competitive research and of innovation activities of strategic importance to the Union's competitiveness and industrial leadership…'<br>b2: 'reduce the time to reach clinical proof of concept in medicine development'<br>b6: 'improve the current drug development process by providing the support for the development of tools, standards and approaches to assess efficacy, safety and quality of regulated health products' | 50 | 850<br>Number of projects: 65<br>Projects budget:<br>EUR 1 487 561 280 | 1 164<br>Number of projects: 105<br>Projects budget:<br>EUR 2 980 848 517 |
| 9 | Share of projects involving patient organisations and healthcare professionals' associations (as consortium partners, members of advisory boards, members of stakeholder groups etc.). | - Complemented by the number and budget of grant agreements that delivered them. | IMI2 Regulation objectives a, and b1:<br>a: 'to support… the development and implementation of pre-competitive research and of innovation activities of strategic importance to the Union's competitiveness and industrial leadership…'<br>b1: 'increase the success rate in clinical trials of priority medicines identified by the WHO' | 80 % | 65.29%<br>Number of projects: 79<br>Projects budget:<br>EUR 2 344 894 026 | 60,67%<br>Number of projects: 108<br>Projects budget:<br>EUR 3 240 777 555 |
| 10 | Support to SMEs: share of SMEs participating as formal IMI project beneficiaries. | - To be complemented by the number of SMEs benefitting from IMI project support in other ways. | H2020 priority;<br>IMI2 Regulation recital 9<br>'(…) should seek to foster the capacity of smaller actors such as research organisations, universities and SMEs for participating in open innovation models and to promote the involvement of SMEs in its activities, in line with its objectives' | 20 % | SME participations:<br>16.7 % (381 out of 2278)<br>(IMI2 cumulative figures until 31/12/2024, beneficiaries receiving EU funding only) | SME participations:<br>16.5 % (579 out of 3519)<br>(IMI1 and IMI2 cumulative figures until 31/12/ 2024, beneficiaries receiving EU funding only) |

## Horizon 2020 Key Performance Indicators common to all JTI JUs[36]

| | Correspondence to general Annex 1 | Key Performance Indicator | Definition / responding to question | Type of data required | Target at the end of H2020 | Results in 2024 |
|---|---|---|---|---|---|---|
| INDUSTRIAL LEADERSHIP | 12 | SME - Share of participating SMEs introducing innovations new to the company or the market (covering the period of the project plus three years) | Based on Community Innovation Survey. Number and % of participating SMEs that have introduced innovations to the company or to the market | Number of SMEs that have introduced innovations | 50 % | n/a |
| | 13 | SME - Growth and job creation in participating SMEs | Turnover of company, number of employees | Turnover of company, number of employees | To be developed based on FP7 ex-post evaluation and /or first H2020 project results | n/a |
| SOCIETAL CHALLENGES | 14 | Publications in peer-reviewed high impact journals | The percentage of papers published in the top 10 % impact ranked journals by subject category | Publications from relevant funded projects (DOI: Digital Object Identifiers); Journal impact benchmark (ranking) data to be collected by commercially available bibliometric databases. | [On average, 20 publications per EUR 10 million funding (for all societal challenges)] | 24.56%<br>(1 453) |

[36] Table I shows the H2020 KPIs which apply to JTI JUs, both under Industrial Leadership and Societal Challenges (H2020 Key Performance Indicators. Annex II - Council Decision 2013/743/EU). In tables I and II, the numbers attributed to the indicators correspond with those in the H2020 indicators approved by the RTD Director-General and agreed by all the research family DGs (according to Annexes II and III - Council Decision 2013/743/EU). The missing numbers correspond to KPIs not applicable to the JUs.

KPIs and indicators that correspond to those approved by the RTD Director-General are presented with a white background in the tables. KPIs and monitoring indicators in tables I and II which do not correspond to those approved by the RTD Director-General are presented with a green background in the tables.

| | Correspondence to general Annex 1 | Key Performance Indicator | Definition / responding to question | Type of data required | Target at the end of H2020 | Results in 2024 |
|---|---|---|---|---|---|---|
| | 15 | Patent applications and patents awarded in the area of the JTI | Number of patent applications by theme; Number of awarded patents by theme | Patent application number | On average, 2 per EUR10 million funding (2014 - 2020) RTD A6 | 10 patent applications<br>14 patents awarded |
| | 16 | Number of prototypes testing activities and clinical trials[37] | Number of prototypes, testing (feasibility/demo) activities, clinical trials | Reports on prototypes, and testing activities, clinical trials | [To be developed on the basis of first Horizon 2020 results] | Since the start of IMI2 programme, cumulatively:<br>Clinical trials:148<br>Prototypes: 254<br>Testing activities: 316 |
| | 17 | Number of joint public-private publications in projects | Number and share of joint public-private publications out of all relevant publications | Properly flagged publications data (DOI) from relevant funded projects | [To be developed on the basis of first Horizon 2020 results] | 1 559<br>26.36% |
| | 18* | New products, processes, and methods launched into the market | Number of projects with new innovative products, processes, and methods | Project count and drop down list allowing to choose the type processes, products, methods | [To be developed on the basis of first Horizon 2020 results] | Since the start of IMI2 programme, cumulatively:<br>New products: 53<br>New processes: 37<br>New methods: 44 |

37 Clinical trials are IMI specific.

## Indicators for monitoring H2020 Cross-Cutting Issues common to all JTI JUs[38]

<table>
<tr><th>Correspondence in the general Annex</th><th>Cross-cutting issue</th><th>Definition / responding to question</th><th>Type of data required</th><th>Direct contribution to ERA</th><th>Results in 2024</th></tr>
<tr><td>2</td><td>Widening the participation</td><td>2.1 Total number of participations by EU-28 Member State</td><td>Nationality of H2020 applicants & beneficiaries (number of)</td><td>YES</td><td>Eligible proposals:<br>Applications: 7 495<br>Applicants: 2 628<br>Beneficiaries: 2 765<br><table><tr><th>Country</th><th>Participations (Participants)</th></tr><tr><td>Austria</td><td>61 (26)</td></tr><tr><td>Belgium</td><td>258 (75)</td></tr><tr><td>Bulgaria</td><td>2 (2)</td></tr><tr><td>Croatia</td><td>3 (3)</td></tr><tr><td>Czechia</td><td>12 (7)</td></tr><tr><td>Denmark</td><td>94 (30)</td></tr><tr><td>Estonia</td><td>6 (3)</td></tr><tr><td>Finland</td><td>44 (14)</td></tr><tr><td>France</td><td>313 (121)</td></tr><tr><td>Germany</td><td>441 (157)</td></tr><tr><td>Greece</td><td>11 (7)</td></tr></table></td></tr>
</table>

[38] This table presents all indicators for monitoring of cross-cutting issues which apply to JTI JUs (Annex III - Council Decision 2013/743/EU). In this and the preceding table, the numbers attributed to the indicators correspond with those in the H2020 indicators approved by the RTD Director-General and agreed by all the Research family DGs (according to Annexes II and III - Council Decision 2013/743/EU). The missing numbers correspond to KPIs not applicable to the JUs. KPIs and Indicators that correspond to those approved by the RTD Director-General are presented with a white background in the tables. KPIs and monitoring indicators in tables I and II, which do not correspond to those approved by the RTD Director-General, are presented with a green background in the tables.

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| | | | | | Hungary 8 (5)<br>Ireland 34 (18)<br>Italy 186 (95)<br>Latvia 1 (1)<br>Lithuania 1 (1)<br>Luxembourg 28 (7)<br>Netherlands 320 (101)<br>Poland 8 (6)<br>Portugal 28 (27)<br>Romania 3 (3)<br>Slovenia 8 (6)<br>Spain 182 (77)<br>Sweden 129 (34)<br>United Kingdom 542 (147)<br>Total EU-28 2 723 (973)<br>(Cumulative figures as of 31/12/2024) |
| | | 2.2 Total amount of EU financial contribution requested by EU-28 Member State (EUR millions) | Nationality of H2020 beneficiaries and corresponding EU financial contribution | YES | Country / IMI contrib., M EUR (%)<br>Austria 38.3 (2.8%)<br>Belgium 73.2 (5.4%)<br>Bulgaria 0.2 (0.0%)<br>Croatia 0.2 (0.0%)<br>Czechia 3.0 (0.2%) |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| | | | | | Denmark 22.4 (1.7%)<br>Estonia 2.8 (0.2%)<br>Finland 19.1 (1.4%)<br>France 134.3 (10.0%)<br>Germany 166.8 (12.4%)<br>Greece 3.7 (0.3%)<br>Hungary 3.4 (0.3%)<br>Ireland 25.1 (1.9%)<br>Italy 71.2 (5.3%)<br>Latvia 0.4 (0.0%)<br>Lithuania 0.1 (0.0%)<br>Luxembourg 12.6 (0.9%)<br>Netherlands 266.1 (19.8%)<br>Poland 1.7 (0.1%)<br>Portugal 10.5 (0.8%)<br>Romania 1.6 (0.1%)<br>Slovenia 1.3 (0.1%)<br>Spain 113.5 (8.4%)<br>Sweden 56.0 (4.2%)<br>United Kingdom 317.6 (23.6%)<br>Total EU-28 1345.1<br>(Cumulative figures as of 31/12/2024) |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| **NA** | | Total number of participations by Associated Countries | Nationality of H2020 applicants & beneficiaries (number of) | YES | Eligible proposals:<br>Applications: 590<br>Applicants: 246<br>Beneficiaries: 264<br>Country — Participations (Participants)<br>Iceland — 1 (1)<br>Israel — 22 (12)<br>North Macedonia — 1 (1)<br>Norway — 30 (13)<br>Serbia — 4 (4)<br>Switzerland — 205 (55)<br>Türkiye — 1 (1)<br>Total Assoc. countries: — 264 (87)<br>(Cumulative figures as of 31/12/2024) |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| **NA** | | Total amount of EU financial contribution by Associated Country (EUR millions) | Nationality of H2020 beneficiaries and corresponding EU financial contribution | YES | Country / IHI contrib., M EUR (%)<br>Iceland 0.1 (0.1%)<br>Israel 3.7 (4.8%)<br>North Macedonia 0.1 (0.2%)<br>Norway 11.4 (14.9%)<br>Serbia 1.1 (1.4%)<br>Switzerland 60.1 (78.5%)<br>Türkiye 0.0 (0.0%)<br>Total Assoc. countries 76.5<br>(Cumulative figures as of 31/12/2024) |
| **3** | SMEs participation | 3.1 Share of EU financial contribution going to SMEs (Enabling & industrial tech and Part III of Horizon 2020) | Number of H2020 beneficiaries flagged as SME<br>% of EU contribution going to beneficiaries flagged as SME | | Participations: 381 out of 2 278<br>(16.7 %)<br>Participants: 257 out of 976<br>(26.3 %)<br>EU funding: EUR 177.7 million (12.1 %)<br>(Cumulative figures as of 31/12/2024, beneficiaries receiving EU funding only) |
| **6** | Gender | 6.1 Percentage of women participants in H2020 projects | Gender of participants in H2020 projects | YES | 54% of the total workforce working in IMI2 projects is female. |
| | | 6.2 Percentage of women project coordinators in H2020 | Gender of MSC fellows, ERC principle investigators and scientific coordinators in other H2020 activities | YES | 30% of IMI2 project coordinators are women. |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| **7** | International cooperation | 7.1 Share of third-country participants in Horizon 2020 | Nationality of H2020 beneficiaries | YES | Eligible proposals:<br>Applications: 242<br>Applicants: 162<br>Beneficiaries: 141 |

| Country | Participations (Participants) |
|---|---|
| Australia | 2 (2) |
| Benin | 1 (1) |
| Brazil | 1 (1) |
| Burkina Faso | 1 (1) |
| Canada | 7 (7) |
| China (People's Republic of) | 1 (1) |
| Congo (Democratic Republic of) | 1 (1) |
| Gabon | 2 (1) |
| Japan | 2 (2) |
| Kuwait | 1 (1) |
| Russian Federation | 1 (1) |
| Senegal | 2 (1) |
| Sierra Leone | 3 (2) |
| Singapore | 1 (1) |
| South Africa | 3 (3) |
| Tanzania (United Republic of) | 1 (1) |
| United States | 111 (52) |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| | | | | | Total for third countries 141 (79)<br>(Cumulative figures as of 31/12/2024) |
| | | 7.2 Percentage of EU financial contribution attributed to third country participants | Nationality of H2020 beneficiaries and corresponding EU financial contribution | YES | Country — IHI contrib., M EUR (%)<br>Australia 0.3 (0.7%)<br>Benin 0.6 (1.4%)<br>Brazil 0.3 (0.7%)<br>Burkina Faso 3.8 (9.1%)<br>Canada 0.4 (1.1%)<br>China (People's Republic of) 0.0 (0.0%)<br>Congo (Democratic Republic of) 3.3 (7.9%)<br>Gabon 0.9 (2.1%)<br>Japan 0.0 (0.0%)<br>Kuwait 0.0 (0.0%)<br>Russian Federation 0.0 (0.0%)<br>Senegal 0.4 (1.0%)<br>Sierra Leone 20.2 (48.4%)<br>Singapore 0.0 (0.0%)<br>South Africa 1.5 (3.5%)<br>Tanzania (United Republic of) 0.5 (1.2%)<br>United States 9.5 (22.9%)<br>Total for third countries 41.6<br>(Cumulative figures as of 31/12/2024) |

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| **NA** | | Scale of impact of projects (High Technology Readiness Level) | Number of projects addressing TRL[39] between (4-6, 5-7) | | -3 projects TRL 4<br>-3 projects TRL 5<br>-1 project TRL 6<br>-3 projects TRL 7<br>-1 projects TRL 8<br>-7 projects TRL 9 |
| **11** | Private sector participation | 11.1 Percentage of H2020 beneficiaries from the private for profit sector | Number of and % of the total H2020 beneficiaries classified by type of activity and legal status | | Participations:<br>1 218 of 3 128 (38,9 %)<br>Participants:<br>433 out of1 139 (38.0 %)<br>(Cumulative figures as of 31/12/2024) |
| | | 11.2 Share of EU financial contribution going to private for profit entities (Enabling & industrial tech and Part III of Horizon 2020) | H2020 beneficiaries classified by type of activity; corresponding EU contribution | | EUR 198.7 million out of<br>EUR 1 463.3 million (13.6 %)<br>(Cumulative figures as of 31/12/2024) |
| **12** | Funding for PPPs | 12.1 EU financial contribution for PPP (Art 187) | EU contribution to PPP (Art 187) | | EUR 1 452.1 million<br>(total cash contribution EC at the end of the year) |
| | | 12.2 PPPs leverage: total amount of funds leveraged through Art. 187 initiatives, including additional activities, divided by the EU contribution | Total funding made by private actors involved in PPPs<br>- in-kind contribution already committed by private members in project selected for funding<br>- additional activities (i.e. research expenditures/investment of industry in the sector, compared to previous year) | | EFPIA & Associated Partners contribution<br>(EUR 1 510.1 million) divided by EU contribution<br>(EUR 1 452.1 million)<br>= leverage of 1.040 |

39 TRL: Technology Readiness Level.

| Correspondence in the general Annex | Cross-cutting issue | Definition / responding to question | Type of data required | Direct contribution to ERA | Results in 2024 |
|---|---|---|---|---|---|
| **13** | Communication and dissemination | 13.3 Dissemination and outreach activities other than peer-reviewed publications - [Conferences, workshops, press releases, publications, flyers, exhibitions, trainings, social media, web-sites, communication campaigns (e.g. radio, TV)] | A drop down list allows to choose the type of dissemination activity. Number of events, funding amount and number of persons reached thanks to the dissemination activities | YES | Total number of events: 117 712<br>Total funding amounts: EUR 15 015 787 |
| **NA** | Participation of RTOs and Universities | Participation of RTO[40]s and Universities in PPPs (Art 187 initiatives) | Number of participations of RTOs to funded projects and % of the total<br>Number of participations of Universities to funded projects and % of the total<br>% of budget allocated to RTOs and to Universities | YES | Participations:<br>Research org: 577 (18.4 %)<br>HES: 992 (31.7 %)<br>% budget allocated:<br>Res. org: EUR 347.0 million (23.7 %)<br>HES: EUR 775.7 million (53.0 %)<br>(Cumulative figures as of 31/12) |
| **NA** | Audit | Error rates | % of common representative error; % residual error | | Representative error rate for IHI H2020 population: 3.54 %<br>Residual error rate: 0.79 % |
| **NA** | | Implementation | Number of cases implemented; in total EUR million; ´of cases implemented/total cases | | Cases implemented 113 (94 %) (including extensions)<br>Amount: EUR 5 235 650 |

40 RTO: Research and Technology Organisation.

# Annex 7 – Scoreboard of Horizon Europe common key impact pathway indicators (KIPs)

| Key Impact Pathway[41] | Short-term | Medium-term | Longer-term | Detail per action or globally for 2024 |
|---|---|---|---|---|
| **Towards scientific impact** | | | | |
| 1 - Creating high-quality new knowledge | Publications - Number of peer-reviewed scientific publications resulting from the Programme | Citations - Field-Weighted Citation Index of peer-reviewed Publications resulting from the Programme | World-class science - Number and share of peer-reviewed publications resulting from the projects funded by the Programme that are core contribution to scientific fields (top 1% most cited) | Publications: 55<br>Citation index: 1.91<br>World class science: 1 (1.8%) |
| 2 - Strengthening human capital in R&I | Skills -Number of researchers involved in upskilling (training, mentoring/coaching, mobility and access to R&I infrastructures) activities in projects funded by the Programme | Careers -Number and share of upskilled researchers involved in the Programme with increased individual impact in their R&I field | Working conditions -Number and share of upskilled researchers involved in the Programme with improved working conditions, including researchers' salaries | Short term indicator<br>Skills: 834 researchers |
| 3 - Fostering diffusion of knowledge and open science | Shared knowledge Share of research outputs (open data/publication/software etc.) resulting from the Programme shared through open knowledge infrastructures | Knowledge diffusion -Share of open access research outputs resulting from the Programme actively used/cited | New collaborations -Share of Programme beneficiaries which have developed new transdisciplinary/transsectoral collaborations with users of their open access research outputs resulting from the Programme | Short term indicator<br>Shared knowledge: 7 (100%) of research outputs |
| **Towards societal impact** | | | | |
| 4 - Addressing Union policy priorities and global challenges through R&I | Results -Number and share of results aimed at addressing identified Union policy priorities and global challenges (including SDGs) (multidimensional: for each identified priority)<br>Including: Number and share of climate-relevant results aimed at delivering on the Union's commitment under the Paris Agreement | Solutions Number and share of innovations and research outcomes addressing identified Union policy priorities and global challenges (including SDGs) (multidimensional: for each identified priority)<br>Including: Number and share of climate-relevant innovations and research outcomes delivering on | Benefits - Aggregated estimated effects from use/exploitation of results funded by the Programme on tackling identified Union policy priorities and global challenges (including SDGs), including contribution to the policy and law-making cycle (such as norms and standards) (multidimensional: for each identified priority) Including: Aggregated estimated effects from use/exploitation of climate-relevant results funded by the Programme on delivering on the Union's commitment under the Paris Agreement | Short term indicator<br>Results: 3 (75%) |

[41] NB: For some KIPs, the data will not be available in the short or even medium term.

| | | | | |
|---|---|---|---|---|
| | | Union's commitment under the Paris Agreement | including contribution to the policy and law-making cycle (such as norms and standards) | |
| 5 - Delivering benefits and impact through R&I missions | R&I mission results -Results in specific R&I missions (multidimensional: for each identified mission) | R&I mission outcomes<br>Outcomes in specific R&I missions (multidimensional: for each identified mission) | R&I mission targets met - Targets achieved in specific R&I missions (multidimensional: for each identified mission) | Data not available |
| 6 - Strengthening the uptake of R&I in society | Co-creation -Number and share of projects funded by the Programme where Union citizens and end-users contribute to the co-creation of R&I content | Engagement - Number and share of participating legal entities which have citizen and end-users engagement mechanisms in place after the end of projects funded by the Programme | Societal R&I uptake -Uptake and outreach of co-created scientific results and innovative solutions generated under the Programme | Short term indicator<br>Co-creation: 5 Projects with Periodic Reports out of 5 (100%) |
| **Towards technological / economic impact** | | | | |
| 7 - Generating innovation-based growth | Innovative results -Number of innovative products, processes or methods resulting from the Programme (by type of innovation) & Intellectual Property Rights (IPR) applications | Innovations -Number of innovations resulting from the projects funded by the Programme (by type of innovation) including from awarded IPRs | Economic growth -Creation, growth & market shares of companies having developed innovations in the Programme | Data not available |
| 8 - Creating more and better jobs | Supported employment -Number of full time equivalent (FTE) jobs created, and jobs maintained in participating legal entities for the project funded by the Programme (by type of job) | Sustained employment - Increase of FTE jobs in participating legal entities following the project funded by the Programme (by type of job) | Total employment -Number of direct & indirect jobs created or maintained due to diffusion of results from the Programme (by type of job) | Short term indicator<br>Support employment: 109 FTEs |
| 9 - Leveraging investments in R&I | Co-investment -Amount of public & private investment mobilised with the initial investment from the Programme [42] | Scaling-up -Amount of public & private investment mobilised to exploit or scale-up results from the Programme (including foreign direct investments) | Contribution to '3 % target' - Union progress towards 3 % GDP target due to the Programme | Short term indicator<br>Co-investment: EUR 324.9m |

42 The difference between the total and the EU funding equals the co-investment made.

# Annex 8 – Scoreboard of common indicators for Horizon Europe partnerships

| N° | Criterion addressed | Proposed common indicators | Baseline | | Results for 2024 | Target 2027 |
|---|---|---|---|---|---|---|
| 1 | Additionality | Progress towards (financial and in-kind) contributions from partners other than the Union – i.e. committed vs. actual[43] | €1.506 billion | | €365.4 million | €1.200 billion |
| 2 | Additionality/ Synergies | Additional investments triggered by the EU contribution, including qualitative impacts related to additional activities[44] | N/A | | N/A | N/A |
| 3 | Directionality | Overall (public and private, in-kind and cash) investments mobilised towards EU priorities[45] | 1.8% Grean Deal<br>17% Digital<br>100% Resilience | 8% Grean Deal<br>92% Digital<br>100% Resilience | 2% Grean Deal<br>50% Digital<br>100% Resilience | |
| 4 | International visibility and positioning | International actors involved[46] | 15 | | 14 | N/A |

[43] The baseline is the total budget committed by the partners other than the Union for IMI2 projects, in terms of IKOP+FC. The Results are the sum of IKOP+IKAA devoted to projects + FC, coming from Private Members, based on committed values, up to 31/12/2024. The IHI target is EUR 1.200 million for the partners other than the Union for the whole duration of the new partnership (1.000 million from funding industrial partners and EUR 200 million from contributing partners).

[44] The information on further investments mobilized to exploit or scale-up project results is asked to project coordinators via SYGMA only for final reporting. Therefore, there is no data to report at the moment. It is not possible to provide a baseline as this element was not monitored in the past.

[45] This data set is extracted from SYGMA. In the "policy monitoring" section the EU priorities addressed by the projects are captured. IHI reported on the projects' budgets on 3 key priorities: Green deal (including biodiversity, clean air, climate action), Digital (including artificial intelligence for Europe and Europe fit for the digital age), Resilience (all IHI projects are resilient, with resilience defined as *the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair, and democratic manner* by the 2020 Strategic Foresight Report).

[46] "International actors" are intended as those entities other than members or beneficiaries based in Third Countries. So IHI will report on Contributing Partners outside the EU and associated Countries.

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Transparency and openness | Share & type of stakeholders and countries invited/engaged[47] | N° of applicants: 2 798<br>Types of applicants: Academia, secondary and higher education establishment 577, Associated Partner 20, EFPIA 64, Non-profit research organisation 494, Others 769, Patient organisation 145, Regulatory/community bodies 51, SME 853<br>N° of countries of applicants: 66 | N° of applicants: 1 663<br>Types of applicants: Academia, secondary and higher education establishment 288, Contributing partner 231, IHI industry partners 192, Non-profit research organisation 217, Others 365, Patient organisation 76, Regulatory/community bodies 13, SME 281<br>N° of countries of applicants: 50 | N/A | |
| 6 | Transparency and openness | No and types of newcomer members in partnerships and their countries of origin (geographical coverage)[48] | 2 | | 5 | 5 |
| 7 | Transparency and openness | No and types of newcomer beneficiaries in funded projects (in terms of types and countries of origin)[49] | N° of newcomer beneficiaries: 802<br>Types of newcomers: Academia, secondary and higher education establishment 123; Associated Partner 32; EFPIA 77; Non-profit research organisation 152; Patient organisation 24; Regulatory/community bodies 11; SME 213; Others 170,<br>N° of countries of newcomers: 48 | | N° of newcomer beneficiaries: 376<br>Types of newcomers: Academia, secondary and higher education establishment 33, Contributing partner 47, Industry partners | |

[47] The “stakeholders invited/engaged” are intended as the (unique) applicants to Calls. The baseline reports on IMI2 applicants and the results report on IHI applicants to the Calls that were launched up to December 2024.

[48] IHI JU is an institutionalised public-private partnership (Art.187) between the European Union and industry associations representing the sectors involved in healthcare, namely COCIR (European Trade Association representing the medical imaging, radiotherapy, health ICT and electromedical industries); EFPIA, including Vaccines Europe (European Federation of Pharmaceutical Industries Associations); EuropaBio (the European Association for biotechnology industries); and MedTech Europe (European Association for the medical technology industry). Member States are not members of this joint undertaking. Likewise, IMI2 JU was an institutionalised public-private partnership (Art.187) between the European Union and EFPIA (European Federation of Pharmaceutical Industries Associations). Member States were not members of this joint undertaking.

[49] The ‘newcomer’ beneficiaries mean the (unique) beneficiaries involved for the first time in the activities of the partnership (so that did not participate in the previous partnership). The baseline reports on IMI2 newcomer beneficiaries that were not part of IMI1 and the results on IHI newcomer beneficiaries that were not part of IMI2.

| | | | | | |
|---|---|---|---|---|---|
| | | | | 146, Non-profit research organisation 34,<br>Others 40, Patient organisation 7, SME 69<br>N° of countries of newcomers: 32 | |
| 8 | Coherence and synergies | Number and type of coordinated and joint activities with other European Partnerships[50] | Strategic support & exchanges: 1 | Strategic support & exchanges: 9<br>Operational support & exchanges: 6<br>Joint communication: 4<br>Memorandum of Understanding: 1 | N/A |
| 9 | Coherence and synergies | Number and type of coordinated and joint activities with other R&I Initiatives at EU /national/regional/sectorial level[51] | N/A | Strategic support & exchanges: 5<br>Operational support & exchanges: 5<br>Joint communication: 6 | |
| 10 | Coherence and synergies | Complementary and cumulative funding from other Union funds (Horizon Europe, National funding, ERDF, RRF, Other cohesion policy funds, CEF, DEP, LIFE, other)[52] | N/A | N/A | N/A |

[50] In IMI2 there were no synergy objectives, nevertheless one synergetic activity was generated during IMI2.

[51] The coordinated and joint activities with other R&I Initiatives reported here are those established at IHI partnership level (not at project level). In IMI2 there were no synergy objectives.

[52] This indicator is not applicable to IHI.

| | | | | |
|---|---|---|---|---|
| 11 | International visibility and positioning | Visibility of the partnership in national, European, international policy/industry cycles[53] | National info days: 25<br>Events: 42<br>News articles: 440<br>Newsletters: 88<br>Webinars: 130<br>Platforms: 2 | National info days: 37<br>Events: 25<br>News articles: 111<br>Newsletters: 36<br>Webinars: 49<br>Platforms: 2 |

[53] Dissemination activities as well as passive and active communication activities that the partnerships put in place to increase its visibility and attract stakeholders.

# Annex 9 – Scorboard of KPIs specific to IHI

| KPI name | Unit of measurement | Baseline[54] | Target 2023[55] | Target 2025 | Target 2027 | Ambition >2027 | Status |
|---|---|---|---|---|---|---|---|
| **Resources, processes and activities (inputs)** | | | | | | | |
| 1.1 Involvement of multiple health care stakeholders | Share of projects involving more than two types of health care stakeholders [research higher or secondary education organisations (private or public), small & medium enterprise (SME), large company (for-profit legal entity), non-governmental organisations (NGOs), healthcare professional organisation/healthcare provider, patient / citizen organisation, regulators or regulatory body, notified body, health technology assessment body (HTA), health care payer, charity and foundation, public authority] as project participants or advisors | 50% | 55% | 60% | 65% | 70% | **100%** |
| 1.2 Cross-sectoriality of the partnership | Share of projects bringing together private members and/or contributing partners (or their affiliated or constituent entities) from two or more technology sectors[56] | 25% | 70% | 80% | 85% | 90% | **93%** |
| 1.3 Engagement of regulators | Number of projects interacting with regulators[57] to contribute to new or improved guidelines or methodologies | 13 | 0 | 5 | 10 | 20 | **3** |

[54] Baselines are derived (where possible) from the Innovative Medicines Initiative (IMI2) as predecessor to IHI.

[55] Reporting methodology: cumulatively reporting from the beginning of IHI until 31/12/2030.

[56] The IHI private members COCIR, EFPIA, EuropaBio and MedTech Europe have members from several technology sectors. Contributing partners might also cover further technology sectors.

[57] In this document, the term 'regulators' refers to the different bodies involved in the processes regulating medical products (e.g., scientific assessment, production of scientific guidelines, scientific advice to manufacturers, granting/refusal/suspension of marketing authorisations, post-market surveillance, withdrawing/recalling of devices put on the market, authorisation and oversight of clinical trials). It includes the European Commission, National Competent Authorities (NCA), the Medical Device Coordination Group (MDCG), and the European Medicines Agency (EMA). Notified Bodies (NB), while designated to perform a regulatory function (verification of medical device/in-vitro diagnostics conformity), cannot be considered as regulators in the strict sense of this definition. However, the potential input and expertise of Notified Bodies may still be relevant for the design and implementation of the activities of the proposed initiative.

| **Outcomes** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.1 Cross-stakeholders' collaboration | Share of multi-stakeholders' publications identified through bibliometric data analysis [research / higher or secondary education organisations (private or public), small & medium enterprise (SME), large company (for-profit legal entity), non-governmental organisations (NGOs), healthcare professional organisation / healthcare provider, patient / citizen organisation, regulators or regulatory body, notified body, health technology assessment body (HTA), health care payer, charity and foundation, public authority] | 65% | 65% | 66% | 67% | 70% | **94% (59)** |
| 2.2 Public-private collaboration | Share of publications across public and private stakeholders identified through bibliometric data analysis (academic, pharmaceutical, biopharmaceutical, medical technologies, biotechnologies) | 65% | 65% | 66% | 67% | 70% | **59% (37)** |
| 2.3 Project outputs for use in clinical practice and health research development and innovation (R&D&I) | Number of:<br>- new tools for studying new potential drug targets such as new pharmacological tools, therapeutic modalities, and patient-derived assays available to the scientific community;<br>- new tools to test diagnostically and/or therapeutically relevant hypotheses in pre-clinical models and/or clinically in uncharted areas of disease biology;<br>- new tools for prediction, prevention, interception, surveillance, diagnosis, treatment, and management options to prepare for major epidemic outbreaks;<br>- new biomarkers of disease (relevant for diagnosis, efficacy, safety, or prevention) identified and experimentally validated;<br>- new taxonomies of disease or new stratifications to define patient sub-populations. | 100 | 0 | 50 | 120 | 150 | **5** |
| 2.4 Integrated health care solutions considering end-users' needs | Number of project outputs that combine people-centred integrated solutions (pre-competitive tools, methods, solutions as well as products/services or combined products) | No baseline available | 0 | 3 | 7 | 10 | **3** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.5 Methodologies for value assessment of integrated solutions | Number of Methodologies for the assessment of the added value of combinations of products/services or combined products (including development of patient reported outcomes / experience measures and statistical methods/tools), submitted to health care authorities and organisations[58] | No baseline available | 0 | 2 | 3 | 5 | **0** |
| 2.6 New or improved clinical guidelines | Number of projects contributing to the development of new or improved clinical guidelines | 13 | 0 | 5 | 10 | 20 | **3** |
| 2.7 Management of health data | Number of common standards, protocols and frameworks developed by the projects to enable better access to data, sharing and analysis of health-related data | No baseline available | 0 | 3 | 7 | 10 | **1** |
| 2.8 Demonstration of data integration | Number of pilots developed by the projects demonstrating integration of data provided by the private and public sectors | No baseline available | 0 | 5 | 10 | 20 | **2** |
| 2.9 Demonstration of AI in healthcare | Number of pilots developed by the projects demonstrating feasibility of use of artificial intelligence in health care | No baseline available | 0 | 1 | 2 | 3 | **1** |
| **Impacts** | | | | | | | |
| 3.1 Creation of sustainable resources and infrastructures that facilitate translation of the knowledge to innovations | Number of established new research networks, new clinical networks, further public-private collaborations on health R&D&I, research infrastructures, biobanks, collaborative platforms etc. (that outlive the project and are accessible to broader scientific community) | 10 | 0 | 4 | 7 | 15 | **1** |
| 3.2 Development of preventive or | Share of projects that aim to develop new or improved existing methodologies also across disciplines addressing public | No baseline available | 90% | 90% | 90% | 90% | **97%** |

[58] Health care authorities and organisations to which it is referred here are HTA bodies, and Regulatory Authorities, Payers and Public Authorities

- HTA agencies/bodies: http://www.adhophta.eu/toolkit/assets/tools/AdHopHTA_toolkit_tool24_document.pdf; https://www.eunethta.eu/about-eunethta/eunethtanetwork/)
- National and regional public procurement organisations
- National payer and reimbursement organisations (incl. health insurance companies)
- National healthcare authorities: examples are: Dutch NZA; http://www.euregha.net/ (membership list of regional and local health authorities); https://eurohealthnet.eu/list-of-members/ (first part of the membership, not the research members).

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| therapeutic strategies in different therapeutic areas to address unmet public health needs | health needs[59] included in the list of the WHO Europe Health 2020 priority areas[60] | | | | | | |
| 3.3 Cross-sector activities established by the partnership that will help contribute to a globally competitive EU health care industry | Number of activities in which cross-sector collaboration drives health innovation, such as:<br>- Spin-off companies, entities or activities created based on outputs of the project (e.g., new commercial or non-profit entities)<br>- Collaboration agreements between large companies[61] & SMEs[62] established for purposes that go beyond the scope of the project during and/or after project lifetime.<br>- Other activities where the joint contribution of different partners has generated cross-sectoral health innovation.<br>Examples of collaboration activities across health industry sectors that contributed to the transition to a green and digital economy (as outlined in the new Industrial Strategy for Europe[63]) | No baseline available | 0 | 5 | 10 | 20 | **0** |

[59] SBA definition (article 125.1) “For the purpose of this Regulation, an unmet public health need shall be defined as a need currently not addressed by the health care systems for availability or accessibility reasons, for example where there is no satisfactory method of diagnosis, prevention or treatment for a given health condition or if people access to health care is limited because of cost, distance to health facilities or waiting times”.

[60] “Health 2020 – A European policy framework supporting action across government and society for health and well-being”: https://iris.who.int/bitstream/handle/10665/131300/9789289002783-eng.pdf?sequence=6&isAllowed=y.

[61] For-profit legal entities with an annual turnover of EUR 500 million or more (Single Basic Act, Art. 123.5).

[62] Small and medium-sized enterprises (SMEs) are defined in the “EU recommendation 2003/361” (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003H0361&from=EN) as of page 4 and in the European Commission “User guide to SME definition” (https://ec.europa.eu/regional_policy/sources/conferences/state-aid/sme/smedefinitionguide_en.pdf) especially in page 13.

[63] “European industrial strategy 2019-2024” (https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en) and “Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe’s recovery” (https://ec.europa.eu/info/sites/default/files/communication-industrial-strategy-update-2020_en.pdf).

## Annex 10 – IKAA report

The annual and cumulative overview of the reported and validated IKAA is available here, including descriptions of additional activities undertaken and their type (either programme IKAA or project IKAA).

In 2024, IHI private members reported EUR 11.7 million of costs for additional activities to the IHI Programme Office, of which EUR 766 526 were certified by an external auditor and validated by the JU GB. These certified additional activities were carried out in Germany.

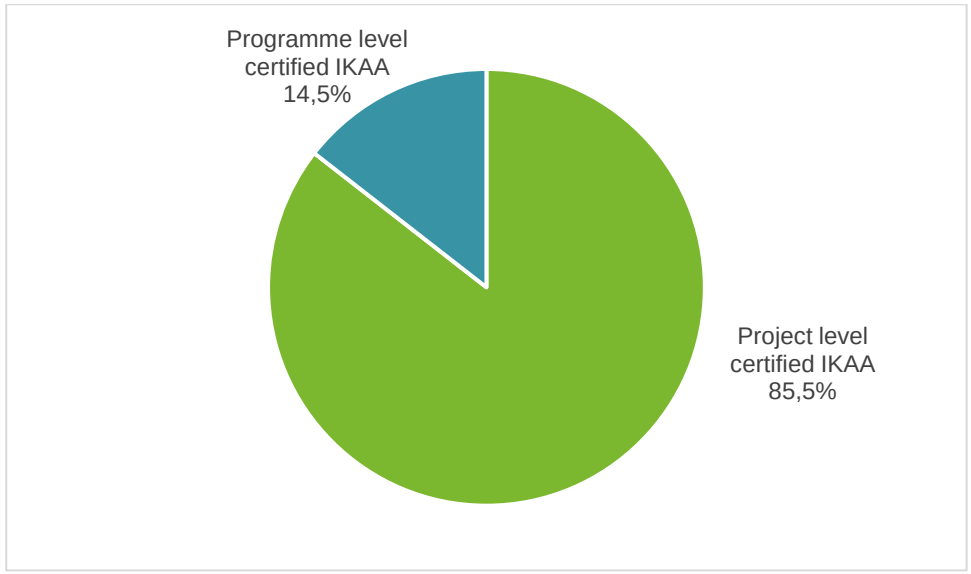
| IKAA Type | Reported value in 2024 | Certified value in 2024 |
|---|---|---|
| Project level | 3 414 541 | 766 526 |
| Programme level | 8 282 871 | 0 |
| **TOTAL** | 11 697 412 | 766 526 |

As of 31 December 2024, IHI private members had reported a total of EUR 15.2 million IKAA since the start of IHI programme, of which EUR 14.3 million remains to be certified by an external auditor and validated by the JU GB.

| IKAA Type | Planned IKAA [64] | Cumulative reported IKAA | Cumulative reported IKAA, not yet certified | Cumulative, reported and certified IKAA |
|---|---|---|---|---|
| **Project level** | 30 487 921 | 4 052 105 | 3 285 579 | 766 526 |
| **Programme level** | 31 236 732 | 11 194 639 | 11 065 024 | 129 615 |
| **TOTAL on 31/12/2024** | **61 724 653** | **15 246 744** | **14 350 603** | **896 141** |

The total validated IKAA amounting to EUR 896 141 consists of 85.5% additional activities specific to IHI projects and 14.5% additional activities specific to the programme.

[64] See the adopted IKAA Plan in WP 2025 on 11 December 2024. Note that additional activities planned for projects of IHI call 4 and 7 are not included in the last adopted IKAA Plan of 2024 as these projects were not yet signed at the time of the preparation of the IHI WP 2025. These planned additional activities will be included in the first amendment of the WP 2025.


Programme level certified IKAA 14,5%
Project level certified IKAA 85,5%

## Annex 11 – Annual accounts

The annual accounts are provided in a separate document, which is officially handed over to the budgetary authorities, the European Court of Auditors, and the external auditors.

They are also published on the IHI website.

# Annex 12 – Materiality criteria

The ‘materiality’ concept provides the Executive Director with a basis for assessing the significance of any weaknesses or risks identified and thus whether those weaknesses should be subject to a formal reservation in the annual declaration of assurance. This annex provides an explanation of the materiality threshold that was applied as a basis for this assessment.

In the framework of its control strategy, IHI aims to ensure that the residual error rate of payments made to beneficiaries, i.e. the level of errors that remain undetected and uncorrected, does not exceed 2% by the end of the research programmes[65]. The guidance of the European Commission and the European Court of Auditors, as well as lessons learnt from previous audits on legality and regularity, were taken in account for defining the 2% threshold[66]. Progress towards this objective is to be (re)assessed annually, in view of the results of the implementation of the ex-post audit strategy. As long as the residual error rate is not (yet) below 2% at the end of a reporting year within the programme’s life cycle, a reservation would (still) be made. Nevertheless, apart from the residual error rate, the Executive Director may also take into account other management information at his disposal to identify the overall impact of a weakness and determine whether or not it leads to a reservation.

When deciding whether or not something is material, qualitative and quantitative terms have to be considered.

In qualitative terms, the following factors are considered as part of the materiality criteria:

- the nature and scope of the weakness;
- the duration of the weakness;
- the existence of mitigating controls which reduce the impact of the weakness;
- the existence of effective corrective actions to correct the weaknesses (action plans and financial corrections) which have had a measurable impact.

In quantitative terms, in order to make a judgement on the significance of a weakness, the potential financial impact is taken into account. The assessment of weaknesses is made by identifying their potential impact and judging whether any weakness was material enough that its non-disclosure could influence the decisions or conclusions of the declaration of assurance. Accordingly, the following considerations are taken into account:

- JU programmes are multi-annual in nature, thus the control strategy is designed for the whole programme duration. The holistic measure of control effectiveness must reflect the entirety of programme implementation at the time of reporting. The error rates are therefore calculated cumulatively for the entire programme period to date. This enables to continuously monitor the final control objective that is set to be achieved at the end of the programme. As the programmes advance, the reliability of the control measure continues to improve.
- Furthermore, the analysis must also include an assessment of whether (1) the results of the audits carried out until the end of the reporting year were sufficient and adequate to meet the multi-annual control strategy goals; and (2) whether the preventive and remedial measures in place are deemed to be adequately effective in order lead to the expected reduction in the error rate by the end of the programme.

[65] IHI JU is implementing FP7, H2020 and Horizon Europe programmes

[66] The 2% materiality threshold refers to the level of the residual rate of error. The residual error rate represents the rate of error remaining after corrections (recoveries, offsettings) have been made

**Effectiveness of controls**

The main legality and regularity indicators for payments made to beneficiaries, are the representative and residual error rates detected by ex post audits, measured with respect to the amounts accepted after ex ante controls.

The **representative error rate (RepER)** is the error rate resulting from the representative audits. It provides a reasonable estimate of the level of error in the population relating to the accepted JU contributions on completion of the audits but does not take into account the corrections and follow-up undertaken by the JU.

The calculation of the residual error rate subsequently uses the representative error rate as the starting point. The representative error rate for a population from which one or more samples have been drawn is calculated according to the following formula[67]

$$\frac{\sum_{i=1}^{n} err_i * SI_i}{P}$$

- n = total sample size;
- $err_i$ = error rate (in %) in accepted JU contributions detected on individual transactions from the sample (in range [0, 100%]; i.e. only errors relating to overpayments are counted);
- $SI_i$ = = sampling interval used for selecting transactions from the sample;
- P = total accepted JU contribution (EUR) in the auditable population (i.e. all paid financial statements).

The **residual error rate (ResER**) is the level of error remaining in the population after deducting corrections and recoveries made by the JU. This includes the extension of audit results to non-audited financial statements of the audited beneficiaries to correct any systematic errors. The formula for the residual error rate is[68]

$$ResER\% = \frac{(RepER\% * (P-A) - (RepERsys\% * E)}{P}$$

Where:

- ResER% = residual error rate, expressed as a percentage;
- RepER% = representative error rate, or error rate detected in the representative JU sample, calculated as described above;
- RepERsys% = systematic portion of the RepER% (the RepER% is composed of complementary portions reflecting the proportion of systematic and non-systematic errors detected) expressed as a percentage;
- P = total amount of the auditable population relating to accepted JU contributions, expressed in euros;

[67] Based on the Horizon 2020 Ex-post Audit Strategy (2016 – 2025)

[68] idem

- A = total value of audited accepted JU contributions, including risk based audited contributions, expressed in euros;
- E = total non-audited amounts of accepted JU contributions of all audited beneficiaries. This will consist of the total JU's share, expressed in euros, of all non-audited cost statements received for all audited beneficiaries.

The calculation of the error rates is performed on a point-in-time basis, i.e. all the figures are cumulative and provided up to the date of the last sample of which final audit results are available for the error rate calculation.

## Annex 13 – List of projects

Grant agreements signed as of 31 December 2024. Projects whose grant agreements were signed in 2024 are **in bold**.

| Project acronym | Full project title |
|---|---|
| **Accelerate.EU** | **Elevating the future of cancer care with alpha theranostics** |
| AD-RIDDLE | Real-world implementation, deployment and validation of early detection tools and lifestyle enhancement |
| **AutoPIX** | **Imaging for patient benefit in arthritis** |
| CLAIMS | Clinical impact through AI-assisted MS care |
| COMBINE-CT | Combining diagnostic data and interventional approaches for futureproof cardiology care |
| EDENT1FI | European action for the diagnosis of early non-symptomatic type 1 diabetes for intervention |
| **ENKORE** | **Propelling the shift toward the future of circular, safe and sustainable packaging and single use device ecoDesigned solutions through healthcare environments** |
| GRIPonMASH | GRIP on MASH: global research initiative for patient screening on MASH |
| GUIDE.MRD | Guiding multi-modal therapies against MRD by liquid biopsies |
| HEU-EFS | Harmonised approach to early feasibility studies for medical devices in the European Union |
| iCARE4CVD | Individualised care from early risk of cardiovascular disease to established heart failure |
| IDERHA | Integration of heterogeneous data and evidence towards regulatory and HTA acceptance |
| **ILLUMINATE** | **Increasing lutetium production, while leveraging metabolic imaging to enhance theranostics effectiveness** |
| IMAGIO | Imaging and advanced guidance for workflow optimization in interventional oncology |
| IMPROVE | Framework to IMPROVE the integration of patient generated health data to facilitate value based healthcare |
| LIVERAIM | A biomarker-based platform for early diagnosis of chronic liver disease to enable personalized therapy |
| **NHPig** | **Reducing non-human primates in non-clinical safety assessment: The European initiative on minipig and micropig models** |
| PaLaDIn | Patient lifestyle and disease data interactium |
| **PHARMECO** | **Advancing safe and sustainable by design practices in pharmaceutical manufacturing** |
| PREDICTOM | Prediction of Alzheimer's disease using an AI driven screening platform |
| **Project-COMFORT** | **Patient-centric blood sampling for improved healthcare (Project-COMFORT)** |
| PROMINENT | Precision medicine platform in neurodegenerative disease |
| **READI** | **Research in Europe and diversity inclusion** |
| **RealiseD** | **Comprehensive methodological and operational approach to clinical trials in rare and ultra-rare diseases** |
| SASICU | Improving patient outcomes and reducing cognitive load of clinical staff in intensive care through medical-device interoperability and an open and secure IT ecosystem |
| **SEARCH** | **Synthetic healthcare data governance hub** |
| **SYNTHIA** | **Synthetic data generation framework for integrated validation of use cases and AI healthcare applications** |
| **Thera4Care** | **Theranostics ecosystem for personalised care** |

| | |
|---|---|
| **UMBRELLA** | **Unleashing a comprehensive, holistic and patient centric stroke management for a better, rapid, advanced and personalised stroke diagnosis, treatment and outcome prediction** |
| **VICT3R** | **Developing and implementing virtual control groups to reduce animal use in toxicology research** |

### Information on Innovative Medicines Initiative (IMI) projects

Details of all IMI1 and IMI2 projects can be found on the IHI website.

# Annex 14 – List of acronyms

| Acronym | Meaning |
|---|---|
| 3As | Availability, accessibility and affordability |
| 3Rs | Replace, reduce and refine (the use of animals in research) |
| AA | Additional activities |
| ABAC | Accrual Based Accounting System |
| ACT EU | Accelerating Clinical Trials in the EU |
| AD | Alzheimer's disease |
| AD | Atopic dermatitis |
| ADHD | Attention-deficit/hyperactivity disorder |
| ADL | Activities of daily living |
| AF | Atrial fibrillation |
| AI | Artificial intelligence |
| AIVP | Adherence intelligence visualisation platform |
| AMD | Age-related macular degeneration |
| AMED | Japan Agency for Medical Research and Development |
| AMR | Antimicrobial resistance |
| AP | IMI2 Associated Partner |
| API | Active pharmaceutical ingredient |
| ASD | Autism spectrum disorder |
| ATM-AVI | Aztreonam-avibactam |
| ATMP | Advanced therapy medicinal product |
| AURI | Audit result implementation |
| BE | Bronchiectasis |
| BET | Bromodomain and extraterminal domain |
| BMI | Body mass index |
| BMJ | British Medical Journal |
| BMR | Biannual Monitoring Report |
| BOA | Back office arrangements |
| BONO | Biomarkers of Neurodevelopmental Outcome |
| CA | Commitment appropriations |
| CA | Contract agent |
| CAAR | Consolidated Annual Activity Report |
| CA-ARTI | Community-acquired acute respiratory tract infection |
| CADET | Chromatography analysis and design toolkit |
| CAFS | Commission Anti-Fraud Strategy |
| CAJU | Clean Aviation JU |
| CAP | Community-acquired pneumonia |
| CAR | Chimeric antigen receptor |
| CAS | Common Audit Service |

| Acronym | Meaning |
|---|---|
| CBE JU | Circular Bio-based Europe JU |
| cCRESS | Concise composite of relevant endpoints for Sjögren's syndrome |
| CCHFV | Crimean–Congo haemorrhagic fever virus |
| CDER | Center for Drug Evaluation and Research |
| CDISC | Clinical Data Interchange Standards Consortium |
| CDM | Common data model |
| CERT-EU | Computer Emergency Response Team for the Institutions, Bodies and Agencies of the European Union |
| CHIM | Controlled human infection models |
| CHMP | Committee for Medical Products for Human Use |
| CH JU | Clean Hydrogen JU |
| cIAI | Complicated intra-abdominal infections |
| CIC | Common Implementation Centre |
| CM | Consensus gene module |
| COCIR | European Coordination Committee of the Radiological, Electromedical and Healthcare Information Technology (IT) Industry |
| COMPASS | H2020 workflow tool providing harmonisation between business processes & validation workflows |
| COPD | Chronic obstructive pulmonary disease |
| COS | Core outcome set |
| COVID-19 | Coronavirus disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) |
| C-Path | Critical Path Institute |
| CP | IHI Contributing Partner |
| CPA | Crossing priming amplification |
| cRORA | Complete retinal pigment epithelium and outer retinal atrophy |
| CRS | Common representative sample |
| CRS | Cytokine release syndrome |
| CT | Computed tomography |
| CT | Cortical thickness |
| CTIS | Clinical Trial Information System |
| cUTI | Complicated urinary tract infections |
| CV | Curriculum vitae |
| CVB | Coxsackievirus B |
| DARWIN | Data Analysis and Real World Interrogation Network |
| DDIM | Drug development information management |
| DG | Directorate-General |
| DG DIGIT | Directorate-General for Digital Services |
| DG RTD | European Commission Directorate-General for Research and Innovation |
| DG SCIC | Directorate-General for Interpretation |
| DIA | Digital image analysis |
| DICOM | Digital imaging and communications in medicine |

| Acronym | Meaning |
|---|---|
| DKA | Diabetic ketoacidosis |
| DKD | Diabetic kidney disease |
| DMPFC | Dorsomedial prefrontal cortex |
| DMN | Default mode network |
| DMS | Deep mutational scanning |
| DOI | Digital object identifiers |
| DPS | Dynamic purchasing systems |
| DS | Drug-sensitive |
| DTP | Drug-tolerant persister |
| EC | European Commission |
| ECA | European Court of Auditors |
| ECDC | European Centre for Disease Prevention and Control |
| eCDR | electronic Career Development Report |
| ED | Executive Director |
| EDTA | Ethylenediaminetetraacetic acid |
| EDCTP | European and Developing Countries Clinical Trials Partnership |
| EDPS | European Data Protection Supervisor |
| EEG | Electroencephalography |
| EFPIA | European Federation of Pharmaceutical Industries and Associations |
| EFSA | European Food Safety Authority |
| EFTA | European Free Trade Association |
| EHDS | European Health Data Space |
| EHR | Electronic health record |
| EIT | European Institute of Innovation and Technology |
| ELF | European Lead Factory |
| ELF | European Lung Foundation |
| EMA | European Medicines Agency |
| EMBARC | European Bronchiectasis Registry |
| EMSA | Electrophoretic mobility shift assay |
| EPPO | European Public Prosecutor's Office |
| EORTC | European Organisation for Research and Treatment of Cancer |
| EPC | European Pharmacopoeia Commission |
| ePI | Electronic product information |
| EP PerMed | European Partnership for Personalised Medicine |
| ERA | Environmental risk assessment |
| ERDERA | European Rare Disease Research Alliance |
| ERN | European reference network |
| EU | European Union |
| EUAN | EU Agencies Network |
| EU-Rail | Europe’s Rail JU |
| EUREGHA | European Regional and Local Health Authorities |

| Acronym | Meaning |
|---|---|
| EuroHPC JU | European High Performance Computing JU |
| EuropaBio | European Association for Bioindustries |
| EVA | European Virus Archive |
| FAIR | Fraud and irregularity in research |
| FAIR | Findable, accessible, interoperable, reusable |
| FAQ | Frequently asked questions |
| FC | Financial contribution |
| FDA | US Food and Drug Administration |
| FG | Function group |
| FHIR | Fast Healthcare Interoperability Resources |
| FMI | Fluorescence molecular imaging |
| fMRI | Functional magnetic resonance imaging |
| FNIH | Foundation for the National Institutes of Health |
| FOP | Fibrodysplasia ossificans progressiva |
| FP | Full proposal |
| FP7 | Seventh Framework Programme |
| FR | Financial rules |
| FTE | Full time equivalent |
| FWC | Framework contract |
| GB | Governing Board |
| GA | Grant Agreement |
| GAP | Grant Agreement preparation |
| GB | Governing Board |
| GCGH | Grand Challenges in Global Health |
| GDP | Gross Domestic Product |
| GIP | General implementing provisions |
| GLOPAD | Global Paediatric Data Forum |
| H2020 | Horizon 2020 |
| HAP | Hospital-acquired pneumonia |
| HC | Healthy controls |
| HCP | Healthcare provider / healthcare practitioner |
| HD | Huntington’s disease |
| HDT | Host-directed therapeutic |
| HE | Horizon Europe |
| HERA | Health Emergency Preparedness and Response Authority |
| HES | Higher or secondary education establishment |
| HNN 3.0 | Health-NCP-Net 3.0 |
| HR | Human resources |
| HRQOL | Health-related quality of life |
| HTA | Health technology assessment |
| IaaS | Internet as a service |

| Acronym | Meaning |
|---|---|
| IABS-EU | International Alliance for Biological Standardization-Europe |
| iAMD | Intermediate age-related macular degeneration |
| IAS | Internal Audit Service of the European Commission |
| IBD | Inflammatory bowel disease |
| IC | Internal control |
| ICH | International Conference on Harmonisation |
| ICMR | Indian Council of Medical Research |
| ICT | Information and communication technology |
| ICU | Intensive care unit |
| IED | Invasive *Escherichia coli* disease |
| IFN | Interferon |
| IHI JU | Innovative Health Initiative Joint Undertakings |
| IKAA | In-kind contributions to additional activities |
| IKC | In-kind contribution |
| IKOP | In-kind contributions to operational activities |
| IMI1 JU | Innovative Medicines Initiative 1 Joint Undertaking |
| IMI2 JU | Innovative Medicines Initiative 2 Joint Undertaking |
| IMID | Immune-mediated inflammatory disease |
| IPR | Intellectual property rights |
| IR | Implementing rule |
| irAOP | Immune related adverse outcome pathway |
| iRORA | Incomplete retinal pigment epithelium and outer retinal atrophy |
| IT | Information technology |
| ITF | Innovation Task Force |
| JIF | Journal impact factor |
| JTI | Joint Technology Initiative |
| JU | Joint Undertaking |
| KD-CAAP | Kawasaki disease coronary artery aneurysm prevention |
| KIP | Key impact pathway |
| KPI | Key performance indicator |
| LEAP | Longitudinal European Autism Project |
| LFD | Lateral flow device |
| LT | Long-term contract |
| LTCF | Long-term care facility |
| mAb | Monoclonal antibody |
| MASLD | Metabolic dysfunction-associated steatotic liver disease |
| MASH | Metabolic associated steatohepatitis |
| MAT | Monocyte activation test |
| MCI | Mild cognitive impairment |
| MDCG | Medical Device Coordination Group |
| MDD | Major depressive disorder |

| Acronym | Meaning |
|---|---|
| MDR | Multi-drug resistant |
| mHealth | Mobile health |
| MIM | Mutual insurance mechanism |
| ML | Machine learning |
| MM | Multiple myeloma |
| MMV | Medicines for Malaria Venture |
| MoU | Memorandum of Understanding |
| MRC | Medical Research Council |
| MRI | Magnetic resonance imaging |
| MS | Multiple sclerosis |
| MS | (EU) Member State |
| MSCA | Marie Skłodowska-Curie Actions |
| MSI | Mass spectrometry imaging |
| MSM | Multistakeholder meeting |
| MSP AG | Multi-stakeholder Platform Advisory Group |
| Mtb | *Mycobacterium tuberculosis* |
| NAFLD | Non-alcoholic fatty liver disease |
| NASH | Non-alcoholic steatohepatitis |
| NCP | National Contact Point |
| NDD | Neurodegenerative disease |
| NF | Neurofibromatosis |
| NF-L | Neurofilament light |
| NGO | Non-governmental organisation |
| NHMRC | National Health and Medical Research Council |
| NHP | Non-human primate |
| NSCLC | Non-small-cell lung cancer |
| NTM | Non-tuberculous mycobacteria |
| OA | Osteoarthritis |
| OCT | Optical coherence tomography |
| OECD | Organisation for Economic Co-operation and Development |
| OHAMR | European partnership on One Health Antimicrobial Resistance |
| OLAF | European Anti-Fraud Office |
| OMOP | Observational Medical Outcomes Partnership |
| OS | Overall survival |
| PA | Payment appropriations |
| PARC | European partnership for the assessment of risks from chemicals |
| PBPK | Physiologically-based pharmacokinetic |
| PD | Parkinson’s disease |
| PDCoV | Porcine deltacoronavirus |
| PDX | Patient derived xenografts |
| PET | Positron emission tomography |

| Acronym | Meaning |
|---|---|
| PFAS | Per- and poly-fluoroalkyl substances |
| PFS | Progression-free survival |
| PICS | Post intensive care syndrome |
| PM | Private members |
| PoV | Proof of viability |
| PPP | Public-private partnership |
| PPS | Patient preference studies |
| PREM | Patient-reported experience measure |
| PRO | Patient reported outcome |
| PROM | Patient reported outcome measure |
| pSD | primary Sjögren's disease |
| PSTN | Publicly switched telephone network |
| QHL | Qualified hit list |
| R&D | Research and development |
| R&I | Research and innovation |
| RA | Rheumatoid arthritis |
| RAFS | Common Research Family Anti-Fraud Strategy |
| RD | Rare diseases |
| REC | Research organisation |
| RepER | Representative error rate |
| ResER | Residual error rate |
| RIA | Research and Innovation Action |
| RMT | Remote monitoring technologies |
| RPT | Rabbit pyrogen test |
| RRMS | Relapsing-remitting multiple sclerosis |
| rs-fMRI | Resting-state functional magnetic resonance imaging |
| RSV | Respiratory syncytial virus |
| RtO | Right to object |
| RTO | Research and technology organisation |
| RWD | Real-world data |
| RWE | Real-world evidence |
| SA | Surface area |
| SAMIRA | Strategic Agenda for Medical Ionising Radiation Applications |
| SARS | Severe acute respiratory syndrome |
| SBA | Single Basic Act |
| SCD | Subjective cognitive decline |
| SDG | Sustainable Development Goal |
| SDG | Synthetic data generation |
| SEC | Size Exclusion Chromatography |
| SEP | Staff establishment plan |
| SEP | Selection and evaluation phase |

| Acronym | Meaning |
|---|---|
| SEP | H2020 IT tool for submission and evaluation of proposals |
| SESAR 3 JU | Single European Sky ATM [air traffic management] Research 3 JU |
| SGG | Strategic Governing Group |
| SHDMP | Secure HIPPOCRATES Data Management Platform |
| SIP | Science and Innovation Panel |
| SIR | Staff implementing rules |
| SLA | Service level agreement |
| SLA | Structural lung abnormalities |
| SLC | Solute carrier |
| SLE | Systemic lupus erythematosus |
| SME | Small and medium-sized enterprise |
| SNE | Seconded national expert |
| SO | Specific objective |
| SOFIA | Submission of Information Application |
| SOP | Standard operating procedure |
| SP | Short proposal |
| SPECT | Single-photon emission computed tomography |
| SRA | Strategic Research Agenda |
| SRG | States' Representatives Group |
| SRIA | Strategic Research and Innovation Agenda |
| SS | Single stage |
| SSbD | Safe and sustainable by design |
| ST | Short-term contract |
| STAR | Sjögren's Tool for Assessing Response |
| SyGMa | Horizon IT tool for grant management |
| SZ | Schizophrenia |
| T1D | Type 1 diabetes |
| TA | Temporary agent |
| TB | Tuberculosis |
| TB-APEX | TB-Platform for the Aggregation of Preclinical Experiments Data |
| TBEV | Tick-borne encephalitis virus |
| THCS | European partnership on Transforming Health and Care Systems |
| TRL | Technology readiness level |
| TTG | Time to grant |
| TTI | Time to inform |
| TTP | Time to pay |
| TTS | Time to sign |
| UC | Ulcerative colitis |
| VAP | Ventilator-associated pneumonia |
| VE | Vaccines Europe |
| VERA | Virtual Extensive Read-Across |

| Acronym | Meaning |
|---|---|
| VILL-UI | Vision Impairment in Low Luminance utility index |
| WA | White Atrium |
| WHO | World Health Organisation |
| WIDERA | Widening participation and strengthening the European Research Area |
| WSI | Whole slide image |
| WT | Wellcome Trust |

# Annex 15 – Governing Board assessment of the CAAR

## Analysis and Assessment of the Consolidated Annual Activity Report 2024 (CAAR 2024) by the IHI JU Governing Board

Key objectives for 2024 were set out in the Work Programme (WP 2024) and its amendment and included: 1) execution of the **Strategic Research and Innovation Agenda** (SRIA) priorities; 2) ensuring continuity with and management of the **legacy from IMI2 JU**; 3) ensuring **sound budget implementation**; 4) promoting the cross sectorial partnership in health through **proactive outreach strategies** to attract high quality applications and engage with **newcomers**; 5) demonstrating the EU added value of IHI JU through **assertive communication**; 6) exploring **synergies** with relevant programmes at Union, national, and regional level; and, 7) improving and broadening access to project outcomes by embedding **dissemination** and **exploitation** activities in all stages of the project lifecycle.

The Governing Board recognises **the progress made by the JU** towards achieving these objectives and notes that during the course of 2024, **IHI completed its third full year of operations**. The IHI Programme Office continued to refine its call development, evaluation and grant award framework, along with developing and improving relevant templates and guidance documents.

### Overview of IHI achievements in 2024:

- Expansion of the IHI portfolio with the **signing of grant agreements for 14 new projects** bringing the IHI total to 30 projects and the IMI1+IMI2+IHI portfolio to 212 projects.
- **Launch of three calls for proposals** (IHI calls 6, 7 and 8) with a total of 10 topics.
- **Finalisation of the text of IHI call 9**, which pilots an **applicant-driven approach**.
- Implementation of the portfolio of **legacy projects** launched under **IMI and IMI2 programmes** with many project results being taken up and integrated into activities, products and services, and securing regulatory endorsements.
- A positive final external **evaluation of IMI2** and **mid-term evaluation of IHI** confirming the need for a public-private partnership in health like IMI/IHI.

**IMI and IMI2 project achievements:**

In 2024, **IMI projects** continued to deliver **impactful results,** including tools for improving and accelerating the drug development process, developing diagnostic and biomarkers for diagnosis, monitoring disease progression and treatment response for diseases where there is high unmet need, including **Alzheimer's** and **kidney disease.** The projects also continued to deliver **knowledge** and **resources** used by the **wider research community** and **shape the European health research ecosystem** with several consortia collaborating and publishing new papers in **long-lasting, productive networks** after the formal project end.

The projects deliver outstanding outputs, leading to uptake of results in research processes, regulatory and clinical practice. **Success stories** of IMI projects[69] range from the **EU market authorisation** of EMBLAVEO® to fight infections due to **antibiotic-resistant bacteria**, through the endorsement of a new method for evaluating the severity of **Alzheimer's disease** by the European Medicines Agency, to the validation by "**VAC2VAC**" of a **non-animal test** for verifying the presence of certain contaminants in vaccine

[69] IHI website: https://www.ihi.europa.eu/projects-results

batches. This latter achievement helped convince the European Pharmacopoeia Commission to eliminate the rabbit pyrogen test from its monographs.

Other **key achievements** include the publication of a series of recommendations on how to speed up the regulatory process in the EU for approving **cell and gene therapies** ("T2EVOLVE") and the development of a controlled human infection model of **pertussis (whooping cough)** and using it in a clinical trial of a nasal vaccine ("PERISCOPE").

Since the start of the IMI2 programme, projects have been **patenting developed technologies**. From the beginning of IMI2 until 31 December 2024, 10 patent/trademark/registered design applications were submitted and 14 patents/trademarks awarded.

**IHI project highlights:**

Contributing to the EU's long-term goal of **replacing, reducing and refining the use of animals in research** (the '3Rs' principle), the new IHI project "**VICT3R"** aims to significantly limit animal use in standard safety studies by using existing data and artificial intelligence to create virtual control groups.

Other additions to the IHI project family include "**RealiseD**" to deliver tools and resources to facilitate the set-up and conduct of **trials for rare and ultra-rare diseases** while minimising the burden for patients and "**ENKORE",** which seeks to develop an eco-design framework for single use **medical devices** and their packaging to support the delivery of products that are both safe for patients and **environmentally responsible**.

In 2024, **three new calls for proposals** were launched. IHI call 6 (two-stage) included topics on treatment persistency and the use of real-world data and evidence; IHI call 7 (single-stage) included topics on heart disease, the healthcare workforce, and biomarker validation; and, IHI call 8 (two-stage) included topics on cardiovascular disease, osteoarthritis, regulatory sandboxes, and patient-centered endpoints.

**Following is a selection of other activities carried out in 2024:**

- Early publication and continuous **promotion of call topics,** participation in outreach **external events** to promote IHI (e.g. MedTech Forum, BIO Europe), organisation of **thirteen webinars** as part of the **IHI info days for calls 6-8** and a **face-to-face Brokerage Event for applicant-driven call 9**.
- Publication of **38 news articles** on individual project success stories and contribution to the **second Biannual Monitoring Report (BMR),** which monitors the performance of all partnerships under Horizon Europe.
- Preparation for the launch of a **pilot applicant-driven call for proposals** (IHI call 9) featuring five topics each aligned with one of the five specific objectives of the Strategic Research and Innovation Agenda.
- In 2024, IHI founding members discussed revisions to the **IHI JU phasing-out plan**, notably on elements related to strategic alignment and financial sustainability of the joint undertaking beyond the duration of the Union's participation under Horizon Europe.
- **Back-office arrangements** (BOA) in the area of **ICT** were formally adopted with IHI as co-lead. IHI JU continued to exercise the back-up role for the **HR BOA** maximising synergies and economies of scale with the other JUs.

- The organisation of IHI's first **Regulatory Science Summit** in February 2024, which provided a forum to discuss how IHI projects can help overcome current regulatory challenges and contribute to regulatory science.
- The revision of procedures and guidance documents to provide clarity and legal certainty to potential applicant **contributing partners**.
- The **Internal Audit Service** completed a performance **audit** concluding that IHI fulfilled its objectives and tasks as regards the call topic development process and stakeholder relations.
- The **European Court of Auditors** published its 'Annual report on the EU Joint Undertakings for the financial year 2023', issuing an **unqualified ('clean') opinion** on the reliability of the accounts as well as on the legality and regularity of the revenue and payments underlying the annual accounts.
- IHI JU continued to execute its budget applying the principles of **sound financial management**.

**The Governing Board recognises the implementation of IHI and notes in particular that:**

- The new Executive Director took up office on 16 January 2024.
- The grant agreements signed during 2024 for 14 new projects address a wide range of health research challenges and cover all five specific objectives set out in the Strategic Research and Innovation Agenda (SRIA).
- IHI hit the 200-project milestone showing the strength of the public-private partnership approach pioneered by IMI and built on by IHI.
- IHI JU's total budget for 2024 was EUR 269 779 145 in commitment appropriations and EUR 205 697 059 in payment appropriations. The budget execution of the commitment appropriations and the payment appropriations reached 65.56% and 94.63% respectively.
- The significant portion of IHI's unused budget (EUR 71 211 094)70 was carried over from the first three Horizon Europe calls for proposals launched in 2022. The ability to use these carry overs has been complicated and exacerbated by the ineligibility of UK entities to receive pre-2024 funding as UK's association to Horizon Europe applies from January 1st, 2024. IHI JU is actively working with the European Commission to identify potential solutions to consume these carry overs.
- As the IHI portfolio continues to grow, ensuring the long-term uptake of project outcomes while deepening connections with important societal actors such as regulatory authorities, regional health organisations and health technology assessment bodies will be key to support the long-term evolution of European health and care.
- The States Representatives Group (SRG) and Science and Innovation Panel (SIP) are important advisory bodies and continue to provide valuable input on IHI activities and future direction.
- To contribute towards staff well-being, IHI fully implemented the European Commission's decision on working time and hybrid working and conducted a staff survey to assess the impact of the new ways of working.
- IHI's strong focus on maintaining gender and geographical balance. In 2024, 69% of the staff were women. The IHI management team is equally balanced, with 50% women and 50% men.
- A full list of GB decisions adopted in 2024 can be found on the IHI website as well as on the GB platform. In the spirit of transparency, other documents are made public on the IHI website such as the agendas of the Science and Innovation Panel and States Representatives Group meetings, annual IHI activity reports and work programmes, and budgetary and financial management reports.

[70] Budget figure on 24 April 2025.

## Assessment

The declaration of the Executive Director and the Consolidated AAR 2024 give a **good assessment** (clear, unambiguous, congruous) of operational and financial management in relation to the achievement of objectives, and the legality and regularity of the **financial operations** of the JU in the year 2024.

The Governing Board notes that the management of the JU has reasonable **assurance** that, overall, **suitable controls** are in place and working as intended, **risks** are being appropriately assessed, monitored and mitigated, and necessary process improvements and reinforcements recommended by the auditors are being implemented.

The Governing Board notes the implementation of the IHI programme in alignment with **Strategic Research Agenda** priorities, bringing together the different stakeholders involved in health research, fostering cross-project collaboration while focusing on **high unmet medical and societal needs**.

Therefore, the IHI JU Governing Board hereby adopts this analysis and assessment of the Consolidated AAR 2024 of the authorising officer. This analysis and assessment will be included in the Consolidated AAR 2024.

Done at Brussels, on

For the Innovative Health Initiative Joint Undertaking,

**Nathalie Virag**
Chairperson of the Governing Board

# Contact

Tel +32 (0)2 221 81 81
infodesk@ihi.europa.eu

**Postal address:**
IHI JU - TO56
1049 Brussels – Belgium

**Visiting address:**
Ave de la Toison d'Or 56-60
1060 Brussels – Belgium